HARYANA P.W.D.

SCHEDULE OF RATES

H.S.R.

2021

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PREFACE

CHAPTER NO. 1

WAGES
and
WORKING CHARGES of MACHINERY

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CHAPTER 1.0 - WAGES and PLANT & MACHINERY

NOTES :

1. State Govt. Department of Labour under the Minimum Wages Act w.e.f. 01.09.2020 and the wages notified by the O/o Deputy Commissioner.

2. No child labour shall be deployed.

3. Labour deployed for using Bullock Cart, Camel Cart, Donkey, Boats has been deleted.

4. All classes of labour, which are likely to be employed in any branch of the Public Works Department have been included in this chapter. The terms and conditions as notified under Minimum Wages Act are applicable. These rates are exclusive of GST, labour cess, contractor's profit and overhead expenses but inclusive of weekly rest.

5.These Labour rates shall be adopted for analyzing the rates for various items of work.

6. Hire charges of machinery are based on the market rates as gathered in the year 2020– 2021. The rates include all the operational and maintenance charges such as cost of fuels, lubricants, stores, establishment, depreciation and interest charges.

7. In case machinery is provided by the department, the cost/charges/rentals as in the chapter, shall be recovered from the contractor.

8. The rates are for estimation purposes and not for hiring of private machinery from the market for which competitive tenders/quotations shall be called and approval of the appropriate competent authority shall be obtained.

9. These rates are exclusive of GST, contractor's profit, labour welfare cess.

	CHAPTER 1.0- WAGES AND WORKING CHARGES OF MACHINERY		
	A. LABOUR		
	Note :-These rates are exclusive of GST, contractor's profit and over heads		
Unique Code	**Description**	**Unit**	**Rate (INR)**
LB001	Bandhani	day	436
LB002	Bhisti	day	358
LB003	Blacksmith 1st class	day	376
LB004	Blacksmith 2nd class	day	358
LB005	Carpenter 1st class	day	376
LB006	Carpenter 2nd class	day	358
LB007	Chowkidar	day	376
LB008	Beldar	day	358
LB009	Coolie	day	358
LB010	Fitter (grade 1)	day	376
LB011	Assistant Fitter or 2nd class Fitter or Fitter (grade 2)	day	358
LB012	Mali (Semi-Skilled)	day	395
LB013	Glazier	day	376
LB014	Mason (for plaster of paris work) 1st class	day	458
LB015	Mason 1st class	day	458
LB016	Mason 2nd class	day	415
LB017	Mason (for plain stone work) 2nd class	day	415
LB018	Mason (for ornamental stone work) 1st class	day	458
LB019	Driver for (Road roller, concrete mixer, Trucks etc.)	day	458
LB020	Mate	day	358
LB021	Sewer man	day	358
LB022	Mistry	day	376
LB023	Painter 1st class	day	376
LB024	Rock Excavator	day	358
LB025	Rock Breaker	day	358
LB026	Rock Hole Driller	day	358
LB027	Stone Chiseler	day	358
LB028	Sprayer (for bitumen, tar etc.)	day	358
LB029	Skilled Beldar (for floor rubbing etc.)	day	358
LB030	White Washer	day	358
LB031	Nozzel man/ gun man	day	376
LB032	Mason (average)	day	415
LB033	Carpenter (average)	day	358
LB034	Operator (Pile/ Special machine)	day	358
LB035	Skilled torch operator for laying tack	day	358
LB036	Technician	day	415
LB037	Helper (Technician)	day	358
LB038	Security guard without gun (8 hours shift duty per day)	day	436
LB039	Security guard with gun (8 hours shift duty per day)	day	458
LB040	Fitter Beldar	each	358
LB041	Tailor 2nd Class	each	358
LB042	Pump Operators	day	358
LB043	Helper / Chowkidar	day	358
LB044	Electrician	day	250
	IRRIGATION LABOUR		
LB045	Dresser	each	358
LB046	Skilled staff for operating DGPS/Drone for surveying	per day	1000
	HORTICULTURE LABOUR		
LB047	Mali	each	395
LB048	Mali for maintenance	per	10274
LB049	Skilled surveying helper	per day	415
LB050	Total Station Surveyor	per day	766
	ELECTRICAL LABOUR		
LB051	Wireman	day	376
LB052	Cable jointer	day	376

LB053	Lineman	day	376
LB054	Khallasi	day	358
LB055	Welder	day	376
	Job Charges		
JB001	Fabrication of uPVC extruded casement/ sliding windows and doors including drilling holes,	sqm	350
JB002	Installation of uPVC extruded casement/ sliding windows and doors including scaffolding	sqm	350
JB003	Fixing of self-supported arch shaped galvalume/ Zincalume steel sheet roofing including	sqm	150
JB004	Fixing Hi Rib sheets	sqm	30
JB005	Grinding of granite i/c hiring charges of griding/moulding machine.	metre	150
	Horticulture Works		
JB006	Preliminary Watering charges	1000	5
JB007	Ploughing and Dragging swahga with tractor	per day	5000
JB008	Rolling or ramming of ground turf	sqm	1
	PHED Works		
JB009	Repair of Gen. Set if required immediately	per job	500
JB010	Rate of boring 100mm i/d well point	per metre	60
JB011	lowering and dismantling of lower pipe complete in all respects	metre	20

	B. HIRE CHARGES OF PLANTS & MACHINERY		
Unique Code	**Description**	**Unit**	**Rate (INR)**
PM001	Hire charges of Concrete Mixer 0.25 to 0.40 cum with Hopper	day	800
PM002	Hire charges of Diesel Road Roller - 8 to 10 tonne	day	3000
PM003	Production cost of concrete by batch mix plant	cum	350
PM004	Hire charges of Diesel Truck - 9 tonne	day	2000
PM005	Hire charges of Spraying machine including electric charges	day	250
PM006	Pumping charges of concrete including Hire charges of pump, piping work & accessories	cum	210
PM007	Hire charges of Derrick monkey rope	day	750
PM008	Hire charges of Pump set of capacity 4000 litres/hour	day	700
PM009	Vibrator (Needle type 40 mm)	day	370
PM010	Machine for rubbing of floors	day	300
PM011	Hire and running charges of tipper	day	1700
PM012	Hire and running charges of loader	day	5000
PM013	Hand Grinder for mirror polish	day	250
PM014	Hydraulic Excavator (3D) with driver and fuel	day	7000
PM015	Hire and running charges of light crane	day	3000
PM016	Hire and running charges of bentonite pump	day	3500
PM017	Hire and running charges of crane 20 tonne capacity	day	7000
PM018	Carriage of concrete by transit mixer	km/cum	30
PM019	Generator 250 KVA	day	*2500*
PM020	Steam curing by using boiler /Heater	cum	500
PM021	Stressing Machine (jack with pump)	day	11500
PM022	Cutting saw machine	day	1350
PM023	Strands Roller machinery for laying strands	day	*3500*
PM024	Bed master (Pulling strands)	day	*3000*
PM025	Mobile crane	day	7500
PM026	Tractor with trolley	day	1350
PM027	Air compressor 250 cfm with two leads for pneumatic cutters / hammers	day	1600
PM028	Joint cutting machine with 2-3 blades	day	800
PM029	Cost for crane upto 40 tonne capacity	day	8000
PM030	Water tanker 5000 litre	day	1000
PM031	Air compressor	hour	200
PM032	Cost for crane upto 80 tonne capacity	day	15000
PM033	Concrete Paver finisher with 40 HP Motor and sensor	hour	3000
PM034	Generator 100 KVA/125 KVA (without fuel)	hour	250
PM035	Cost for crane having capacity 50MT	day	8500
PM036	Excavation of Diaphragm wall by Mechanical Grab	sqm	1300
PM037	Hire charges of diesel truck - 9 tonne (witout POL)	day	1500
PM038	Using cost of Ultra Violet Radiation tube	hour	189
PM039	Compressor, gun, rubber pipes & other accessories- hire charge of plant & machinery i/c	day	4000
PM040	Hire Charges of Suction Jeting machine 2200 PSI machine i/c POL and operator	day	36000
PM041	Hire charges of Drill machine upto 30 mm dia	day	160
PM042	Hire charges of sand blasting equipment	day	160
PM043	Hire charges of compressor	day	420
PM044	Welding charges of shear key to existing reinforcement	each	2
PM045	Hire charges of plant and Machinery that can inject 350 kg/day	day	200
PM046	Hire charges for spray pump (Horticulture)	hour	20
PM047	Hire charges brush cutter	hour	100
PM048	Hiring of tractor with shrub master	hour	450
	Note :- 1. Above hire - charges include cost of services of operating staff, Cost of lubricating oil, diesel / Petrol/ Kerosene oil , other consumables for running the plant and machinery and excluding GST. 2. The hire charges of plant machinery on per day basis are for single shift of eight working hours.		
	Hiring instruments for Irrigation works		
PM049	Hire charges of DGPS	per day	2000
PM050	Transport Vehicle i/c fuel	per day	1500

PM051	Lodging Boarding charges for skilled staff	per day	1500
PM052	Hire charges Drone	per day	12000
PM053	Processing of data and printing of drawings	per km	3500
PM054	Hire charges of Total Station and DGS	per day	2000
PM055	Hire charges for JCB with bucket capacity of 0.4 cum with fuel and driver	per day	6000
PM056	Hire charges for JCB with bucket capacity of 0.4 to 0.75 cum with fuel and driver	per day	8000
PM057	Hire charges for JCB with bucket capacity more than 0.75 cum with fuel and driver	per day	10000
PM058	Hire charge of stitching machine	per day	50
PM059	Hire charge of manual trolley	par day	100
PM060	Hire charge of generator 3 KVA	per hour	40
PM061	Hire charge of 40 quintal. Boat	per day	1400
PM062	Hiring & Running Charges of Electric Cutter	per day	150
PM063	Runing charge of pump (3.5 kilolitre)	per kilolitre	80

CHAPTER NO. 2

BASIC RATE
OF
MATERIALS

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2.0 : BASIC RATE OF MATERIALS

NOTES :-

1. These rates are exclusive of GST, contractor's profit, over heads, labour cess and carriage etc.

2. The rates of these items as given in the Schedule of Rates include the cost of land and water. Where land and water are given free of cost as in case of canal lining works in the Department of Water Resources or any other department, the rates shall be suitably reduced.

3. Rates given in this chapter are at the source of supply and do not include carriage to the site of work. In case of deviation from this practice has been made, it has been specifically mentioned in the description of the item.

4. The rates for stone, bajri, crushed aggregates, sand etc., include royalty and malkana / cost payable to the owner and nothing extra is payable over and above the rates for these items. The rates for Tor Steel/Structural Steel provided in this chapter are for ISI marked steel.

5. Paints: - In case of paints, rates for branded paints such as Nerolac, Asian, Berger and equivalent classes have been provided.

6. Measurement of materials: - While making measurements for supply of materials like boulder, aggregate, etc., suitable deduction for voids shall be made as per PWD Specifications, CPWD Specifications and MORT&H specifications.

	CHAPTER 2.0 - BASIC RATE OF MATERIALS		
Unique Code	Note: These rates are exclusive of GST, contractor's profit and over heads and carriage etc.	Unit	Rate (INR)
	Building Materials		
B0001	Blasting powder	kg	40
B0002	Blasting fuse (fuse wire)	each	15
B0003	Safeda ballies 125 mm diameter	metre	40
B0004	Hollock ballies 125 mm diameter	metre	35
B0005	Fly ash	cum	10
B0006	Kerosene oil	litre	50
B0007	Diesel	litre	57
B0008	Petrol	litre	61
B0009	Mobil oil	litre	250
B0010	Chlorpyriphos 20% E.C. / Lindane 20% E.C.	litre	170
B0011	Brick Aggregate (Single size) : 20 mm nominal size	cum	650
B0012	Brick Aggregate (Single size) : 40 mm nominal size	cum	650
B0013	Brick Aggregate (Single size) : 63 mm nominal size	cum	650
B0014	Over burnt (Jhama) Brick Aggregate: 90 mm to 40 mm size	cum	480
B0015	Stone Aggregate (Single size) : 63 mm nominal size	cum	800
B0016	Stone Aggregate (Single size) : 50 mm nominal size	cum	800
B0017	Stone Aggregate (Single size) : 40 mm nominal size	cum	800
B0018	Stone Aggregate (Single size) : 25 mm nominal size	cum	800
B0019	Stone Aggregate (Single size) : 20 mm nominal size	cum	800
B0020	Stone Aggregate (Single size) : 12.5 mm nominal size	cum	800
B0021	Stone Aggregate (Single size) : 10 mm nominal size	cum	800
B0022	Stone Aggregate (Single size) : 06 mm nominal size	cum	800
B0023	Paving bitumen of grade VG-10 of approved quality	tonne	32000
B0024	Bitumen grade PMB - 40	tonne	32500
B0025	Blown type petroleum bitumen of penetration 85/25 of approved quality	tonne	32500
B0026	Bitumen hot sealing compound : grade A	kg	28
B0027	Bitumen solution primer of approved quality	litre	45
B0028	Curing compound	litre	38
B0029	Portland Cement (OPC-43 Grade)	tonne	4940
B0030	Coal (steam)	quintal	440
B0031	Cement Concrete Jali 50 mm thick	sqm	400
B0032	Cement Concrete Jali 40 mm thick	sqm	350
B0033	Cement Concrete Jali 25 mm thick	sqm	275
B0034	Copper plate	kg	527
B0035	Unslaked lime	quintal	300
B0036	Coarse sand (zone III)	cum	900
B0037	Fine sand (zone IV)	cum	900
B0038	Tangri river sand including cost of royality	cum	900
B0039	Sand zone V (Jamuna)	cum	900
B0040	Average rate of Mild steel round bars for reinforcement	quintal	4900
B0041	Twisted steel/ deformed TMT bars Fe-500D	quintal	5000
B0042	Bolts and nuts up to 300 mm in length	quintal	4800
B0043	Bolts and nuts above 300 mm in length	quintal	5100
B0044	Surkhi	cum	600
B0045	Welding by electric plant	cm	2
B0046	Hard drawn steel wire	quintal	5500
B0047	Mild steel flat strap fitting	quintal	5020
B0048	Plum	cum	600
B0049	50 mm thick interlocking paver blocks (M-30)	sqm	360
B0050	60 mm thick interlocking paver blocks (M-30)	sqm	400
B0051	80 mm thick interlocking paver blocks (M-35)	sqm	500
B0052	100 mm thick interlocking paver blocks (M-35)	sqm	560
B0053	Strips-Aluminium fluted 3.15 mm thick and 150 mm wide	metre	278
B0054	Strips Aluminium fluted 3.15 mm thick and 200 mm wide	metre	370
B0055	1 mm thick Stainless Steel Cover plate grade 304	kg	275
B0056	Coupler 16 mm dia	each	30
B0057	Coupler 20 mm dia	each	39
B0058	Coupler 25 mm dia	each	70

B0059	Coupler 28 mm dia	each	80
B0060	Coupler 32 mm dia	each	110
B0061	Complete Roof Joint of 100 mm	metre	2800
B0062	Complete Roof Joint of 150 mm	metre	3200
B0063	Complete Roof Joint of 200 mm	metre	4000
B0064	Epoxy adhesive	kg	150
B0065	Floor Joint of 100 mm	metre	3100
B0066	Floor Joint of 150 mm	metre	4000
B0067	Floor Joint of 200 mm	metre	5400
B0068	Wall Joint of 100 mm	metre	2400
B0069	Wall Joint of 150 mm	metre	2800
B0070	Wall Joint of 200 mm	metre	3400
B0071	Bentonite of 35 kg per pile	tonne	2960
B0072	Plasticizer / super plasticizer	kg	36
B0073	Wall form panel 1250x500 mm	each	860
B0074	Tie bolt 12 mm dia 100 mm length	each	38
B0075	Tie bolt 12 mm dia 150 mm length	each	48
B0076	Tie bolt 20 mm dia 150 mm length	each	57
B0077	Tie bolt 20 mm dia 225 mm length	each	67
B0078	Spring coil 12 mm	each	15
B0079	Plastic cone 12 mm dia	each	17
B0080	Corner angle 45x45x5 mm 1.50 m long	each	240
B0081	Corner angle 45x45x5 mm 2.50 m long	each	255
B0082	100 mm channel shoulder 2.5 m long	each	910
B0083	Double clip (bridge clip)	each	76
B0084	Single clip	each	59
B0085	M.S. tube 40 mm dia	metre	215
B0086	Wall form panel 1250x450 mm	each	860
B0087	Column clamp 450x1070 mm	each	965
B0088	Prop 2 m (2-3.5 m)	each	635
B0089	Adjustable span ESO+SI (2.35-3.40)	each	1480
B0090	Adjustable telescopic prop 3 m (2.02-3.75 m)	each	955
B0091	Beam clamp 300-380 mm (450-1070 mm)	each set	355
B0092	Prop 4 m	each	910
B0093	Double coupler	each	46
B0094	Water proof ply 12 mm thick	sqm	517
B0095	Stop end tubes for diaphragmwall 600 mm dia.	sqm	5
B0096	Driving end tubes for diaphragm wall 600 mm dia.	sqm	72
B0097	Seam bolts and nuts 6 mm dia and 25 mm long	10 nos.	10
B0098	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement corrugated sheet 6	sqm	225
B0099	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement close fitting	metre	210
B0100	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement corrugate serrated	metre	210
B0101	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement plain wing	metre	210
B0102	Fibre (high impact poly propelene reinforced) cement unserrated adjustable ridge for hips	metre	210
B0103	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement corrugated apron	metre	200
B0104	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement eaves filler piece	each	175
B0105	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement north light curves	metre	280
B0106	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement ventilator curves	each	310
B0107	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement barge boards	metre	400
B0108	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement ridge finial	pair	165
B0109	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement special north light	each	555
B0110	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement S type louvers	each	260
B0111	Multi purpose fibre reinforced by organic fibres and/or inorganic synthetic fibres cement board	sqm	210
B0112	Multi purpose fibre reinforced by organic fibres and/or inorganic synthetic fibres cement board	sqm	220
B0113	6 mm thick heavy duty fiber cement board	sqm	470
B0114	8mm thick heavy duty fiber cement board	sqm	300
B0115	9 mm thick heavy duty fiber cement board	sqm	625
B0116	12.5 mm thick Gypsum plaster board	sqm	170
B0117	6 mm thick mulitipurpose cement bonded wood particle board conforming to IS : 14276	sqm	195
B0118	8 mm thick mulitipurpose cement bonded wood particle board conforming to IS : 14276	sqm	215
B0119	Factory made light weight composite non asbestos fibre reinforced aerated cement	sqm	634
B0120	Factory made light weight non asbestos fibre reinforced aerated cement sandwitched	sqm	789

B0121	2mm thick sim pad	each	10
B0122	5mm thick sim pad	each	15
B0123	10mm thick sim pad	each	25
B0124	Bajri	cum	900
B0125	Bamboo 25 mm dia 2.5 metre long	score	1000
B0126	Bamboo 25 mm dia 3.0 metre long	score	1200
B0127	Bhusa	quintal	500
B0128	Bitumen felt fibre base (vegetable or animal):As per IS 7193 Grade I	sqm	70
B0129	Bitumen felt :Type 3 grade 1	sqm	70
B0130	Coal Tar	litre	28
B0131	White face insulating board: 12 mm thick	sqm	235
B0132	Natural colour insulating board: 12 mm thick	sqm	210
B0133	Flame retardant face insulating board: 12 mm thick	sqm	320
B0134	Flame retardant face insulating, Impregnated fibre board 12 mm thick	sqm	375
B0135	Flat pressed 3 layer particle board (medium density) Grade 1, 12 mm thick	sqm	288
B0136	Extra for veneered particle board with Teak veneering on one side and commercial veneering	sqm	230
B0137	Extra for veneered particle board with Commercial veneering on both sides	sqm	155
B0138	Extra for veneered particle board with Teak veneering on both sides	sqm	500
B0139	Integral crystalline slurry	kg	238
B0140	Integral crystalline admixture	kg	272
B0141	Crystalline mortar	kg	215
B0142	Integral crystalline dry shake	kg	360
B0143	Swellable type water stop tape	metre	365
B0144	Primer for swellable type water stop tape	litre	1540
B0145	Polymer modified adhesive mortar	kg	15
B0146	Brick bats	cum	450
B0147	White Cement	tonne	11200
B0148	Marble dust/ powder	cum	1130
B0149	Mud (dry)	cum	165
B0150	Through and bond stone	100 nos.	5000
B0151	Stone for masonry work	cum	1100
B0152	Stone for pitching 15 cm x 22.5 cm	cum	600
B0153	Stone dust	cum	1000
B0154	Common burnt clay F.P.S. (non modular) bricks class designation **7.5**	1000 nos.	6600
B0155	Common burnt clay modular bricks class designation **7.5**	1000 nos.	6600
B0156	Common burnt clay F.P.S. (non modular)bricks tile class designation 10	1000 nos.	6600
B0157	Common burnt clay modular bricks class designation 12.5	1000 nos.	6600
B0158	F.P.S. (non modular) clay fly ash bricks class designation 7.5	1000 nos.	5000
B0159	Fly ash bricks conforming to I.S. 12894	1000 nos.	4500
B0160	Extruded burnt flyash clay sewer bricks conforming to I.S 4885	1000 nos.	5400
B0161	Calcium Silicate Bricks machine moulded conforming to I.S. 4139	1000 nos.	5400
B0162	Machine moulded perforated common burnt clay FPS (non modular) bricks of class	1000 nos.	6600
B0163	Machine moulded common burnt clay FPS (non modular) bricks of class designation 12.5	1000 nos.	6600
B0164	Machine moulded common burnt clay modular perforated bricks of class designation 12.5	1000 nos.	6600
B0165	Machine moulded common burnt clay tile bricks of class designation 12.5	1000 nos.	6600
B0166	Fire Bricks	100 nos.	3818
B0167	Fire Cement	tonne	1850
B0168	RCC Jali 25mm thick	sqm	400
B0169	Autoclaved aerated cement (AAC) blocks	cum	2500
B0170	Decorative plywood 4 mm	sqm	320
B0171	Copper pins 6 mm dia 7.5 cm long	each	10
B0172	Red sand stone block	10 cudm	79
B0173	Red sand stone slab 30 mm thick (un-dressed)	sqm	200
B0174	Red sand stone slab 40 mm thick (un-dressed)	sqm	200
B0175	Red sand stone slab 45 mm to 50 mm thick (un-dressed)	sqm	225
B0176	Red sand stone gang saw cut 30 mm thick	sqm	400
B0177	White sand stone slab 40 mm thick (un-dressed)	sqm	200
B0178	White sand stone slab 75 mm thick (un-dressed)	sqm	900
B0179	Kota stone slab 20 mm to 25 mm thick (semi-polished)	sqm	280
B0180	Kota stone slab 25mm thick (rough chiseled)	sqm	260
B0181	Cutting marble or sand stone slab up to 50 mm thick by mechanical device	metre	10
B0182	15 mm thick Unistone tiles	sqm	700
B0183	Granular sand particles mixed with araldite pasted on each side to form interlocking	sqm	45

B0184	Weather Sealant - Non Staining (600 ml)	each	325
B0185	Weather Sealant - Normal (300 ml)	each	98
B0186	MS Brackets/Aluminium Alloy Brackets	kg	100
B0187	Silicon Gasket in kg (Above 50 g / m)	kg	465
B0188	EPDM Gasket in kg (Above 60 g / m)	kg	150
B0189	Anchor Fastner - M10	each	10
B0190	SS Bolt with washer of different sizes for structural glazing / ACP Cladding	each	35
B0191	SS Screws of sizes for structural glazing / ACP Cladding	each	3
B0192	Protective Tape	metre	20
B0193	GI flashing - 1.2 mm Thick	kg	59
B0194	4 mm thick ACP	sqm	1100
B0195	8 mm thick granite stone tiles (mirror polished of all shades)	sqm	700
B0196	8 mm thick marble tiles (polished) Raj Nagar	sqm	400
B0197	Rawl plug 50 mm (designation 10 No.)	each	25
B0198	Table rubbed polished stone 18 mm thick (75x50cm) Agaria Marble stone - 18 mm thick	sqm	1620
B0199	Table rubbed polished stone 18mm thick (75x50cm) Granite stone-18 mm thick	sqm	1620
B0200	Granite of any colour, 18 mm thick (slab area upto 0.50 sqm)	sqm	1500
B0201	Granite of any colour, 18 mm thick (slab area above 0.50 sqm)	sqm	1700
B0202	Expandable fastener with plastic sleeve and M.S. screws : 25 mm long	each	10
B0203	Expandable fastener with plastic sleeve and M.S. screws : 32 mm long	each	10
B0204	Expandable fastener with plastic sleeve and M.S. screws : 40 mm long	each	13
B0205	Expandable fastener with plastic sleeve and M.S. screws. 50 mm long	each	14
B0206	Gun metal cramp	kg	315
B0207	Cramp Gun metal 25x6x300 mm	each	80
B0208	Stainless steel cramp	kg	290
B0209	Wedge expansion hold fastener 1/4" or 6 mm	each	11
B0210	Wedge expansion hold fastener 3/8" or 10 mm	each	11
B0211	Wedge expansion hold fastener 1/2" or 12 mm	each	27
B0212	8mm thick (mirror polished tiles machine cut edge) Raj Nagar white	sqm	500
B0213	Raj nagar plain white marble (table rubbed and polished) 18 mm thick (slab area upto 0.50	sqm	575
B0214	Raj nagar plain white marble (table rubbed and polished) 18 mm thick (slab area more than	sqm	600
B0215	Soffit cleat (Size 27x37x25x1.60 mm)	each	4
B0216	Stainless steel cramps(weight 260 grams) with nuts, bolts and washer for dry stone cladding	each	100
B0217	8 mm thick Calcium silicate perforated tiles of size 595 x595 mm	sqm	833
B0218	Pig lead	kg	130
B0219	Plug	each	10
B0220	Standard holder bat clamps for sand cast iron or cast iron pipes 150 mm dia	each	45
B0221	Sand Cast iron plain shoe 150 mm dia	each	285
B0222	Galvanised steel plain sheets	quintal	5500
B0223	Standard quality hard board sheet 3 mm thick	sqm	135
B0224	Standard quality hard board sheet 4.5 mm thick	sqm	210
B0225	Galvanised steel bolts & nuts 6 mm dia and 25 mm long round head with slots	10 nos.	38
B0226	Galvanised steel bolts & nuts 10 mm dia and 125 mm long round head with slots	each	9
B0227	Galvanised steel bolts & nuts 10 mm dia and 27 cm long both sides threaded with 4	each	20
B0228	Galvanised steel bolts 10 mm dia and 7 cm long with nuts	each	6
B0229	Galvanised steel J or L hooks 8 mm dia	10 nos.	120
B0230	Mild steel bolts 6 mm dia and 25 mm long with hexagonal head	10 nos.	10
B0231	Erection Bolts (Minimum 04 No. for each element)	each	25
B0232	Precast heat resistant terrace tiles (size 300x300 mm) and 20 mm thick	sqm	409
B0233	G.I. Limpet washer	100 nos.	21
B0234	Bitumen washer	100 nos.	30
B0235	G.I. plain washer thick	100 nos.	35
B0236	G.I. plain washer thin	100 nos.	21
B0237	G.I. plain washer for seam bolts	100 nos.	32
B0238	Water proofing materials	kg	35
B0239	PVC Bend 100 dia	each	60
B0240	PVC Bend 150 dia	each	120
B0241	100 mm dia PVC pipe	metre	130
B0242	150 mm dia PVC pipe	metre	250
B0243	Mangalore Tile 200mmx125mmx10mm	each	4
B0244	Rib profiled galvalume/ Zincalume steel sheet	kg	70
B0245	Galvalume/ Zincalume light hangers for electrical conducts	each	50

B0246	Turbo ventilators 24 with accessories	each	4500
B0247	Polycarbonate sheet 2mm thick	sqm	1200
B0248	Polycarbonate sheet 1.25 mm thick	sqm	600
B0249	Anchor bolts	each	200
B0250	Epoxy and rubber paint	litre	2000
B0251	Self-tapping screw with hex head	each	2
B0252	Polyvinyl chloride sheet 400 micron thick	sqm	40
B0253	Stone ware spouts 100 mm dia 60 cm long	each	40
B0254	Galvanised steel corrugated sheets	quintal	5600
B0255	12.5 mm thick tapered edge plain gypsum plaster borad confirming to IS 2095 (Part 1):2011	sqm	155
B0256	12.5 mm thick tapered edge gypsum fire resistant board	sqm	200
B0257	Galvanised Steel ceiling section (size 80x26x0.50 mm)	metre	46
B0258	Galvanised Steel perimetre Channel (Size 20x27x30x0.50 mm)	metre	22
B0259	Galvanised Steel intermediate Channel (Size 15x45x15x0.90 mm)	metre	38
B0260	Galvanised Steel angle hanger (Celling angle) (Size 25x10x0.50 mm)	metre	12
B0261	Galvanised Steel connecting clips (2.64 mm dia and 230 mm long GI wire)	each	4
B0262	Galvanised Steel soffit cleat (Size 27x37x25x0.60 mm)	each	3
B0263	Joint filler	kg	26
B0264	Joint finisher	kg	23
B0265	Joint tape roll	roll	100
B0266	Dash fastener / Chemical fastener	each	14
B0267	All drive screws (for gypsum board)	100 nos.	58
B0268	Primer (for gypsum board)	litre	85
B0269	12.5 mm thick Fully perforated gypsum board	sqm	410
B0270	12.5 mm thick tapered edge moisture resistant plain gypsum plaster board confirming to IS 2095 (Part 1):2011	sqm	275
B0271	PU Primer	sqm	60
B0272	40 mm (average) PU spray having 40-45 kg/m3 density	sqm	400
B0273	GI wire netting 3/4" x 24 G	sqm	26
B0274	Expanded polystyrene type N- Normal 50 mm thick	sqm	125
B0275	Expanded polystyrene type - SE 50 mm thick	sqm	150
B0276	C.I. grating 150 mm dia, weighing not less than 440 gm	each	27
B0277	U-PVC pipes (working pressure 4 kg / cm²) Single socketed pipe 75 mm dia	metre	70
B0278	U-PVC pipes (working pressure 4 kg / cm²) Single socketed pipe 110 mm dia	metre	130
B0279	U-PVC pipes (working pressure 4 kg / cm²) Single socketed pipe 150 mm dia	metre	180
B0280	U-PVC pipes (working pressure 4 kg / cm²) Rubber (Seal) Ring 75 mm dia	each	8
B0281	U-PVC pipes (working pressure 4 kg / cm²) Rubber (Seal) Ring 110 mm dia	each	11
B0282	U-PVC pipes (working pressure 4 kg / cm²) Rubber (Seal) Ring 150 mm dia	each	15
B0283	uPVC coupler for UPVC drainage pipes 75 mm	each	18
B0284	uPVC coupler for UPVC drainage pipes 110 mm	each	39
B0285	uPVC coupler for UPVC drainage pipes 150 mm	each	60
B0286	uPVC pushfit coupler (single) 75 mm thick	each	18
B0287	uPVC pushfit coupler (single) 110 mm thick	each	32
B0288	uPVC pushfit coupler (single) 150 mm thick	each	45
B0289	uPVC single equal Tee (without door) 75x75x75 mm	each	46
B0290	uPVC single equal Tee (without door) 110x110x110 mm	each	81
B0291	uPVC single equal Tee (without door) 150x150x150 mm	each	120
B0292	uPVC single equal Tee (with door) 75x75x75 mm	each	59
B0293	uPVC single equal Tee (with door) 110x110x110 mm	each	92
B0294	uPVC single equal Tee (with door) 150x150x150 mm	each	125
B0295	UPVC bend 87.5° 75 mm bend	each	35
B0296	UPVC bend 87.5° 110 mm bend	each	59
B0297	UPVC bend 87.5° 150 mm bend	each	85
B0298	UPVC plain shoe 75 mm bend	each	27
B0299	UPVC plain shoe 110 mm bend	each	47
B0300	UPVC plain shoe 150 mm bend	each	70
B0301	UPVC pipe clip 75 mm bend	each	10
B0302	UPVC pipe clip 110 mm bend	each	15
B0303	UPVC pipe clip 150 mm bend	each	20
B0304	Resin Bonded Glass wool 16 kg/m³ : 50 mm thick	sqm	100
B0305	Resin Bonded Glass wool 24 kg/m³ : 50 mm thick	sqm	143
B0306	Resin Bonded Glass wool 48 kg/m³ : 12 mm thick	sqm	110

B0307	Resin Bonded Glass wool 48 kg/m³ : 25 mm thick	sqm	135
B0308	Resin Bonded Glass wool 48 kg/m³ : 50 mm thick	sqm	175
B0309	Fibre glass tissue reinforcement Type II Grade i	sqm	82
B0310	Pressed clay tiles 20mm thick 250x250 mm size	1000 nos.	8600
B0311	P.T.M.T. Grating square slit 150 mm	each	67
B0312	Calcium Silicate tegular edged celling tiles 595x595 mm and 15 mm thick on edges	sqm	685
B0313	Galvanised Steel main Tee ceiling section Size 24x38x0.33 mm (3 metre long)	each	120
B0314	Galvanised Steel perimeter wall Angle Size 24 x 24 x 0.40 mm (3.00 metre long)	each	65
B0315	Galvanised Steel intermediate cross T section Size 24 x 25 x 0.33mm (1.2 metre long)	each	40
B0316	Galvanised Steel intermediate cross T section Size 24 x 25 x 0.33mm (0.6 metre long)	each	20
B0317	Wooden screws with plastic rawl plugs 35x8 mm	each	1
B0318	Galvanised MS 8mm outer diameter M-6 dash fastener 25mm long	each	32
B0319	GI Metal Tile Clip in Plain Beveled edge global white colour tiles of size 600x600 mm and 0.5 mm thick	sqm	677
B0320	GI Metal Tile Clip in perforated Beveled edge global white colour tiles of size 600x600 mm and 0.5 mm thick	sqm	782
B0321	GI Metal Tile Lay-in Plain Tegular edge global white color tiles of Size 595x595 mm and 0.5 mm thick	sqm	612
B0322	GI Metal Tile Lay-in perforated Tegular edge global white color tiles of Size 595x595 mm and 0.5 mm thick	sqm	715
B0323	PVC Laminated Gypsum Tiles (Square edge) of Size 595x595 mm and 12.5 mm thick	sqm	880
B0324	Gypsum Tiles Fully perforated Square edge of Size 595x595 mm and 12.5 mm thick	sqm	375
B0325	Spring T-section 24x34x0.45 mm (3.00 meter long)	metre	190
B0326	C Wall angle section 20x30x20x0.50 mm (3.00 meter long)	metre	95
B0327	Main C Carrier Size 10x38x10x0.70 mm (3.00 meter long)	metre	115
B0328	Spring T-connector	each	5
B0329	C Carrier Connector	each	11
B0330	C Suspension Clip	each	8
B0331	Wire Coupling Clip	each	9
B0332	Main T ceiling sections 24x38x0.3 mm (3 metre long)	each	115
B0333	perimeter wall angle 24 x 24 x 0.3 mm (3 metre long)	each	80
B0334	Intermediate cross T-Section 24x25x0.3 mm (1.2 m long)	each	35
B0335	Intermediate cross T-Section 24x25x0.3 mm (0.6 m long)	each	17
B0336	Hanger rod 4 mm thick	each	8
B0337	Adjustment clip 85x30x0.8 mm	each	5
B0338	Galavanised MS L-shape level adjuster of size 85x25x2 mm	each	15
B0339	UV stabilised 2 mm thick plain FRP sheet	sqm	430
B0340	UV stabilised 2 mm thick corrugated FRP sheet	sqm	485
B0341	Mangalore ridge tiles 20 mm thick	each	8
B0342	Mangalore tiles 20 mm thick	each	8
B0343	Precoated galvanised iron profile sheet 0.50 mm TCT	sqm	350
B0344	Precoated galvanised steel plain ridges 0.50 mm TCT and 500-600mm wide	metre	210
B0345	Precoated galvanised steel flashings/aprons 0.50 mm TCT and upto 600mm wide	metre	210
B0346	Precoated galvanised steel gutter 600mm overall girth	metre	420
B0347	Precoated galvanised steel north light curves	metre	230
B0348	Precoated galvanised steel barge board (upto 300mm)	metre	215
B0349	Precoated galvanised steel crimp curve	sqm	230
B0350	Marble chips up to 4 mm and down size White & black	quintal	180
B0351	Marble chips large size above 4 mm White & black	quintal	250
B0352	Black colour dark shade pigment	kg	70
B0353	Red, chocolate, orange, buff or yellow (red oxide of iron) light shade pigment	kg	60
B0354	Green or blue medium shade pigment	kg	56
B0355	Glass strip 4 mm thick 40 mm deep	metre	20
B0356	Precast terrazzo tiles 22 mm thick (light shade)	sqm	270
B0357	Precast terrazzo tiles 22 mm thick (medium shade)	sqm	250
B0358	Precast terrazzo tiles 22 mm thick (dark shade)	sqm	230
B0359	Chequered terrazzo tiles 22 mm thick (light shade)	sqm	260
B0360	Chequered terrazzo tiles 22 mm thick (medium shade)	sqm	280
B0361	Chequered terrazzo tiles 22 mm thick (dark shade)	sqm	240
B0362	18 mm thick Flamed finish granite stone slab	sqm	1000
B0363	18 mm thick Italian Marble stone slab, perlato (slab area up to 0.5 sqm).	sqm	3209
B0364	Glass mossaic tiles (20 mm x 20 mm x 4 mm)	sqm	2049

B0365	Tile fixing chemical adhesive	kg	9
B0366	Cement Polymer Grout Compound	kg	16
B0367	Acid for cleaning tiles	litre	18
B0368	PVC Tiles 2mm thick	sqm	375
B0369	PVC Tiles 3mm thick	sqm	425
B0370	PVC Flooring 1.5mm thick	sqm	300
B0371	PVC Flooring 2.0mm thick	sqm	340
B0372	PVC Flooring 2.5mm thick	sqm	375
B0373	PVC Flooring 3.0mm thick	sqm	400
B0374	PVC Flooring 4.0mm thick	sqm	425
B0375	PVC Flooring 5.0mm thick	sqm	450
B0376	Glass strip 5.5 mm thick 40 mm deep	metre	28
B0377	Glass strip 4 mm thick 32 mm deep	metre	16
B0378	Glass strip 4 mm thick 25 mm deep	metre	13
B0379	Glass strip 3 mm thick 40 mm deep	metre	15
B0380	Glass strip 3 mm thick 32 mm deep	metre	12
B0381	Glass strip 3 mm thick 25 mm deep	metre	10
B0382	PVC strip 40mm wide 4mm thick	metre	50
B0383	PVC strip 40mm wide 5.5mm thick	metre	60
B0384	Plane coloured Linoleum (3.2mm)	sqm	450
B0385	Stone dowel 10mmx5mmx2.5cm	each	6
B0386	Grass pavers	sqm	950
B0387	Baroda Green Marble	sqm	600
B0388	Covel stone 150mmx150mm	sqm	1250
B0389	Baker rod	metre	25
B0390	Aluminium Strip 40 mm wide and 2 mm thick	kg	240
B0391	Truf Paver (500 x 500 x 40 mm)	sqm	500
B0392	Ceremic Tiles Pieces for Crazy Flooring	quintal	135
B0393	White marble makrana second quality plain veined stone pieces for crazy flooring	quintal	150
B0394	FS800H Grade Flooring Panel (Size 600 mm x600 mm x32 mm)	each	750
B0395	Zinc Electroplated Pedestals - 300 mm	each	140
B0396	Zinc Electroplated Pedestals - 450 mm	each	200
B0397	Zinc Electroplated Tube Stinger	each	66
B0398	Machine Screw for Fixing	each	2
B0399	Polysulphide Sealent	kg	335
B0400	Hardner Adhesive	kg	42
B0401	Cutting groove in RCC (75mmx10mm)	metre	105
B0402	White marble slab Makrana second quality plain veined 18 mm thick	sqm	1430
B0403	Pink marble slab plain 18 mm thick	sqm	645
B0404	Udaypur green marble slab plain 18 mm thick	sqm	620
B0405	Black Zebra marble slab plain 18 mm thick	sqm	900
B0406	Acid Proof cement	tonne	7800
B0407	400 G polythene sheet	sqm	14
B0408	Chequered precast cement concrete tiles 22 mm thick using marble chips of size 6mm - Light shade using white cement	sqm	400
B0409	White marble Raj Nagar plain 18 mm thick upto 0.50 sqm area	sqm	600
B0410	Acid and alkali resistant tiles 300x300 mm size, 10 mm thick	10 nos.	520
B0411	Precast chequered cement tiles 22 mm thick Dark shade using ordinary cement	sqm	225
B0412	Precast chequered cement tiles 22 mm thick medium shade using 50% white cement 50% ordinary cement	sqm	335
B0413	Hardening compound	litre	38
B0414	Ceramic Glazed Tiles 1st quality 300 x 300 mm in all shades and designs of White, Ivory, grey, Fume Red brown etc.	sqm	209
B0415	Ceramic Glazed Tiles 1st quality 300 x 300 in all shades designs except White, Ivory, Grey, Fume Red Brown etc.	sqm	260
B0416	Rectified Ceramic Glazed Tiles 1st quality 300 x 300 mm or more in all shades designs	sqm	340
B0417	Rectified Ceramic Glazed Tiles 1st quality 300 x 300 mm or more in all shades designs	sqm	400
B0418	Agaria White marble slab plain 18 mm thick	sqm	1100
B0419	Vitrified floor tile 50x50 cm conforming to IS 15622:2006 group (B1a)	sqm	490
B0420	Vitrified floor tile 60x60 cm conforming to IS 15622:2006 group (B1a)	sqm	600
B0421	Vitrified floor tile 80x80 cm conforming to IS 15622:2006 group (B1a)	sqm	750
B0422	Vitrified floor tile 100x100 cm conforming to IS 15622:2006 group (B1a)	sqm	900

B0423	"Border tiles 200x75mm size	each	16
B0424	Epoxy Grout	kg	371
B0425	High polymer modified quickset tile adhesive	kg	9
B0426	White Cement based primer modified with high performance polymers	kg	60
B0427	Ready mixed polymer modified based on grey cement/ white cement tile adhesive	kg	13
B0428	White cement based polymer modified self curing compound in powder form	kg	15
B0429	Glue	kg	75
B0430	Dehradun white lime	quintal	600
B0431	Satna lime	quintal	370
B0432	Dry hydrated lime (factory made)	quintal	290
B0433	Silicon and acrylic emulsion	litre	130
B0434	Acrylic distemper 1st quality , having VOC content less than 50 grams/ litre	kg	36
B0435	Acrylic emulsion, having VOC content less than 50 grams/ litre	litre	94
B0436	Premium acrylic emulsion of interior grade, having VOC content less than 50 grams/ litre	litre	220
B0437	Ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ litre	litre	105
B0438	Water thinnable cement primer for interior wall surface, having VOC content less than 50 grams/ litre	litre	50
B0439	Exterior primer	kg	140
B0440	Dry distemper	kg	30
B0441	Ist quality Acrylic distemper(Ready mix) having VOC content less than 50 grams/ litre	kg	50
B0442	Linseed oil (double boiled)	litre	200
B0443	Distemper primer	litre	70
B0444	Pink primer (for wood)	litre	105
B0445	White cement based putty	kg	13
B0446	Aluminium paint	litre	150
B0447	Acid proof paint (chocolate or black)	litre	225
B0448	Anticorrosive bituminous paint (black)	litre	100
B0449	Black Japan paint	litre	90
B0450	Enamel paint	litre	165
B0451	Floor enamel paint in all shades except green	litre	250
B0452	Synthetic enamel paint in black or chocolate shade	litre	170
B0453	Synthetic enamel paint in all shades except black or chocolate shade	litre	160
B0454	Plastic **acrylic** emulsion paint	litre	200
B0455	100% Premium acrylic dirt resistance, Silicone additives exterior paint	litre	270
B0456	Acrylic Exterior Primer	litre	100
B0457	Roofing paint for iron sheets in red colour	litre	120
B0458	White lead	kg	170
B0459	Water proofing cement paint	kg	38
B0460	Wax polish (ready made)	kg	230
B0461	Ordinary varnish	litre	100
B0462	Superior copal varnish	litre	115
B0463	Superior spar varnish	litre	115
B0464	Oil type wood preservative	litre	130
B0465	Putty for wood work	kg	30
B0466	Premixed super white gypsum plaster	kg	6
B0467	Plaster of Paris	kg	5
B0468	Shellac	kg	300
B0469	Spirit	litre	48
B0470	Crushed stone 2.36 mm to 12.5 mm size	cum	800
B0471	Wire nails	kg	58
B0472	Wire mesh (rabbit)	sqm	42
B0473	Coaltar	tonne	3200
B0474	Soap cake	each	25
B0475	Solignum paint 2nd quality	litre	120
B0476	Creosote	litre	90
B0477	Aluminium primer	litre	110
B0478	Red oxide Zinc chromate primer	litre	110
B0479	Copper acetate	kg	285
B0480	Hydrochloric acid	kg	33
B0481	Copper chloride	kg	270
B0482	Copper nitrate	kg	210

B0483	Ammonium chloride	kg	20
B0484	High Albedo paint	kg	230
B0485	Epoxy paint	litre	230
B0486	Fire retardant paint	litre	260
B0487	Melamine polish	litre	280
B0488	Multi surface paint	litre	255
B0489	Acrylic exterior paint	litre	170
B0490	Premium Acrylic exterior paint	litre	180
B0491	Textured exterior paint	litre	240
B0492	Primer for cement paint	litre	70
B0493	Special Primer (C.W.)	litre	140
B0494	Metal Primer (U.G.)	litre	90
B0495	Synthetic ployster triangular fibre of length 12 mm, effective diameter 10-40 microns and specific gravity of 1.34 to 1.40	kg	365
B0496	Synthetic ployster triangular fibre of length 6 mm, effective diameter 10-40 microns and specific gravity of 1.34 to 1.40	kg	400
B0497	Brass butt hinges (light/ordinary type) : 125x70x4 mm	10 nos.	775
B0498	Brass butt hinges (light/ordinary type) : 100x70x4 mm	10 nos.	625
B0499	Brass butt hinges (light/ordinary type) : 75x40x2.5 mm	10 nos.	380
B0500	Brass butt hinges (light/ordinary type) : 50x40x2.5 mm	10 nos.	155
B0501	Brass butt hinges (heavy type) : 125x85x5.5 mm(0.70 kg)	10 nos.	1309
B0502	Brass butt hinges (heavy type) : 100x85x5.5 mm(0.56 kg)	10 nos.	997
B0503	Brass butt hinges (heavy type) :75x65x4.0 mm (weighing not less than 0.20 kg)	10 nos.	838
B0504	Brass parliamentary hinges 150x125x27x5 mm	10 nos.	2610
B0505	Brass parliamentary hinges 125x125x27x5 mm	10 nos.	2300
B0506	Brass parliamentary hinges 100x125x27x5 mm	10 nos.	2090
B0507	Brass parliamentary hinges 75x100x20x3.2 mm	10 nos.	1870
B0508	Brass tower bolt (barrel type) 250x10 mm	each	257
B0509	Brass tower bolt (barrel type) 200x10 mm	each	205
B0510	Brass tower bolt (barrel type) 150x10 mm	each	154
B0511	Brass tower bolt (barrel type) 100x10 mm	each	103
B0512	Brass handles 125 mm with plate 175x32 mm	each	144
B0513	Brass handles 100 mm with plate 150x32 mm	each	133
B0514	Brass handles 75 mm with plate 125x32 mm	each	103
B0515	Brass door latch 300x16x5 mmweighing not less than 0.380 kg	each	185
B0516	Brass door latch 250x16x5 mm weighing not less than 0.350 kg	each	175
B0517	Brass mortice latch and lock 100x65 mm with 6 levers and a pair of brass lever handles	each	400
B0518	Brass mortice latch 100x65mm with a pair of brass lever handles	each	310
B0519	Brass casement window fastener	each	45
B0520	Brass casement stays (straight peg type) 300 mm weighing not less than 0.33 kg	each	126
B0521	Brass casement stays (straight peg type) 250 mm weighing not less than 0.28 kg	each	100
B0522	Brass casement stays (straight peg type) 200 mm weighing not less than 0.24 kg	each	95
B0523	Brass hasps and staples (safety type) 150 mm	10 nos.	740
B0524	Brass hasps and staples (safety type) 115 mm	10 nos.	670
B0525	Brass hasps and staples (safety type) 90 mm	10 nos.	575
B0526	Brass night latch	each	610
B0527	Brass cupboard knob or wardrobe knob 50 mm	each	36
B0528	Brass screws 50 mm	100 nos.	220
B0529	Brass screws 40 mm	100 nos.	170
B0530	Brass screws 30 mm	100 nos.	140
B0531	Brass screws 25 mm	100 nos.	100
B0532	Brass screws 20 mm	100 nos.	95
B0533	plastic sleeves for screw	each	2
B0534	75mm SS fancy handles for kitchen cabinet	10 No..	255
B0535	100mm SS fancy handles for kitchen cabinet	10 nos.	455
B0536	125mm SS fancy handles for kitchen cabinet	10 nos.	640
B0537	Chromium plated Brass handles 125 mm with plate 175 x32 mm	each	160
B0538	Chromium plated Brass handles 100 mm with plate 150 x 32 mm	each	140
B0539	Chromium plated Brass handles 75mm with plate 125x32 mm	each	125
B0540	Chromium plated Brass mortice latch and lock 100x65 mm with 6 levers and a pair of brass lever handles	each	470
B0541	Chromium plated brass casement window fastener	each	90

B0542	Chromium plated Brass casement stays (straight peg type) 300 mm weighing not less than 0.33 kg	each	140
B0543	Chromium plated Brass casement stays (straight peg type) 250 mm weighing not less than 0.28 kg	each	120
B0544	Chromium plated Brass casement stays (straight peg type) 200 mm weighing not less than 0.24 kg	each	100
B0545	Chromium plated Brass Night latch	each	500
B0546	Chromium plated Brass Wardrobe Knob 50 mm	each	80
B0547	Chromium plated Brass screws 50 mm	100 nos.	300
B0548	Chromium plated Brass screws 40 mm	100 nos.	290
B0549	Chromium plated Brass screws 30 mm	100 nos.	240
B0550	Chromium plated Brass screws 25 mm	100 nos.	180
B0551	Chromium plated Brass screws 20 mm	100 nos.	160
B0552	Chromium plated Brass curtain rod 12 mm dia 1.25mm thick	metre	185
B0553	Chromium plated Brass curtain rod 20 mm dia 1.25mm thick	metre	260
B0554	Chromium plated Brass curtain rod 25 mm dia 1.25mm thick	metre	340
B0555	Bright finished or black enameled mild steel butt hinges 125x65x 2.12 mm	10 nos.	135
B0556	Bright finished or black enameled mild steel butt hinges 100x58x 1.90 mm	10 nos.	80
B0557	Bright finished or black enameled mild steel butt hinges 75x47x 1.70 mm	10 nos.	56
B0558	Bright finished or black enameled mild steel butt hinges 50x37x 1.50 mm	10 nos.	49
B0559	Nickel plated bright finished mild steel piano hinges 1 mm thick 25 mm wide	metre	39
B0560	Bright finished or black enameled mild steel screws 50 mm	100 nos.	75
B0561	Bright finished or black enameled mild steel screws 40 mm	100 nos.	60
B0562	Bright finished or black enameled mild steel screws 30 mm	100 nos.	45
B0563	Bright finished or black enameled mild steel screws 25 mm	100 nos.	36
B0564	Bright finished or black enameled mild steel screws 20 mm	100 nos.	30
B0565	Bright finished or black enameled mild steel bolts and nuts 50x6 mm	each	5
B0566	Oxidised mild steel butt hinges 125x65x2.12 mm	10 nos.	130
B0567	Oxidised mild steel butt hinges 100x58x1.90 mm	10 nos.	85
B0568	Oxidised mild steel butt hinges 75x47x1.70 mm	10 nos.	63
B0569	Oxidised mild steel butt hinges 50x37x1.50 mm	10 nos.	53
B0570	Oxidised mild steel parliamentary hinges 150x125x27x2.8 mm	10 nos.	334
B0571	Oxidised mild steel parliamentary hinges 125x125x27x2.8 mm	10 nos.	309
B0572	Oxidised mild steel parliamentary hinges 100x125x27x2.8 mm	10 nos.	231
B0573	Oxidised mild steel parliamentary hinges 75x100x20x2.24 mm	10 nos.	196
B0574	Oxidised mild steel single acting spring hinges 150 mm	each	138
B0575	Oxidised mild steel single acting spring hinges 125 mm	each	118
B0576	Oxidised mild steel single acting spring hinges 100 mm	each	98
B0577	Oxidised mild steel double acting spring hinges 150 mm	each	157
B0578	Oxidised mild steel double acting spring hinges 125 mm	each	135
B0579	Oxidised mild steel double acting spring hinges 100 mm	each	118
B0580	Nickel plated mild steel piano hinges 1 mm thick 35 mm wide	metre	44
B0581	Oxidised mild steel sliding door bolt 300x16 mm	each	93
B0582	Oxidised mild steel sliding door bolt 250x16 mm	each	84
B0583	Oxidised mild steel door latch 300x20x6 mm	each	49
B0584	Oxidised mild steel door latch 250x20x6 mm	each	39
B0585	Oxidised mild steel tower bolt (barrel type) 250x10 mm	each	43
B0586	Oxidised mild steel tower bolt (barrel type) 200x10 mm	each	34
B0587	Oxidised mild steel tower bolt (barrel type) 150x10 mm	each	29
B0588	Oxidised mild steel tower bolt (barrel type) 100x10 mm	each	20
B0589	Oxidised mild steel handles 125 mm	each	20
B0590	Oxidised mild steel handles 100 mm	each	15
B0591	Oxidised mild steel handles 75 mm	each	12
B0592	Oxidised mild steel hasps and staples (safety type) 150 mm	10 nos.	128
B0593	Oxidised mild steel hasps and staples (safety type) 115 mm	10 nos.	108
B0594	Oxidised mild steel hasps and staples (safety type) 90 mm	10 nos.	79
B0595	Oxidised mild steel screws 50 mm	100 nos.	76
B0596	Oxidised mild steel screws 40 mm	100 nos.	62
B0597	Oxidised mild steel screws 30 mm	100 nos.	49
B0598	Oxidised mild steel screws 25 mm	100 nos.	36
B0599	Oxidised mild steel screws 20 mm	100 nos.	32
B0600	Anodised Aluminium butt hinges 125x75x4 mm	10 nos.	560

B0601	Anodised Aluminium butt hinges 125x63x4 mm	10 nos.	393
B0602	Anodised Aluminium butt hinges 100x75x4 mm	10 nos.	393
B0603	Anodised Aluminium butt hinges 100x63x3.2 mm	10 nos.	270
B0604	Anodised Aluminium butt hinges 100x63x4 mm	10 nos.	324
B0605	Anodised Aluminium butt hinges 75x63x4 mm	10 nos.	275
B0606	Anodised Aluminium butt hinges 75x63x3.2 mm	10 nos.	226
B0607	Anodised Aluminium butt hinges 75x45x3.2 mm	10 nos.	196
B0608	Anodised Aluminium sliding door bolt 300x16 mm	each	147
B0609	Anodised Aluminium sliding door bolt 250x16 mm	each	128
B0610	Anodised Aluminium tower bolt (barrel type) 300x10 mm	10 nos.	580
B0611	Anodised Aluminium tower bolt (barrel type) 250x10 mm	10 nos.	481
B0612	Anodised Aluminium tower bolt (barrel type) 200x10 mm	10 nos.	383
B0613	Anodised Aluminium tower bolt (barrel type) 150x10 mm	10 nos.	304
B0614	Anodised Aluminium tower bolt (barrel type) 100x10 mm	10 nos.	226
B0615	Anodised Aluminium handles 125 mm with plate 175 x 32 mm	10 nos.	324
B0616	Anodised Aluminium handles 100 mm with plate 150 x 32 mm	10 nos.	275
B0617	Anodised Aluminium handles 75mm with plate 125 x 32 mm	10 nos.	231
B0618	Anodised Aluminium kicking plate 50 cm long 100x3.15 mm	each	142
B0619	Block board construction flush door with teak wood ply on both faces 35 mm thick	sqm	1800
B0620	Block board construction flush door with teak wood ply on both faces 30 mm thick	sqm	1600
B0621	Block board construction flush door with teak wood ply on both faces 25 mm thick	sqm	1400
B0622	Block board construction flush door with commercial ply on both faces 35 mm thick	sqm	950
B0623	Block board construction flush door with commercial ply on both faces 30 mm thick	sqm	900
B0624	Block board construction flush door with commercial ply on both faces 25 mm thick	sqm	890
B0625	Block board construction flush door lipping 25 mm thick	sqm of door	300
B0626	Square vision panel in Block board construction flush door not exceeding 0.10 sqm	sqm of door	130
B0627	Circular vision panel in Block board construction flush door	sqm of door	135
B0628	Decorative type louvers in Block board construction flush door	sqm of door	265
B0629	Rebate cutting in block board construction flush door	sqm of door	70
B0630	Mild steel expanded metal 20x60 mm strands 3.25 mm wide 1.60 mm thick	sqm	280
B0631	Hard drawn steel wire fabric 75 x 25 mm mesh of weight not less than 7.75 kg/sqm	sqm	430
B0632	Superior class teak wood such as Dandeli, Balarshah or Malabar in planks	10 cudm	1100
B0633	First class kail wood in planks	10 cudm	300
B0634	Second class kail wood in scantling	10 cudm	260
B0635	Second class kail wood in planks	10 cudm	260
B0636	First class teak wood in scantling	10 cudm	880
B0637	First class teak wood in planks	10 cudm	850
B0638	Second class teak wood in scantling	10 cudm	776
B0639	Second class teak wood in planks	10 cudm	791
B0640	Extra for selected planks of second class teakwood	10 cudm	150
B0641	Marandi wood in planks	10 cudm	440
B0642	Marandi wood in scantling	10 cudm	430
B0643	Second class deodar wood in planks	10 cudm	500
B0644	Sal wood in scantling	10 cudm	600
B0645	Kiln seasoned selected sheesham wood planks	10 cudm	650
B0646	Extra for selected planks of first class teakwood	10 cudm	150
B0647	SS mosquito Jali(12x26) grade 304	sqm	450
B0648	P&F of Roller blinds on windows complete with push up & down arrangement as per approved design / colour.	sqm	1800
B0649	Aluminium Jali 7mm thick, 75mmx75mm opening	sqm	1000
B0650	Anodizing Aluminium Jali	sqm	110
B0651	6mm thick toughned glass alongwith powder coated pipe (3.5" x 1.75")	sqm	3250
B0652	Stay 6"x 8mm welding rod	each	27
B0653	MS thread rod 8 mm dia with bolt and washer	metre	140
B0654	UPVC frame including GI reinforcement	sqm	2500
B0655	UPVC openable shutter / sash including GI reinforcement, glazing beading	sqm	3500
B0656	6mm toughened clear glass	sqm	600
B0657	5mm annealed clear glass	sqm	350
B0658	Glass sealing with 12mm air gap	sqm	350
B0659	Cost of 6 mm outer glass having U value 1.8, solar factor 0.35 right transmission 49%	sqm	1000
B0660	6mm annealed plain glass	sqm	400
B0661	Cost of double sided acrylic foam tape 12mm x 6mm	metre	40

B0662	Powder coated Aluminium Handles 200 mm	each	88
B0663	Powder coated Aluminium Tower bolt (100x10mm)	each	84
B0664	Powder coated Sliding Bolt 250 x 16 mm	each	305
B0665	Float glass panes of nominal thickness 4 mm (weight not less than 10 kg/sqm)	sqm	300
B0666	Float glass panes of nominal thickness 5 mm (weight not less than 12.50 kg/sqm)	sqm	500
B0667	Float glass panes of nominal thickness 6 mm (weight not less than 15 kg/sqm)	sqm	540
B0668	Float glass panes of nominal thickness 8 mm (weight not less than 20.00 kg/sqm)	sqm	610
B0669	Ply wood 5 ply with commercial ply on both faces 6 mm thick	sqm	300
B0670	12 mm commercial ply	sqm	500
B0671	Oxidised mild steel pull bolt lock (locking bolt) of size 85 mm x 42 mm with screws, bolts, nuts and washers complete	each	60
B0672	Brass cupboard lock 6 levers of approved quality, 40 mm size	each	55
B0673	Brass cupboard lock 6 levers of approved quality, 50 mm size	each	85
B0674	Brass cupboard lock 6 levers of approved quality, 65 mm size	each	90
B0675	Brass cupboard lock 6 levers of approved quality, 75 mm size	each	105
B0676	Brass hanging type door stopper 150 mm	each	75
B0677	Hydraulic door closer bottle type M.S. body with necessary accessories and screws complete	each	673
B0678	Anodised Aluminium hanging type door stopper	each	19
B0679	Anodised Aluminium pull bolt lock (locking bolt) of size 85 mm x 42 mm with screws, bolts, nuts and washers complete	each	46
B0680	Anodised Aluminium Casement stay 250 mm	each	32
B0681	Hollock wood in scantling	10 cudm	350
B0682	Nickled Chromium Brass cupboard lock 40 mm size	each	60
B0683	Nickled Chromium Brass cupboard lock 50 mm size	each	70
B0684	Nickled Chromium Brass cupboard lock 65 mm size	each	95
B0685	Nickled Chromium Brass cupboard lock 75 mm size	each	120
B0686	Ply wood 5 ply with teak ply on both faces 9 mm thick	sqm	850
B0687	Ply wood 5 ply with teak ply on one face and commercial ply on another face 9 mm thick	sqm	870
B0688	Ply wood 7 ply with teak ply on one face and commercial ply on another face 9 mm thick	sqm	950
B0689	Extra for selected planks of second class deodar wood	10 cudm	110
B0690	Kiln seasoning of timber	cum	700
B0691	Hollock wood in planks	10 cudm	380
B0692	Weather/structural non sag elastomeric PU sealant (600ml Sausage) for joints in RCC/ Brick/ Stone/ wood/ Ceramic/ Gypsum/ Alluminium work complying to ASTM C920, DIN 18540-F & ISO 11600 incl all taxes	each	532
B0693	SS Screws - # 8 x 19	each	6
B0694	Glass panes of required thickness having 120 minutes of fire resistance both integrity and radiation control (EI 120) and minimum 20 minutes of insulation (EI 20)	sqm	25000
B0695	G.I U beading of 1.6 mm thick G.I sheet with ceramic tape.	metre	245
B0696	Ceramic tape 5 x20 mm size	metre	410
B0697	Door Frame of size 80mm x 50mm with 37mm wide single rebate for 35mm door shutter	metre	545
B0698	Door Frame of size 125mm x 60mm with 37mm wide single rebate for 35mm door shutter	metre	710
B0699	PO 407 (Outer Frame Section 72mm x 55mm)	metre	460
B0700	AC 474 (Outer frame corner bracket) made of Nylon/Polypropylene	each	44
B0701	AC 419 (Mullion Caps) made of Nylon/Polypropylene	each	40
B0702	PO 507 (Outer Frame Section 98mm x 50mm)	metre	550
B0703	AC 574 (Outer frame corner bracket) made of Nylon/Polypropylene	each	44
B0704	AC 319 / 320 (Mullion Caps) made of Nylon/Polypropylene	each	40
B0705	PO 810 (Glass Shutter Section 47mm x 20mm) 2*2(1.145+.530)+1.05	metre	320
B0706	AC 355 (Glass Shutter corner bracket) made of Nylon/Polypropylene	each	34
B0707	AC 3201 (Pivot Hinges) made of S.S	each	120
B0708	AC 4235 (Glass Shutter handles) made of PVC	each	48
B0709	AC 9200 (Friction Stay) made of M.S Powder Coated	each	220
B0710	GE New (Glass Shutter Gasket) made of EPDM	metre	46
B0711	PO 231 (Mesh Shutter Section 40mm x 20mm) 2*2(1.145+.530)+1.05	metre	293
B0712	S.S wire mesh 32 guage flymesh with 144 holes per square Inch including 10% wastage	sqm	520
B0713	AC 455 (Mesh Shutter corner bracket) made of Nylon/Polypropylene	each	24
B0714	PO 209 (Spoon Profile Section) 18mm x 6mm	metre	56
B0715	AC 2235 (Mesh Shutter handle) made of PVC	each	37
B0716	AC 200 (Self Latches) made of M.S	each	24
B0717	PO 179 E (Fixed Bead Section 12mm x 12mm) 2*2(0.685+0.530)=4.86metre	metre	84
B0718	ECO Fixed Gasket made of EPDM	metre	46

B0719	PO 153 (Glass Shutter Section 46mm x 46mm) 2*2(1.145+.530)+1.05	metre	384
B0720	AC 255 (Glass Shutter corner bracket) made of Nylon/Polypropylene	each	34
B0721	AC 9201 (Friction Hinges) made of M.S Powder Coated	each	410
B0722	AC 7235 (Glass Shutter handles) made of Aluminum Powder Coated	each	90
B0723	PO 179 E (Fixed Bead Section 25mm x 18mm) 2*2(0.685+0.530)=4.86metre	metre	131
B0724	M.S powder coated 100mm but hinges 2mm thick	each	21
B0725	1.2mm thick CRCA electroplated stiffner	each	17
B0726	M.S hold fast with split and tail welded to stiffner plate 200mm long	each	34
B0727	Receiver for aldrop (PVC)	each	5
B0728	Galvanised steel tie ros 50mm x 25mm	metre	82
B0729	CV 1742 S.S Screws for outer frame	each	1
B0730	CV 1800 wall fixing M.S Screws 100mm long & S8R80 wall fixing PVC caps	each	5
B0731	CV 1719 S.S Screws for glazed shutter	each	2
B0732	CV 1706 S.S Screws for handle receiver	each	1
B0733	CV 1728 S.S Screws for Mesh shutter	each	1
B0734	Self Drilling S.S Screws 8 x 16	each	2
B0735	CV 1716 S.S Screws for Mesh Pivot hinges	each	1
B0736	Fabrication of aluminium doors/ windows	kg	22
B0737	Fixing the Aluminium jali complete in all respect	sqm	75
B0738	Toughening of glass	sqm	250
B0739	Hoisting Charges	cum	450
B0740	Sawing charges	cum	850
B0741	Galvanized iron (1.6 ± 0.2 mm) thick reinforcement for small series casement window/door	metre	66
B0742	Galvanized iron (1.6 ± 0.2 mm) thick reinforcement for big series casement window/door	metre	71
B0743	Galvanized iron (1.6 ± 0.2 mm) thick reinforcement for big series casement door sash	metre	97
B0744	Galvanized iron (1.6 ± 0.2 mm) thick reinforcement for big series sliding window / door sash	metre	86
B0745	G.I fasteners 100 x 8 mm	each	14
B0746	Brass 100mm mortice latch and lock with 6 levers without pair of handles	each	210
B0747	pair of Anodised Aluminium lever handles for 100 mm mortice latch and lock	each	215
B0748	Chromium plated brackets (curtain rods)	each	7
B0749	Galvanised wire mesh of average width of aperture 1.4 mm and nominal dia of wire 0.63 mm	sqm	250
B0750	Frosted glass sheet of nominal thickness 4 mm (weighing not less than 10 kg/sqm)	sqm	460
B0751	Nickel plated M.S. pipe 25 mm dia	metre	76
B0752	Nickel plated M.S. pipe 20 mm dia	metre	72
B0753	Nickel plated M.S. Brackets for curtain rod 20 mm	each	7
B0754	Nickel plated M.S - Brackets for curtain rod 25 mm	each	8
B0755	Oxidised mild steel screws 35 mm	100 nos.	48
B0756	Teak wood lipping of size 25x3 mm in pelmets	metre	14
B0757	Flat pressed 3 layer and graded particle board (medium density) Grade 1 conforming to IS : 3087 - 18 mm thick	sqm	480
B0758	Aluminium tee channel (heavy duty) with rollers and stop end	metre	100
B0759	Aluminium hanging floor door stopper with twin rubber & stopper	each	40
B0760	Hydraulic door closer tubular type Aluminium section body	each	560
B0761	Oxidised M.S.casement stay (straight peg type) 300 mm not less than 0.33 kg	each	35
B0762	Oxidised M.S.casement stay (straight peg type) 250 mm not less than 0.28 kg	each	30
B0763	Oxidised M.S. casement stay (straight peg type) 200 mm not less than 0.24 kg	each	25
B0764	Factory made 35 mm thick shutters with laminated veneer lumber styles & rails and panels of	sqm	1540
B0765	Factory made 35 mm thick shutters with laminated veneer lumber styles & rails and panels of	sqm	1720
B0766	Factory made 35 mm thick shutters with laminated veneer lumber styles & rails and panels of	sqm	1910
B0767	Factory made 30 mm thick shutters with laminated veneer lumber styles & rails and panels of	sqm	1620
B0768	Factory made 35 mm thick shutters with laminated veneer lumber styles & rails and panels of	sqm	1620
B0769	Factory made 30 mm thick shutters with laminated veneer lumber styles & rails and panels of	sqm	1430
B0770	Laminated veneer lumber manufactured in factory in frames of doors, windows	10 cudm	700
B0771	Oxidised M.S. safety chain (weighing not less than 450 gms) for door	each	57
B0772	25 mm thick particle board	sqm	460
B0773	Second class teak wood lipping 25 mm wide x 12 mm thick	metre	29
B0774	25 mm thick melamine faced prelaminated three layer particle board	sqm	900
B0775	For flush door shutters Extra for providing teak veneering on one side instead of commercial veneering	sqm	330
B0776	Cadmium plated full threaded steel screws (30x4 mm dia)	100 nos.	27
B0777	Aluminium washer 2 mm thick 15 mm dia	100 nos.	10
B0778	12 mm M.S. 'U' beading	metre	14

B0779	Dash hold fastener 12.5 mm dia, 50 mm long with 6 mm dia bolt	each	11
B0780	Anodising 15 microns on aluminium sections	kg	38
B0781	EPDM Gasket for uPVC window/door	metre	19
B0782	Anodising 25 microns on aluminium sections	kg	48
B0783	Powder coating 50 microns on aluminium sections	kg	61
B0784	Polyester powder coating 50 microns on aluminium sections	kg	67
B0785	Double action hydraulic floor spring with stainless steel cover plate	each	1500
B0786	6 mm dia G.I. adjustable hangers including clips (up to 1.2 m length)	each	20
B0787	Double action hydraulic floor spring with brass cover plate	each	1620
B0788	Aluminium single cleat of size 30x32x3 mm	each	14
B0789	Aluminium grip strip of size 50x12x2 mm	each	11
B0790	25 mm thick prelaminated flush door shutter both side decorative	sqm	800
B0791	Aluminium U beading	kg	210
B0792	Glass sheet (Pin headed) 4 mm thick	sqm	305
B0793	Veneered particle board with commercial veneering on both sides 12 mm thick	sqm	480
B0794	Prelaminated particle board with one side decorative and other side balancing lamination, flat pressed 3 layer & graded (medium density) Grade i, Type II conforming to IS : 12823 (exterior grade) 12 mm thick	sqm	540
B0795	Prelaminated particle board with one side decorative and other side balancing lamination, flat pressed 3 layer & graded (medium density) Grade I, Type II conforming to IS : 12823 (exterior grade) 18 mm thick	sqm	650
B0796	Prelaminated particle board with one side decorative and other side balancing lamination, flat pressed 3 layer & graded (medium density) Grade I, Type II conforming to IS : 12823 (exterior grade) 25 mm thick	sqm	900
B0797	Prelaminated particle board with both sides decorative lamination, flat pressed 3 layer & graded (medium density) Grade I, Type II conforming to IS : 12823 (exterior grade) 12 mm thick	sqm	575
B0798	Oxidised M. S. hinges finished with nickel plating 50 mm (Over all width)	metre	40
B0799	Oxidised M. S. hinges finished with nickel plating 65 mm (Over all width)	metre	52
B0800	PTMT handle 125x34x24 mm	each	24
B0801	PTMT handle 150x34x24 mm	each	24
B0802	PTMT butt hinges 75x60x10 mm	each	33
B0803	PTMT butt hinges 100x75x10 mm	each	43
B0804	PTMT Tower bolt 152x42x18 mm	each	48
B0805	PTMT Tower bolt 202x42x18 mm	each	67
B0806	PTMT door catcher 72x42 mm	each	24
B0807	Coir veneered board 4 mm thick	sqm	290
B0808	Coir veneered board 6 mm thick	sqm	385
B0809	Coir veneered board 12 mm thick	sqm	670
B0810	Coir veneered board 18 mm thick	sqm	1000
B0811	Hire charges of Drill machine upto 30 mm dia	day	160
B0812	24 mm thick Factory made shutters with style, rails and panels of PVC extruded sections in	sqm	1086
B0813	30 mm thick Factory made shutters with style, rails and panels of PVC extruded sections in	sqm	1249
B0814	Factory made PVC rigid foam panelled shutter i/c carriage	sqm	1547
B0815	Factory made PVC rigid foam panelled shutter as per IS : 4020 i/c carriage	sqm	1547
B0816	Factory made PVC rigid foam sheet 1 mm thick	sqm	156
B0817	48mmX40mmX1.5mm thick Factory made door frame of PVC extruded sections in white, grey or wooden finish	metre	126
B0818	Factory made door frame PVC extruded sheet i/c carriage	metre	252
B0819	Factory made door frame of size 50x47 mm with wall thickness 5 mm made of single piece extruded profile	metre	299
B0820	Fire rated door frame made with 1.6 mm thick G.I sheet (120 minutes fire rating)	metre	1000
B0821	Fire rated door shutter made with 1.6 mm thick G.I sheet (120 minutes fire rating) including hinges (without glass panels)	sqm	5000
B0822	Powder coated M.S. butt hinges 100 mm X58 mmX1.9 mm	10 nos.	123
B0823	SS ball bearing of size 100 x89x3mm	each	450
B0824	Zinc alloy (white powder coated) 3D Hinges for uPVC door	each	451
B0825	Zinc alloy (white powder coated) handles with zinc plated mild steel multi point locking having	each set	2296
B0826	Zinc alloy (white powder coated) handles along with zinc plated mild steel multi point locking having transmission gear with keeps for uPVC sliding window	each set	1394
B0827	Zinc alloy (white powder coated) handles with key along with zinc plated mild steel multi point locking having transmission gear with keeps for uPVC sliding door	each set	1150
B0828	uPVC extruded (small series) casement window frame size 47x50mm	metre	258

B0829	uPVC extruded (small series) casement window sash/window mullion size 47x68 mm	metre	283
B0830	uPVC extruded glazing bead of appropriate dimension for small series casement window	metre	98
B0831	uPVC extruded (big series) casement window frame size 67x60 mm	metre	320
B0832	uPVC extruded (big series) casement door frame size 67x64 mm	metre	361
B0833	uPVC extruded (big series) casement window sash/window mullion/door mullion size 67x80 mm	metre	426
B0834	uPVC extruded (big series) casement door sash size 67x110 mm	metre	517
B0835	uPVC extruded glazing bead of appropriate dimension for big series casement window/door sash	metre	123
B0836	uPVC extruded glazing bead of appropriate dimension for small series sliding window sash	metre	60
B0837	uPVC extruded glazing bead of appropriate dimension for big series of sliding window/ door sash	metre	85
B0838	uPVC extruded (small series) 2 track sliding window frame size 52x44 mm	metre	285
B0839	uPVC extruded (big series) 2 track sliding window/door frame size 67x50mm	metre	385
B0840	uPVC extruded (small series) 3 track sliding window frame size 92x44 mm	metre	380
B0841	uPVC extruded (big series) 3 track sliding window/door frame size 116x45mm	metre	530
B0842	uPVC extruded (small series) 2 track sliding window sash/3 track sliding window sash size	metre	265
B0843	uPVC extruded (big series) 2 track sliding window sash size 46x62mm	metre	325
B0844	uPVC extruded (big series) 3 track sliding window sash size 46x62mm	metre	325
B0845	uPVC extruded interlock of appropriate dimension for small series sliding window sash	metre	80
B0846	uPVC extruded interlock of appropriate dimension for big series sliding window/ door sash	metre	90
B0847	uPVC extruded inline adaptor of appropriate dimension for big series sliding window/door sash	metre	90
B0848	uPVC extruded 2 track sliding door sash/ 3 track sliding door sash (big series) size 46x82mm	metre	350
B0849	Stainless steel screws 50 mm	100 nos.	270
B0850	Stainless steel screws 40 mm	100 nos.	215
B0851	Stainless steel screws 30 mm	100 nos.	190
B0852	Stainless steel screws 20 mm	100 nos.	125
B0853	Stainless steel butt hinges 125x64x1.9 mm IS : 12817 marked	10 nos.	265
B0854	Stainless steel butt hinges 100x58x1.9 mm IS : 12817 marked	10 nos.	235
B0855	Stainless steel butt hinges 75x47x1.8 mm IS : 12817 marked	10 nos.	160
B0856	Stainless steel butt hinges 50x37x1.5 mm IS : 12817 marked	10 nos.	135
B0857	Stainless steel butt hinges (heavy weight) 125x64x2.5 mm IS :12817 marked	10 nos.	350
B0858	Stainless steel butt hinges (heavy weight) 100x60x2.5 mm IS :12817 marked	10 nos.	255
B0859	Stainless steel butt hinges (heavy weight) 75x50x2.5 mm IS :12817 marked	10 nos.	205
B0860	M.S. heavy weight butt hinges 125x90x4.0 mm IS: 1341 marked.	10 nos.	210
B0861	M.S. heavy weight butt hinges 100x75x3.5 mm IS: 1341 marked	10 nos.	160
B0862	M.S. heavy weight butt hinges 75x60x3.1 mm IS: 1341 marked	10 nos.	95
B0863	M.S. heavy weight butt hinges 50x40x2.5 mm IS : 1341 marked	10 nos.	80
B0864	Weather Silicon sealant	cartridge	100
B0865	Stainless steel screws 30 mm x4 mm	100 nos.	32
B0866	Hermetically sealed double glazed unit made with 6 mm thick clear float glass both side having 12 mm air gap	sqm	2150
B0867	Stainless steel (SS 304 grade) adjustable friction window stay 205 x 19 mm	each	172
B0868	Stainless steel (SS 304 grade) adjustable friction window stay 255 x 19 mm	each	222
B0869	Stainless steel (SS 304 grade) adjustable friction window stay 355 x 19 mm	each	195
B0870	Stainless steel (SS 304 grade) adjustable friction window stay 510 x 19 mm	each	525
B0871	Stainless steel (SS 304 grade) adjustable friction window stay 710 x 19 mm	each	900
B0872	Masking tape	metre	2
B0873	Aluminium casement window fastener (Anodised AC 15)	each	44
B0874	Aluminium casement window fastener (powder coated)	each	47
B0875	Aluminium casement window fastener (polyester powder coated)	each	46
B0876	Aluminium round shape handle (anodised AC 15) outer dia 100 mm	each	53
B0877	Aluminium round shape handle (powder coated) outer dia 100 mm	each	56
B0878	Aluminium round shape handle (polyester powder coated) outer dia 100 mm	each	60
B0879	Stainless steel screws 25 mm x4 mm	100 nos.	38
B0880	1 mm thick 35 mm wide bright finished stainless steel piano hinges	metre	42
B0881	8 mm thick tapered edge calcium silicate board	sqm	265
B0882	10 mm thick calcium silicate board	sqm	420
B0883	Telescopic drawer channels 300 mm long	set	230

B0884	Stainless steel roller for sliding arrangement in racks/ cupboards/cabinets shutter	each	9
B0885	50 mmX42 mmX2 mm thick Factory made door frame of PVC extruded sections in white, grey or wooden finish	metre	160
B0886	25 mm thick factory made PVC flush door shutter i/c carriage	sqm	1700
B0887	Factory made glass reinforced plastic door frame 90x45 mm i/c carriage	metre	467
B0888	30 mm thick factory made glass fiber reinforced plastic panel door shutter i/c carriage	sqm	2326
B0889	30 mm thick factory made solid PVC profile panelled door single piece extruded profile	sqm	2100
B0890	Factory made solid PVC door frame 60 x 30 mm i/c carriage	metre	315
B0891	30 mm thick factory made solid PVC profile panelled door single piece extruded profile non decorative finish	sqm	2000
B0892	Fiber glass reinforced plastic chajja	sqm	3000
B0893	Magnetic catcher triple strip vertical type	each	24
B0894	Magnetic catcher double strip horizontal type	each	18
B0895	100 mm mortice lock with 6 levers for aluminium door	each	375
B0896	2nd class teak wood moulded beading or Taj beading/ornamental bleading of size 18X5 mm	metre	28
B0897	Ceiling sections 0.55 mm thick having a knurled web of 51.55 mm and two flanges of 26 mm each with lips of 10.55 mm	metre	35
B0898	perimeter channel having one flange of 20 mm and another flange of 30 mm with thickness of 0.55 mm and web of length 27 mm	metre	22
B0899	Nylon sleeves & wooden screws (40 mm)	each	2
B0900	Counter sunk ribbed head screw 25 mm	100 nos.	68
B0901	12 mm thick marine plywood conforming to IS: 710	sqm	695
B0902	12 mm thick fire retardant plywood conforming to IS: 5509	sqm	850
B0903	1.5 mm thick decorative laminated sheet	sqm	365
B0904	1.0 mm thick decorative laminated sheet	sqm	280
B0905	30 mm thick factory made glass fiber reinforced plastic flush door shutter	sqm	2675
B0906	35 mm thick factory made solid panel PVC door shutter of single piece extruded profile non decorative finished (Matt finished)	sqm	2150
B0907	35 mm thick factory made solid panel PVC door shutter of single piece extruded profile decorative finished (wood grain finished)	sqm	2600
B0908	Stainless steel wire guage (Grade-304) aperture 1.4 mm and 0.50mm dia wire	sqm	400
B0909	Factory made door frame fire rated (60 minutes) made with 16 SWG G.I. Sheet of section 143 mm x 57 mm duly filled with vermuculite based concrete mix	metre	1050
B0910	Fire rated door shuttere made with 16 SWG G.I. sheet (60 minutes) without panel	sqm	4500
B0911	Panic Bar / latch (Double point)	each	5200
B0912	65 mm x 55 mm x 2 mm thick Factory made door frame of PVC extruded section in white, grey or wooden finish	metre	355
B0913	37 mm thick Factory made shutter with style,rails and panels of PVC extruded section in white or grey finish i/c carriage	sqm	2400
B0914	75 mm x 53 mm x 2.0 mm thick Factory made door frame of PVC extruded section in white, grey or wooden finish	metre	400
B0915	37 mm thick Factory made fusion welded shutter with style, rails and panels of PVC extruded section in wooden finish	sqm	2600
B0916	Zinc alloy (white powder coated) touch lock with hook for wire mesh shutter	each	120
B0917	Zinc alloy (white powder coated) casement handle for uPVC window/door	each	130
B0918	Zinc alloy (white powder coated) touch lock withhook for uPVC window/door	each	105
B0919	Zinc alloy body with single nylon roller (weight bearing capacity to be 40 kg) for uPVC sliding window	each	56
B0920	Stainless Steel (SS - 304) with adjustable double nylon roller (weight bearing capacity to be 120 kg) for uPVC sliding door/window	each	95
B0921	Zinc alloy (white powder coated) cresent lock for uPVC sliding door/window	each	115
B0922	Stainless steel friction hinge of size 200 mm x 19 x 1.9 mm for uPVC windows	each	205
B0923	Stainless steel friction hinge of size 250 mm x 19 x 1.9 mm for uPVC windows	each	230
B0924	Stainless steel friction hinges (SS-304 grade) size 300 x 19 x 1.9 mm for uPVC window	each	245
B0925	Stainless steel friction hinges (SS-304 grade) size 350 x 19 x 1.9 mm for uPVC window	each	345
B0926	Stainless steel friction hinges (SS-304 grade) size 400 x 19 x 1.9 mm for uPVC window	each	365
B0927	Glass panes of required thickness having 60 minutes of fire resistance both integrity and radiation control (EI 60) and minimum 20 minutes of insulation (EI 20)	sqm	22500
B0928	Wool pile/ weather pile strip for uPVC sliding window	metre	20
B0929	Aluminium Grill as per IS 1868	kg	260
B0930	Stainless steel dash fastener of 8 mm dia and 75 mm long bolt	each	15
B0931	Toughened glass 12 mm thickness	sqm	1747

B0932	Pulley 25 mm dia	each	48
B0933	Rolling shutter made of 80x1.25 mm machine rolled laths	sqm	1200
B0934	Top cover for rolling shutters 1.25 mm thick	metre	800
B0935	27.5 cm long wire spring grade No. 2 for rolling shutters	each	300
B0936	Ball bearing for rolling shutters	each	260
B0937	Extra for mechanical devices chain and cranked operation for operating rolling shutters: exceeding 10.00 sqm and up to 16.80 sqm area of door	sqm	800
B0938	Extra for mechanical devices chain and cranked operation for operating rolling shutters: exceeding 16.80 sqm area of door	sqm	800
B0939	Mild steel round bar 12 mm dia and below	quintal	4900
B0940	Mild steel round bar above 12 mm dia	quintal	4800
B0941	Mild steel square bars	quintal	4900
B0942	Structural steel such as tees, angles channels and R.S. joists	quintal	5000
B0943	Flats up to 10 mm in thickness	quintal	4900
B0944	Flats exceeding 10 mm in thickness	quintal	5000
B0945	Mild steel plates	quintal	5200
B0946	Steel glazed door, window/ ventilator, all members viz. F7D, F4B, K11 and K12B etc.	kg	54
B0947	Mild steel sheets of 1.00 mm thickness for tanks	quintal	5000
B0948	Mild steel hooks	each	32
B0949	Mild steel rivets	quintal	5000
B0950	Iron pintels including welded pin	each	37
B0951	Steel beading 10x10x1.6mm (box type)	metre	27
B0952	Welding by gas plant	cm	2
B0953	20 mm dia holding down bolts	quintal	6100
B0954	Mild steel sheets with bolts and nuts to rest on pintels	each	120
B0955	Supply and Fixing of Tensile Sheet Shed 650GSM sheet with M.S Iron pipe Frame Pole 125mm Heavy Truss M.S Pipe 60mm Heavy, Membrane M.S Pipe 50mm Heavy, Complete With cost of Painting and Labour for Fixing Paint Complete in all Respects	sqm	4000
B0956	Carben Steel galvanised (min 5 micron) dash fastner (min 5 micron) of 10 mm dia double threaded 6.8 grade counter sunk head screw comprising of 10 mm dia polyamide PA 6 grade sleave. Size 10mm x 60 mm	10 nos.	260
B0957	Carben Steel galvanised (min 5 micron) dash fastner (min 5 micron) of 10 mm dia double threaded 6.8 grade counter sunk head screw comprising of 10 mm dia polyamide PA 6 grade sleave. Size 10mm x 80 mm	10 nos.	300
B0958	Carben Steel galvanised (min 5 micron) dash fastner (min 5 micron) of 10 mm dia double threaded 6.8 grade counter sunk head screw comprising of 10 mm dia polyamide PA 6 grade sleave. Size 10 mm x 120 mm	10 nos.	365
B0959	Carben Steel galvanised (min 5 micron) dash fastner (min 5 micron) of 10 mm dia double threaded 6.8 grade counter sunk head screw comprising of 10 mm dia polyamide PA 6 grade sleave. Size 10mm x 140 mm	10 nos.	450
B0960	Carben Steel galvanised (min 5 micron) dash fastner (min 5 micron) of 10 mm dia double threaded 6.8 grade counter sunk head screw comprising of 10 mm dia polyamide PA 6 grade sleave. Size 10mm x 160 mm	10 nos.	575
B0961	Rolling shutters of 80x0.90 mm laths	sqm	1300
B0962	Rolling shutters of 80x1.2 mm laths	sqm	1375
B0963	Top cover of Rolling shutters 0.90 mm thick	metre	450
B0964	Top cover of Rolling shutters 1.20 mm thick	metre	560
B0965	Extra for providing grilled rolling shutters with 8 mm dia M.S. rod	sqm	500
B0966	Mild steel tubes hot finished welded type	kg	65
B0967	Mild steel tubes hot finished seamless type	kg	75
B0968	Mild steel tubes electric resistant or induction butt welded	kg	55
B0969	Stainless steel (Grade-304)hollow section round/square tubes	kg	220
B0970	Stainless steel bolts/square bar and plates	kg	115
B0971	Pressed steel door frames (mild steel sheet 2.00 mm) Profile "B"	metre	220
B0972	Pressed steel door frames (mild steel sheet 2.00 mm) Profile "C"	metre	240
B0973	Pressed steel door frames (mild steel sheet 2.00 mm) Profile "E"	metre	260
B0974	Circular C.I. Box for ceiling fan internal dia 140 mm, 73 mm height, toplid of 1.5mm thick MS sheet	each	52
B0975	Pulley 40 mm dia	each	30
	Material used for Irrigation Works		
B0976	Empty Cement bags	each	5
B0977	Polythene 20 Micron	kg	150
B0978	150 mm dia (ID) PVC corrugated pipe	metre	200

B0979	MS plates, angles, channels etc. i/c fabrication	kg	90
B0980	Oiling of shutters	sqm	1
B0981	GI plate & aluminium lid (hinged)	each	35
B0982	Tarfelt Joint filler board 20 mm thick	sqm	456
B0983	LDPE Sheet 1000 microne [(940 gm per sqm)	sqm	210
B0984	LDPE Sheet 500 micron	sqm	110
B0985	Air entraining admixture	kg	80
B0986	Epoxy Mortar	kg	205
B0987	GI wire of various diameters	quintal	4800
B0988	Stitching roll (Nylone)	each	50
B0989	Geo bag (0.55mx0.65m(130 GSM woven geo bag made upof VT 1300) Weight 90 gm)	each	85
B0990	Geo bag (0.762mx0.508m(130 GSM woven geo bag made upof VT 1300) Weight 95 gm)	each	93
B0991	Geo bag (1.09mx0.69m(200 GSM PPMFwoven geo bag made upof VT 2000 Weight 310 gm)	each	160
B0992	Geo Textile Tube of VT-3300, size 20 mx3.0m dia	metre	9389
B0993	Filling cost for 20m long 3 m dia tube (Cubic content 145 cum)	cum	246
B0994	P.P.Rope Gabbian (1.8mx1.2mx0.5) 150x150 mm mesh, 9 mm dia, 4 strands, made up of	each	1500
B0995	P.P.Rope Gabbian (1.8mx1.8mx0.5) 150x150 mm mess size, made up of 9 mm x 4 strands	each	2500
B0996	Pregalvanized high tensile steel confirming to IS:277-199	kg	90
B0997	Steel weld mesh	sqm	150
B0998	Silicon based Joint Sealant for Tiles	kg	160
B0999	Rubber base Adhesive	kg	223
B1000	Cementitious polymer base adhesive confirming to EOTA ETAG 004 (European Technical Approval)	kg	34
B1001	Polypropylene mechanical fastener with plastic pin confirming to EOTA ETAG 014 (European	each	30
B1002	Moisture cure Polyurethane Foam	750 ml	600
B1003	PVC Corner Bead of size 25mmx25mm fixed with glass fibre mesh (100mm x 100mm)	metre	90
B1004	Cementitious polymer base coat confirming to EOTA ETAG 004 (European Technical Approval)	kg	40
B1005	Fiberglass mesh with alkali-resistant coating having mass per unit area ≥145 g/m2, mesh size: 3.9x4.0 mm ±10%	sqm	75
B1006	50mmx50mm hardwood plug	each	75
B1007	Pre-laminated with decorative lamination on both side exterior Grade-I MDF Board 12 mm thick confirming to IS:14587	sqm	460
B1008	Pre-laminated with decorative lamination on both side exterior Grade-I MDF Board 18 mm thick confirming to IS:14587	sqm	597
B1009	Pre-laminated with decorative lamination one side and other side balancing lamination exterior Grade-I MDF Board 25 mm thick confirming to IS: 14587	sqm	860
B1010	Pre-laminated with decorative lamination one side and other side balancing lamination exterior Grade-I MDF Board 12 mm thick confirming to IS:14587	sqm	430
B1011	Pre-laminated with decorative lamination one side and other side balancing lamination exterior Grade-I MDF Board 18 mm thick confirming to IS:14587	sqm	565
B1012	PVC edge bending tape 2.00 mm thick	metre	20
B1013	Pre laminated both side solid foam uPVC profile (45x20mm)	metre	130
B1014	Solid foam uPVC sheet 20mm thick pre laminated on both side	sqm	2090
B1015	PVC edge beading	metre	31
B1016	Expandable fastner with plastic sleeve	each	5
B1017	Vapour barrier	sqm	175
B1018	Expanded poly ethylene Foam sheet 4mm thick of Density 40kg/m3	sqm	18
B1019	High Density expanded poly ethylene (EPE) Foam 1mm thick	sqm	9
B1020	Bamboo wood Tile Flooring 14mm thick of minimum size 1800mm x130mm	sqm	3470
B1021	Bamboo wood Quarter Round 18mm thick of size 1900mm x 18mm	metre	112
B1022	Bamboo wood door reducer 14mm thick of size 1900mm x 44mm	metre	255
B1023	Bamboo wood Skirting 14mm thick of Size 1900mm x 85mm	metre	300
B1024	Bamboo wood Tile Wall Cladding 10mm thick of size 1900mm x 135mm	sqm	3385
B1025	Bamboo wood T-mold 14mm thick of size 1900mm x 44mm	metre	250
B1026	Bamboo wood Threshold 14mm thick of size 1900mm x 44mm	metre	255
B1027	Bamboo wood shutter of doors	10 cudm	1700
B1028	Bamboo wood panelling (10mm thick)	10 cudm	1680
B1029	Superior class Bamboo wood door frame 65 mm thick,	10 cudm	1675
B1030	Bamboo Mat corrugated sheets 3.5 to 4mm thick conforming to IS 15476:2004	sqm	2648
B1031	Bamboo Mat Ridge cap 3.5 to 4mm thick conforming to IS 15476:2004	metre	2570
B1032	3mm thick Bamboo Mat Board conforming to IS 13958:1994	sqm	1508
B1033	4mm thick Bamboo Mat Board conforming to IS 13958:1994	sqm	1738

B1034	6mm thick Bamboo Mat Board conforming to IS 13958:1994	sqm	2098
B1035	9mm thick Bamboo Mat Board conforming to IS 13958:1994	sqm	2688
B1036	12mm thick Bamboo Mat Board conforming to IS 13958:1994	sqm	3115
B1037	Concealed zinc coated hinges 19-20 mm thick with mounting plate	10 nos.	420
B1038	Zycoprime / equivalent	litre	210
B1039	Zycosil / equivalent	litre	1800
B1040	Elastobar / equivalent	kg	300
B1041	Expanded Polystyrene insulation board 120 mm thick confirming to IS 4671-1984, Fire retardant property self-extinguishing type as per EN 13501-1	sqm	800
B1042	GI Main T ceiling section 30x25x0.3 mm (3 metre long)	each	187
B1043	GI perimeter wall angle 25x25x0.4 mm (3 metre long)	each	157
B1044	GI Intermediate cross T section 25x25x0.3 mm (1.2 metre long)	each	72
B1045	GI Intermediate cross T section 25x25x0.3 mm (0.6 metre long)	each	34
B1046	Gypsum panel 666 X 500 X 100 mm size	sqm	480
B1047	Bonding plaster for Gypsum panel	kg	25
B1048	Scaffolding net made of high density polyethylene UV stabilized having density 100 gm/sqm	sqm	22
B1049	Bi-Axial Extruded GeoGrids of Minimum Tensile Strength 15 kN/m in the longitudinal and transverse direction	sqm	100
B1050	Bi-Axial Extruded GeoGrids of Minimum Tensile Strength 20kN/m in the longitudinal and transverse direction	sqm	115
B1051	Bi-Axial Extruded GeoGrids of Minimum Tensile Strength 30kN/m in the longitudinal and transverse direction	sqm	185
B1052	Bi-Axial Extruded GeoGrids of Minimum Tensile Strength 40kN/m in the longitudinal and transverse direction	sqm	275
B1053	Geosynthetic Drainage with two filtering nonwoven geotextiles having a “W” configuration as longitudinal parallel channels. Minimum thickness to be 7.2mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75mm having pores of 150 micron and tensile strength of 8.0 kN/m and having plane flow capacity of 2.1 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure,tensile strength of 18 kN/m , with mass per unit area of 740 gsm.	sqm	530
B1054	Geosynthetic Drainage Composite having thermobonding a draining core - HDPE geonet comprises of two sets of parallel overlayed ribs integrally connected to have a rhomboidal shape with a polyethylene film and a nonwoven geotextile having mass per unit area 130 g/m2 and tensile strength of 8.0 kN/m having in plane flow capacity of 0.7 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure and tensile strength of 13.5 kN/m , with mass per unit area of 830 gsm,	sqm	630
B1055	Synthetic Geogrid having Ultimate tensile strength- 100 kN/m	sqm	220
B1056	Synthetic Geogrid Ultimate tensile strength- 150 kN/m	sqm	230
B1057	Synthetic Geogrid Ultimate tensile strength- 200 kN/m	sqm	320
B1058	Synthetic Geogrid Ultimate tensile strength- 250 kN/m	sqm	355
B1059	Synthetic Geogrid Ultimate tensile strength- 300kN/m	sqm	365
B1060	Synthetic Geogrid Ultimate tensile strength- 350kN/m	sqm	370
B1061	Synthetic Geogrid Ultimate tensile strength- 400kN/m	sqm	475
B1062	Synthetic Geogrid Ultimate tensile strength- 500kN/m	sqm	535
B1063	Synthetic Geogrid Ultimate tensile strength- 600kN/m	sqm	550
B1064	Synthetic Geogrid Ultimate tensile strength- 700kN/m	sqm	685
B1065	Synthetic Geogrid Ultimate tensile strength- 800kN/m	sqm	750
B1066	Synthetic Geogrid Ultimate tensile strength- 900kN/m	sqm	900
B1067	Synthetic Geogrid Ultimate tensile strength- 1000kN/m	sqm	1025
B1068	Synthetic Geogrid Ultimate tensile strength- 1100kN/m	sqm	1000
B1069	Synthetic Geogrid Ultimate tensile strength- 1200kN/m	sqm	1088
B1070	Fuel wood	quintal	500
B1071	Blades	each	20
B1072	C.P. Brass Extension Nipple (1/2"x2" size)	each	40
B1073	40 mm G.I. Plug	each	30
B1074	Bleaching powder	quintal	1650
B1075	Surface box for stop cock	each	125
B1076	Surface box for sluice valve	each	240
B1077	Surface box for water meter	each	250
B1078	C.I. bracket for wash basin and sinks	pair	88
B1079	8 mm dia C.P. Brass/ S.S. Jet with flexible tube upto 1 metre long with S.S. tringular plate for Eureopean type W.C.	each	200
B1080	C.P.brass chain with 32 mm dia rubber plug	each	40

B1081	C.P.brass chain with 40 mm dia rubber plug	each	40
B1082	Clamps and M.S. stays including bolts and nuts for 100 mm pipe	each	68
B1083	M.S. Holder bat clamp of approved design for 100 mm S.C.I. pipe	each	30
B1084	M.S. Holder bat clamp of approved design for 75 mm S.C.I. pipe	each	27
B1085	Clamps and M.S. stays including bolts and nuts for 50 mm pipe	each	35
B1086	Clamps and M.S. stays including bolts and nuts for 75 mm pipe	each	37
B1087	Clearing eye with chain and lid 100 mm dia	each	44
B1088	Clearing eye with chain and lid 150 mm dia	each	50
B1089	Brass bib-cock 15 mm dia	each	210
B1090	Brass bib-cock 20 mm dia	each	225
B1091	Brass stop-cock 15 mm dia	each	210
B1092	Brass stop-cock 20 mm dia	each	225
B1093	15mm C. P. brass swan neck tap (one way)	each	1000
B1094	15mm C. P. brass swan neck tap (two way)	each	2100
B1095	15mm C. P. brass swan neck tap (three way)	each	2500
B1096	Mosquito proof coupling of approved design	each	30
B1097	25 litres electric water heater (vertical)	each	6000
B1098	30 litres electric water heater (vertical)	each	7000
B1099	35 litres electric water heater (vertical)	each	8000
B1100	40 litres electric water heater (vertical)	each	9000
B1101	50 litres electric water heater (vertical)	each	10000
B1102	70 litres electric water heater (vertical)	each	11500
B1103	80 litres electric water heater (vertical)	each	12500
B1104	90 litres electric water heater (vertical)	each	13500
B1105	100 litres electric water heater (vertical)	each	15000
B1106	140 litres electric water heater (vertical)	each	17000
B1107	C.I. cover and frame 300x300 mm inside	each	477
B1108	C.I. cover without frame 300x300 mm inside i/c cover of 4.50 kg	each	477
B1109	Rectangular cover 455x610 mm with frame (low duty)	each	1400
B1110	Rectangular cover 455x610 mm without frame (low duty)	each	910
B1111	500 mm dia cover with frame (medium duty)	each	4400
B1112	500 mm dia cover without frame (medium duty)	each	2300
B1113	C.I. mouth, brass ferrule 15 mm dia	each	140
B1114	C.I. mouth, brass ferrule 20 mm dia	each	160
B1115	C.I. mouth, brass ferrule 25 mm dia	each	220
B1116	Vitreous china foot rests 250x130x30 mm	pair	100
B1117	C.I. grating 100x100 mm	each	40
B1118	C.I. grating 150x150 mm	each	54
B1119	C.I. grating 180x180 mm	each	65
B1120	S.C.I. gully or nahani grating 100 mm dia	each	25
B1121	Rubber insertions for 75 mm dia pipe joints	each	16
B1122	Rubber insertions for 100 mm dia pipe joints	each	18
B1123	Rubber insertions for 125 mm dia pipe joints	each	20
B1124	Rubber insertions for 150 mm dia pipe joints	each	20
B1125	Rubber insertions for 200 mm dia pipe joints	each	25
B1126	Rubber insertions for 250 mm dia pipe joints	each	40
B1127	Rubber insertions for 300 mm dia pipe joints	each	45
B1128	Mirror of superior make glass 60x45 cm	each	400
B1129	Vitreous china pedestal for wash basin	each	900
B1130	S & S.C.I. standard specials upto 300 mm dia (heavy class)	quintal	3600
B1131	Flanged C.I. standard specials upto 300 mm dia (heavy class)	quintal	5500
B1132	Flush pipe with union spreaders and clamps all in C.P. brass for single stall	each	270
B1133	Flush pipe with union spreaders and clamps all in C.P. brass for double stall	each	400
B1134	Flush pipe with union spreaders and clamps all in C.P. brass for range of three stall	each	520
B1135	Flush pipe with union spreaders and clamps all in C.P. brass for range of four stall	each	600
B1136	Flush pipe and spreaders G.I. for single set of one squatting plate urinal	each	175
B1137	Flush pipe and spreaders G.I. for range of two squatting plates urinal	each	250
B1138	Flush pipe and spreaders G.I. for range of three squatting plates urinal	each	300
B1139	Flush pipe and spreaders G.I. for range of four squatting plates urinal	each	390
B1140	G.I. pipes 15 mm dia	metre	85
B1141	G.I. pipes 20 mm dia	metre	112
B1142	G.I. pipes 25 mm dia	metre	160

B1143	G.I. pipes 32 mm dia	metre	205
B1144	G.I. pipes 40 mm dia	metre	238
B1145	G.I. pipes 50 mm dia	metre	295
B1146	G.I. pipes 65 mm dia	metre	380
B1147	G.I. pipes 80 mm dia	metre	475
B1148	40 mm G.I. pipe flange	each	200
B1149	25 mm G.I. pipe flange	each	140
B1150	20 mm G.I. pipe flange	each	120
B1151	15 mm G.I. pipe flange	each	100
B1152	G.I. back (jam) nuts 25 mm dia	each	15
B1153	G.I. back (jam) nuts 65 mm dia	each	25
B1154	G.I. Bend 32 mm	each	80
B1155	G.I. Socket 32 mm	each	140
B1156	G.I. tees (equal) 25 mm	each	50
B1157	G.I. tees (equal) 65 mm	each	452
B1158	G.I. inlet connection	each	60
B1159	S.C.I. soil, waste and vent single socketed pipe 1.80 metres long: 75 mm dia	each	1050
B1160	S.C.I. soil, waste and vent single socketed pipe 1.80 metres long:100 mm dia	each	1135
B1161	S.C.I. soil, waste and vent single socketed pipe 1.80 metres long:150 mm dia	each	1750
B1162	S.C.I. plain bend 75 mm dia	each	210
B1163	S.C.I. plain bend 100 mm dia	each	258
B1164	S.C.I. plain bend 150 mm dia	each	460
B1165	S.C.I. bend with access door 75 mm dia	each	240
B1166	S.C.I. bend with access door 100 mm dia	each	300
B1167	S.C.I. plain single equal junctions 75x75x75 mm dia	each	278
B1168	S.C.I. plain single equal junctions 100x100x100 mm dia	each	360
B1169	S.C.I. single equal junctions 75x75x75 mm dia with access door	each	320
B1170	S.C.I. single equal junctions 100x100x100 mm dia with access door	each	405
B1171	S.C.I. plain double equal junctions 75x75x75x75 mm dia	each	382
B1172	S.C.I. plain double equal junctions 100x100x100x100 mm dia	each	590
B1173	S.C.I. double equal junctions 75x75x75x75 mm dia with access door	each	500
B1174	S.C.I. double equal junctions 100x100x100x100 mm dia with access door	each	715
B1175	Slotted cowl (terminal guard) 75 mm dia	each	191
B1176	Slotted cowl (terminal guard) 100 mm dia	each	239
B1177	G.I. Union 15 mm nominal bore	each	45
B1178	G.I. Union 20 mm nominal bore	each	72
B1179	G.I. Union 25 mm nominal bore	each	120
B1180	G.I. Union 32 mm nominal bore	each	160
B1181	G.I. Union 40 mm nominal bore	each	215
B1182	G.I. Union 50 mm nominal bore	each	260
B1183	G.I. Union 65 mm nominal bore	each	550
B1184	G.I. Union 80 mm nominal bore	each	600
B1185	Polyethylene water storage tank with cover and suitable locking arrangement	per litre	6
B1186	Sand cast iron S&S plain single unequal junctions: 100x100x75 mm dia	each	494
B1187	Sand cast iron S&S single unequal junctions: 100x100x75 mm dia with access door	each	550
B1188	Sand cast iron S&S plain double unequal junctions: 100x100x75x75 mm dia	each	615
B1189	Sand cast iron S&S double unequal junctions: 100x100x75x75 mm dia with access door	each	700
B1190	Sand cast iron heel rest bend 75 mm dia	each	274
B1191	Sand cast iron heel rest bend 100 mm dia	each	347
B1192	S.C.I. single equal invert branch of required degree 75x75x75 mm dia	each	320
B1193	S.C.I. single equal invert branch of required degree 100x100x100 mm dia	each	410
B1194	S.C.I. double equal invert branch of required degree 75x75x75x75 mm dia	each	410
B1195	S.C.I. double equal invert branch of required degree 100x100x100x100 mm dia	each	550
B1196	S.C.I. single unequal invert branch of required degree 100x100x75 mm dia	each	495
B1197	S.C.I. double unequal invert branch of required degree 100x100x75x75 mm dia	each	570
B1198	S.C.I. door pieces 75 mm dia	each	283
B1199	S.C.I. door pieces 100 mm dia	each	475
B1200	S.C.I. collar 75 mm dia	each	177
B1201	S.C.I. collar 100 mm dia	each	246
B1202	Unplasticised P.V.C. connection pipe with brass union 30 cm long 15 mm bore	each	30
B1203	Unplasticised P.V.C. connection pipe with brass union 30 cm long 20 mm bore	each	35
B1204	Unplasticised P.V.C. connection pipe with brass union 45 cm long 15 mm bore	each	35

B1205	Unplasticised P.V.C. connection pipe with brass union 45 cm long 20 mm bore	each	48
B1206	R.C.C. pipes NP2 class 100 mm dia	metre	160
B1207	R.C.C. pipes NP2 class 150 mm dia	metre	172
B1208	R.C.C. pipes NP2 class 200 mm dia	metre	254
B1209	R.C.C. pipes NP2 class 250 mm dia	metre	286
B1210	R.C.C. pipes NP2 class 300 mm dia	metre	391
B1211	R.C.C. pipes NP2 class 350 mm dia	metre	484
B1212	R.C.C. pipes NP2 class 450 mm dia	metre	660
B1213	R.C.C. pipes NP2 class 1400 mm dia	metre	3190
B1214	R.C.C. pipes NP2 class 1600 mm dia	metre	3670
B1215	R.C.C. collars NP2 class 100 mm dia	each	24
B1216	R.C.C. collars NP2 class 150 mm dia	each	28
B1217	R.C.C. collars NP2 class 250 mm dia	each	40
B1218	R.C.C. collars NP2 class 300 mm dia	each	44
B1219	R.C.C. collars NP2 class 450 mm dia	each	80
B1220	RCC pipe 450 mm dia NP-3 spigot	metre	1624
B1221	RCC pipe 600 mm dia NP-3 spigot	metre	2355
B1222	RCC pipe 900 mm dia NP-3 spigot	metre	3762
B1223	RCC pipe 450 mm dia NP-4 spigot	metre	1733
B1224	RCC pipe 600 mm dia NP-4 spigot	metre	2310
B1225	RCC pipe 900 mm dia NP-4 spigot	metre	4494
B1226	Stoneware pipes grade A (60 cm long) 100 mm dia	each	74
B1227	Stoneware pipes grade A (60 cm long) 150 mm dia	each	114
B1228	Stoneware pipes grade A (60 cm long) 200 mm dia	each	146
B1229	Stoneware pipes grade A (60 cm long) 250 mm dia	each	225
B1230	Stoneware pipes grade A (60 cm long) 300 mm dia	each	328
B1231	Fire clay kitchen sink: 600x450x250 mm	each	1283
B1232	White vitreous china laboratory sink 450x300x150 mm	each	1500
B1233	White vitreous china laboratory sink 600x450x200 mm	each	2500
B1234	White plastic seat (solid) with lid C.P. brass hinges and rubber buffers	each	400
B1235	Black plastic seat (solid) with lid C.P. brass hinges and rubber buffers	each	310
B1236	Shower rose C.P. brass for 15 to 20 mm inlet 100 mm dia	each	100
B1237	Shower rose C.P. brass for 15 to 20 mm inlet 150 mm dia	each	125
B1238	Spun yarn	kg	50
B1239	15 mm C.P. brass tap	each	207
B1240	Oxidized gas tap including cost of nipple (one way)	each	270
B1241	Oxidized gas tap including cost of nipple (two way)	each	400
B1242	Oxidized gas tap including cost of nipple (three way)	each	540
B1243	Oxidized gas tap including cost of nipple (four way)	each	680
B1244	C.P. brass toilet paper holder of standard size	each	225
B1245	Centrifugally SCI(spun) S & S P or S trap	each	300
B1246	C.I. trap for standard urinal with vent arm with operating and other couplings in C.P. brass: 50 mm dia	each	170
B1247	C.I. trap for standard urinal with vent arm with operating and other couplings in C.P. brass: 80 mm dia	each	225
B1248	C.P. brass trap 40 mm dia	each	300
B1249	100 mm S.C.I. trap with vent heel	each	320
B1250	100 mm S.C.I. trap with 100 mm inlet and 100 mm outlet	each	271
B1251	100 mm S.C.I. trap with 100 mm inlet and 75 mm outlet	each	218
B1252	S.W. gully trap P type 100x100 mm	each	100
B1253	S.W. gully trap P type 150x100 mm	each	130
B1254	S.W. gully trap P type 180x150 mm	each	225
B1255	50 mm i/d outlet plain Nahani trap	each	400
B1256	75 mm i/d outlet plain Nahani trap	each	480
B1257	Vitreous china lipped front urinal	each	460
B1258	Vitreous china squatting plate urinal	each	1053
B1259	H.P. or L.P. ball valve with polythene floats: 15 mm dia	each	210
B1260	H.P. or L.P. ball valve with polythene floats: 20 mm dia	each	235
B1261	H.P. or L.P. ball valve with polythene floats: 25 mm dia	each	230
B1262	20 mm dia Gunmetal gate valve with wheel	each	325
B1263	Brass full way valve with C.I. wheel (screwed end) 25 mm dia	each	350
B1264	Brass full way valve with C.I. wheel (screwed end) 32 mm dia	each	410

B1265	Brass full way valve with C.I. wheel (screwed end) 40 mm dia	each	480
B1266	Brass full way valve with C.I. wheel (screwed end) 50 mm dia	each	620
B1267	Brass full way valve with C.I. wheel (screwed end) 65 mm dia	each	1080
B1268	Brass full way valve with C.I. wheel (screwed end) 80 mm dia	each	1620
B1269	Gunmetal non-return valve-horizontal (screwed end) 25 mm dia	each	330
B1270	Gunmetal non-return valve-horizontal (screwed end) 32 mm dia	each	450
B1271	Gunmetal non-return valve-horizontal (screwed end) 40 mm dia	each	560
B1272	Gunmetal non-return valve-horizontal (screwed end) 50 mm dia	each	820
B1273	C.I. sluice valve (with caps) class I: 100 mm dia	each	3993
B1274	C.I. sluice valve (with caps) class I : 125 mm dia	each	4290
B1275	C.I. sluice valve (with caps) class I: 150 mm dia	each	6177
B1276	C.I. sluice valve (with caps) class I : 200 mm dia	each	9845
B1277	C.I. sluice valve (with caps) class I : 250 mm dia	each	15455
B1278	C.I. sluice valve (with caps) class I: 300 mm dia	each	18810
B1279	Vitreous china flat back wash basin 630x450 mm	each	725
B1280	Vitreous china angle back wash basin 600x480 mm	each	725
B1281	Vitreous china angle back wash basin 400x400 mm	each	425
B1282	C.P. brass waste 32 mm	each	80
B1283	C.P. brass waste 40 mm	each	95
B1284	Vitreous china Indian type W.C. pan of size 580 mm	each	450
B1285	Vitreous china orrisa type W.C. pan of size 580 mm	each	1200
B1286	Vitreous china pedestal type water closet	each	1000
B1287	Bolts and nuts 16 mm dia 60 mm long	each	11
B1288	Bolts and nuts 16 mm dia 65 mm long	each	12
B1289	Bolts and nuts 20 mm dia 65 mm long	each	15
B1290	Bolts and nuts 20 mm dia 70 mm long	each	17
B1291	Bolts and nuts 20 mm dia 75 mm long	each	16
B1292	White vitreous china dual purpose closet (Anglo Indian W.C.) suitable for use as squatting pan or European type water closet as per manufacturer's specifications	each	2500
B1293	Floor mounted white vitrous china double trap syphonic WC with 10 litre cistern and all fittings & fixtures,seat cover etc	each	9500
B1294	Vitreous china foot rests 250x125x25 mm	pair	100
B1295	Bidet suite in viterous chinaware 38 cm (white)	each	10500
B1296	Bidet suite in viterous chinaware 38 cm (single colour)	each	12000
B1297	Bidet suite in viterous chinaware 38 cm (mixed colour)	each	21000
B1298	C.P. Bidet fittsngs four taps holes basin mixer with pop up waste complete	per set	12500
B1299	C. P. brass bath tub mixer 20 mm with telephonic shower	each	1800
B1300	C.P. brass Tooth Brush holder	each	120
B1301	C.P. brass Tooth Brush-cum-Tooth Paste holder	each	180
B1302	C. P. brass tumbler-cum-tooth brush holder	each	250
B1303	Tooth brush and tumbler holder (Vitreous China-white)	each	100
B1304	Tooth brush and tumbler holder (Vitreous China-Single Colour)	each	150
B1305	Fibre glass Bath tub (Swan) with Grip handles 1800mm x 750mm	each	3000
B1306	Fibre glass Bath tub (Swan) with Grip handles 1650mm x 750mm	each	2900
B1307	Fibre glass Bath tub (Swan) with Grip handles 1650mm x 700mm	each	2800
B1308	Fibre glass Bath tub (Swan) with Grip handles 1575mm x 750mm	each	2700
B1309	Fibre glass Bath tub (Swan) with Grip handles 1500mm x 750mm	each	2600
B1310	Fibre glass Bath tub (Swan) with Grip handles 1450mm x 700mm	each	2500
B1311	C.P. Coat and hat hook (one way)	each	60
B1312	C.P. Coat and hat hook (two way)	each	80
B1313	C.P. Coat and hat hook (three way)	each	100
B1314	Aluminium Coat and hat hook (One way)	each	75
B1315	Aluminium Coat and hat hook (Two way)	each	100
B1316	Aluminium Coat and hat hook (Three way)	each	125
B1317	Division Plate 680 mmx330 mm (Vitreous Chinaware) (White)	each	600
B1318	Division Plate 680 mmx330 mm (Single Colour) (Vitreous Chinaware)	each	700
B1319	Division Plate 680 mmx330 mm (Mixed Colour) (Vitreous Chinaware)	each	750
B1320	Division Plate 835mm x 355 mm (Vitreous Chinaware) (White)	each	800
B1321	Division Plate 835mm x 355 mm (Single Colour) (Vitreous Chinaware)	each	900
B1322	Division Plate 835mm x 355 mm (Mixed Colour)(Vitreous Chinaware)	each	1000
B1323	CP grating 100mm dia	each	100
B1324	Oval Wash Basin	each	1100

B1325	Carnival Wall hanging WC	each	5165
B1326	Carnival WC Seat Cover	each	920
B1327	Providing cistern with concealed knob	each	3750
B1328	Health Faucet	each	1238
B1329	Angle valve	each	550
B1330	Swan neck pillar cock	each	1743
B1331	Bottle trap	each	1363
B1332	Soap Dish	each	498
B1333	Towel Ring	each	552
B1334	Toilet paper holder	each	872
B1335	Glass Self F5005301	each	2470
B1336	CP Nipple 12mm dia 150mm length	each	130
B1337	CP Nipple 12mm dia 75mm length	each	75
B1338	CP Nipple 12mm dia 50mm length	each	50
B1339	Flush Cock 32 mm dia	each	2754
B1340	Gunmetal non-return valve - vertical (screwed end) 25 mm dia	each	350
B1341	Gunmetal non-return valve - vertical (screwed end) 32 mm dia	each	500
B1342	Gunmetal non-return valve - vertical (screwed end) 40 mm dia	each	700
B1343	Gunmetal non-return valve - vertical (screwed end) 50 mm dia	each	900
B1344	Vitreous china Surgeon type wash basin of size 660x460 mm	each	1000
B1345	Vitreous chinaware drinking fountain (white)	each	2500
B1346	Vitreous chinaware drinking fountain (single colour)		3500
B1347	Vitreous chinaware drinking fountain (mixed colour)		5000
B1348	C.P. Brass fountain fittings complete set	per set	5000
B1349	Vitreous chinaware plain channel 600 mm x 1580 mm (White)	each	1100
B1350	Vitreous chinaware plain channel 600 mm x 1580 mm (Single colour)	each	1400
B1351	600x120 mm glass shelf with anodised aluminium angle frame, C.P. brass brackets and guard rail of standard size	each	250
B1352	Vitreous china flat back wash basin 550x400 mm	each	545
B1353	C.I. sluice valve (with caps) class II : 100 mm dia	each	2160
B1354	C.I. sluice valve (with caps) class II : 125 mm dia	each	2560
B1355	C.I. sluice valve (with caps) class II : 150 mm dia	each	3200
B1356	C.I. sluice valve (with caps) class II : 200 mm dia	each	7120
B1357	C.I. sluice valve (with caps) class II : 250 mm dia	each	11600
B1358	C.I. sluice valve (with caps) class II : 300 mm dia	each	14560
B1359	15 mm Battery Based Sensor Pillar Cock	each	5800
B1360	C.P. Brass union 40mm dia	each	200
B1361	C.C.I. (spun) socketed soil, waste and vent pipe 1.80 metres long:100 mm dia	each	1200
B1362	C.C.I. (spun) socketed soil, waste and vent pipe 1.80 metres long:75 mm dia	each	1100
B1363	S.C.I. S&S bends with access door 100 mm dia	each	300
B1364	S.C.I. S&S bends with access door 75 mm dia	each	250
B1365	S.C.I. S&S bend 100 mm dia	each	265
B1366	S.C.I. S&S bend 75 mm dia	each	195
B1367	S.C.I. S&S heel rest sanitary bend 100 mm dia	each	296
B1368	S.C.I. S&S heel rest sanitary bend 75 mm dia	each	250
B1369	S.C.I. S&S single equal junctions 100x100x100 mm	each	472
B1370	S.C.I. S&S single equal junctions 75x75x75 mm	each	330
B1371	S.C.I. S&S single equal junctions with access door 100x100x 100 mm	each	495
B1372	S.C.I. S&S single equal junctions with access door 75x75x75 mm	each	373
B1373	S.C.I. S&S double equal junctions 100x100x100x100 mm	each	620
B1374	S.C.I. S&S double equal junctions 75x75x75x75 mm	each	462
B1375	S.C.I. S&S double equal junctions with access door 100x100x100x100 mm	each	615
B1376	S.C.I. S&S double equal junctions with access door 75x75x75x75 mm	each	480
B1377	S.C.I. S&S single unequal junctions 100x100x75 mm	each	570
B1378	S.C.I. S&S single unequal junctions with access door 100x100x75 mm	each	640
B1379	S.C.I. S&S double unequal junctions 100x100x75x75 mm	each	800
B1380	S.C.I. S&S double unequal junctions with access door 100x100x75x75 mm	each	850
B1381	S.C.I. S&S single equal invert branch of required degree 100x100x100 mm dia	each	425
B1382	S.C.I. S&S single equal invert branch of required degree 75x75x 75 mm dia	each	323
B1383	S.C.I. S&S double equal invert branch of required degree 100x100x100x100 mm dia	each	530
B1384	S.C.I. S&S double equal invert branch of required degree 75x75x75x75 mm dia	each	425
B1385	S.C.I. S&S single unequal invert branch of required degree 100x100x75 mm dia	each	545

B1386	S.C.I. S&S double unequal invert branch of required degree 100x100x75x75 mm dia	each	725
B1387	S.C.I. S&S, 75 mm offset for 75 mm dia pipe	each	225
B1388	S.C.I. S&S, 150 mm offset for 75 mm dia pipe	each	285
B1389	S.C.I. S&S, 150 mm offset for 100 mm dia pipe	each	390
B1390	S.C.I. S&S, 114 mm offset for 75 mm dia pipe	each	300
B1391	S.C.I. S&S, 114 mm offset for 100 mm dia pipe	each	383
B1392	S.C.I. S&S, 152 mm offset for 75 mm dia pipe	each	358
B1393	S.C.I. S&S, 152 mm offset for 100 mm dia pipe	each	455
B1394	S.C.I. S&S door pieces 100 mm dia	each	400
B1395	S.C.I. S&S door pieces 75 mm dia	each	295
B1396	S.C.I. S&S, Slotted Cowl (Terminal Guard) 100 mm	each	264
B1397	S.C.I. S&S, Slotted Cowl (Terminal Guard) 75 mm	each	210
B1398	S.C.I. S&S, collars 100 mm	each	279
B1399	S.C.I. S&S, collars 75 mm	each	170
B1400	S.C.I. S&S, 75 mm offset for 75 mm dia pipe	each	218
B1401	S.C.I. S&S, 75 mm offset for 100 mm dia pipe	each	363
B1402	Vitreous china toilet paper holder of standard size	each	100
B1403	560 mm dia cover with frame (Heavy duty)	each	9000
B1404	560 mm dia cover without frame (Heavy duty)	each	5000
B1405	Vitreous china flat back wash basin 450x300 mm	each	310
B1406	Vitreous china 10 litres low level cistern without fittings	each	715
B1407	Vitreous china 10 litres low level cistern with fittings	each	1240
B1408	Wall mounted water closet of size 780 x 370x690 mm	each	6000
B1409	Adjustable Vitreous China Cistern with fittings of flushing capacity 3/6/9 litre adjustibla to 4 litre/8litre)	each	1900
B1410	White Vetrious China Waterless Urinal of size 600x330x315 mm	each	9650
B1411	Cistern with fittings for Waterless Urinal	each	2290
B1412	Battery based infrared sensor operated white Vitreous Urinal of aprox.size 610x390x370 mm	each	4500
B1413	S.C.I. Tee 150 mm	each	570
B1414	Stainless steel kitchen sink - with drain board 510x1040 mm bowl depth 250 mm	each	2480
B1415	Stainless steel kitchen sink - with drain board 510 x 1040 mm bowl depth 225 mm	each	3000
B1416	Stainless steel kitchen sink - with drain board 510 x 1040 mm bowl depth 200 mm	each	2800
B1417	Stainless steel kitchen sink - with drain board 510x1040 mm bowl depth 178 mm	each	2500
B1418	Stainless steel kitchen sink - without drain board 610x510 mm bowl depth 200 mm	each	1800
B1419	Stainless steel kitchen sink - without drain board 610x460 mm bowl depth 200 mm	each	1200
B1420	Stainless steel kitchen sink - without drain board 470x420 mm bowl depth 178 mm	each	1050
B1421	Coloured Orissa pattern W.C. pan 580x440 mm	each	1750
B1422	Coloured Pedestal type W.C. pan 580x440 mm (European type)	each	800
B1423	Coloured Vitreous china 10 lit. low level cistern	each	1000
B1424	Coloured (other than black) solid P.V.C. seat in European W.C. pan	each	390
B1425	Circular shape 450 mm dia Mirror with Plastic moulded frame	each	430
B1426	Rectangular shape 453x357 mm Mirror with Plastic moulded frame	each	290
B1427	Oval shape 450x350 mm (outer dimensions) Mirror with Plastic moulded frame	each	340
B1428	Rectangular shape 1500x450 mm Mirror with Plastic moulded frame	each	670
B1429	Hard board 6 mm thick	sqm	115
B1430	Semi Rigid PVC waste pipe for sink and wash basin 32 mm dia with length not less than 700 mm i/c PVC waste fittings	each	25
B1431	Semi Rigid PVC waste pipe for sink and wash basin 40 mm dia with length not less than 700 mm i/c PVC waste fittings	each	33
B1432	Flexible (coil shaped) PVC waste pipe for sink and wash basin 32mm dia with length not less than 700 mm i/c PVC waste fittings	each	35
B1433	Flexible (coil shaped) PVC waste pipe for sink and wash basin 40 mm dia with length not less than 700 mm i/c PVC waste fittings	each	35
B1434	Flexible CP connection for geysers / wash basins	each	60
B1435	Bottle Trap	each	620
B1436	CP Brass Single lever telephonic wall mixer of approved make	each	4500
B1437	Pressure releasing valve for geysers	each	250
B1438	Coloured High density polyethylene / poly propylene 10 lit. (full flush) capacity controlled low level flushing cistern with fittings	each	550
B1439	White Vitreous china 10 litre (full flush) capacity controlled low level flushing cistern with all fittings	each	700

B1440	Coloured Vitreous china 10 litre (full flush) capacity controlled low level flushing cistern with all fittings	each	1150
B1441	S.W. intercepting trap 100 mm dia	each	185
B1442	S.W. intercepting trap 150 mm dia	each	240
B1443	Rectangular shape 600x450 mm precast R.C.C. manhole cover with frame - L.D. - 2.5	each	625
B1444	Square shape 450x450 mm precast R.C.C. manhole cover with frame - L.D. - 2.5	each	535
B1445	Circular shape 450 mm dia precast R.C.C. manhole cover with frame - L.D. - 2.5	each	535
B1446	Rectangular shape 500x500 mm precast R.C.C. manhole cover with frame - M.D. - 10	each	620
B1447	Circular shape 500 mm dia precast R.C.C. manhole cover with frame- M.D.-10	each	535
B1448	Circular shape 560 mm dia precast R.C.C. manhole cover with frame - H.D. - 20	each	830
B1449	Circular shape 560 mm dia precast R.C.C. manhole cover with frame - E.H.D. - 35	each	1100
B1450	C.P. Brass bibcock 15 mm	each	290
B1451	C.P. Brass long Nose bibcock 15 mm	each	430
B1452	C.P. Brass long body bibcock 15 mm	each	385
B1453	C.P. Brass stop cock (concealed) 15 mm	each	430
B1454	C.P. Brass angle valve 15 mm	each	375
B1455	Flushing Cistern P.V.C. 10 litre capacity (low level) (White) (with fittings, accessories and flush pipe)	each	575
B1456	P.V.C. automatic flushing cistern 5 litre capacity	each	470
B1457	P.V.C. flushing cistern 5 litre capacity	each	400
B1458	P.V.C. automatic flushing cistern 10 litre capacity	each	510
B1459	15 mm C.P. brass tap with elbow operation lever	each	430
B1460	White glazed fire clay draining board 600x450x25 mm	each	525
B1461	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Single lipped urinal	each	445
B1462	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Range of two lipped urinals	each	765
B1463	G.i. flush pipe and C.P. brass spreader including C.P. connecting pipe Range of three lipped urinals	each	1050
B1464	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Range of four lipped urinals	each	1430
B1465	White vitreous china clay half stall urinal flat back 580x380x350 mm or angle back	each	865
B1466	Precast R.C.C. grating with frame 500x450 mm horizontal grating	each	620
B1467	Precast R.C.C. grating with frame 450x100 mm vertical grating	each	235
B1468	15 mm PTMT bib cock	each	71
B1469	15 mm PTMT bib cock with flange (fancy)	each	105
B1470	15 mm PTMT bib cock long body with flange	each	116
B1471	15 mm dia PTMT stop cock (male thread)	each	71
B1472	20 mm dia PTMT stop cock	each	97
B1473	PTMT pillar cock	each	125
B1474	PTMT push cock 15 mm dia	each	62
B1475	PTMT push cock 12 mm dia 20 mm BSP	each	57
B1476	PTMT grating 100 mm dia	each	20
B1477	PTMT Pillar cock (fancy) 15 mm foam flow	each	138
B1478	125 mm grating with waste hole	each	30
B1479	Rectangular type with openable circular lid 150 mm size 18 mm high with 100 mm dia (110 gm)	each	118
B1480	Double acting air valve 50 mm	each	3715
B1481	Double acting air valve 80 mm	each	4525
B1482	Double acting air valve 100 mm	each	5910
B1483	Water meter (including testing charges) 80 mm	each	2030
B1484	Water meter (including testing charges) 100 mm	each	3143
B1485	Water meter (including testing charges) 150 mm	each	4765
B1486	Water meter (including testing charges) 200 mm	each	5145
B1487	Dirt box strainer 80 mm	each	2680
B1488	Dirt box strainer 100 mm	each	4370
B1489	Dirt box strainer 150 mm	each	5540
B1490	Dirt box strainer 200 mm	each	7860
B1491	PTMT - Waste Coupling 31/32 mm	each	34
B1492	PTMT - Waste Coupling 38/40 mm	each	48
B1493	PTMT - Bottle Trap 31/32 mm	each	210
B1494	PTMT - Bottle Trap 38/40 mm	each	220
B1495	PTMT Ball Cock 15mm complete with Epoxy Coated Aluminium Rod & H.D. Ball	each	100
B1496	PTMT Ball Cock 20mm complete with Epoxy Coated Aluminium Rod & H.D. Ball	each	135

B1497	PTMT Ball Cock 25mm complete with Epoxy Coated Aluminium Rod & H.D. Ball	each	290
B1498	PTMT Ball Cock 40mm complete with Epoxy Coated Aluminium Rod & H.D. Ball	each	480
B1499	PTMT Ball Cock 50mm complete with Epoxy Coated Aluminium Rod & H.D. Ball	each	870
B1500	PTMT Angle Stop cock with Flange 15 mm	each	100
B1501	PTMT Swiveling shower 15 mm	each	70
B1502	PTMT Liquid Soap Container of 400 ml capacity	each	105
B1503	PTMT - Towel Ring 215x200x37 mm	each	130
B1504	PTMT - Towel Rail (450 mm long)	each	135
B1505	PTMT - Towel Rail (600 mm long)	each	165
B1506	PTMT Shelf 450x124x36 mm	each	200
B1507	PTMT - Urinal Spreader 15 mm	each	76
B1508	PTMT Soap Dish/Holder 138x102x75 mm	each	84
B1509	Hubless centrifugally cast (spun) iron pipes as per IS 15905 - 100 mm dia (3000 mm length pipe)	metre	700
B1510	Hubless centrifugally cast (spun) iron pipes as per IS 15905 - 75 mm dia (3000 mm length pipe)	metre	570
B1511	Hubless centrifugally cast (spun) iron plain bend as per IS 15905 - 100mm dia	each	230
B1512	Hubless centrifugally cast (spun) iron plain bend as per IS 15905 -75 mm dia	each	160
B1513	Hubless centrifugally cast (spun) iron double equal plain junction as per IS 15905 - 100x100x100x100 mm dia	each	510
B1514	Hubless centrifugally cast (spun) iron double equal plain junction as per IS 15905 - 75x75x75x75 mm dia	each	275
B1515	Hubless centrifugally cast (spun) iron single equal plain junction as per IS 15905 - 100x100x100 mm dia	each	400
B1516	Hubless centrifugally cast (spun) iron single equal plain junction as per IS 15905 - 75x75x75 mm dia	each	215
B1517	Hubless centrifugally cast (spun) iron double unequal plain junction as per IS 15905 - 100x100x75x75 mm dia	each	400
B1518	Hubless centrifugally cast (spun) iron single unequal plain junction as per IS 15905 - 100x100x75 mm dia	each	375
B1519	Hubless centrifugally cast (spun) iron double equal plain invert branch as per IS 15905 - 100x100x100x100 mm dia	each	625
B1520	Hubless centrifugally cast (spun) iron single equal plain invert branch as per IS 15905 - 100x100x100 mm dia	each	390
B1521	Hubless centrifugally cast (spun) iron single equal plain invert branch as per IS 15905 - 75x75x75 mm dia	each	260
B1522	Hubless centrifugally cast (spun) iron single unequal plain invert branch 45 degree as per IS 15905 - 100x100x75 mm dia	each	430
B1523	Hubless centrifugally cast (spun) iron 65 mm offset with 100 mm dia pipe as per IS 15905	each	360
B1524	Hubless centrifugally cast (spun) iron 65 mm offset with 75 mm dia pipe as per IS 15905	each	295
B1525	Hubless centrifugally cast (spun) iron 130 mm offset with 100 mm dia pipe as per IS 15905	each	440
B1526	Hubless centrifugally cast (spun) iron 130 mm offset with 75 mm dia pipe as per IS 15905	each	310
B1527	Hubless centrifugally cast (spun) iron bend with access door - 100mm dia as per IS 15905	each	365
B1528	Hubless centrifugally cast (spun) iron bend with access door - 75mm dia as per IS 15905	each	290
B1529	Hubless centrifugally cast (spun) iron terminal guard (slotted cowl) -100 mm dia as per IS 15905	each	270
B1530	Hubless centrifugally cast (spun) iron trap with 100 mm inlet and 100 mm outlet as per IS 15905	each	540
B1531	Hubless centrifugally cast (spun) iron trap with 100 mm inlet and 75 mm outlet as per IS 15905	each	385
B1532	SS 304 grade shielded coupling with EPDM rubber gasket for 100mm dia Hubless centrifugally cast (spun) iron	each	275
B1533	SS 304 grade shielded coupling with EPDM rubber gasket for 75 mm dia Hubless centrifugally cast (spun) iron	each	250
B1534	Rubber Gaskets Conforming to I.S 5382 of S.B.R quality 100 mm dia	each	23
B1535	Rubber Gaskets Conforming to I.S 5382 of S.B.R quality 150 mm dia	each	29
B1536	Rubber Gaskets Conforming to I.S 5382 of S.B.R quality 200 mm dia	each	50
B1537	Rubber Gaskets Conforming to I.S 5382 of S.B.R quality 250 mm dia	each	59
B1538	Rubber Gaskets Conforming to I.S 5382 of S.B.R quality 300 mm dia	each	88
B1539	Ductile Iron Pipe Class K-9 flanges and welding 100 mm dia	metre	880
B1540	Ductile Iron Pipe Class K-9 flanges and welding 150 mm dia	metre	1320
B1541	Ductile Iron Pipe Class K-9 flanges and welding 200 mm dia	metre	1724

B1542	Ductile Iron Pipe Class K-9 flanges and welding 250 mm dia	metre	2360
B1543	Ductile Iron Pipe Class K-9 flanges and welding 300 mm dia	metre	3032
B1544	S&S Centrifugally (Spun) C.I. Pipe class LA 100 mm dia	metre	686
B1545	S&S Centrifugally (Spun) C.I. Pipe class LA 125 mm dia	metre	854
B1546	S&S Centrifugally (Spun) C.I. Pipe class LA 150 mm dia	metre	1029
B1547	S&S Centrifugally (Spun) C.I. Pipe class LA 200 mm dia	metre	1752
B1548	S&S Centrifugally (Spun) C.I. Pipe class LA 250 mm dia	metre	2286
B1549	S&S Centrifugally (Spun) C.I. Pipe class LA 300 mm dia	metre	3086
B1550	S&S Centrifugally (Spun) C.I. Pipe Specials as per IS 1538 suitable for lead jointing up to 300 mm dia	quintal	4152
B1551	S&S Centrifugally (Spun) C.I. Pipe Specials as per IS 1538 suitable for lead jointing over 300 mm dia	quintal	4960
B1552	Screwed double flanged centrifugally cast (spun) C.I. Pipe of Class B conforming to I.S. 1536, - 100 mm dia	metre	1048
B1553	Screwed double flanged centrifugally cast (spun) C.I. Pipe of Class B conforming to I.S. 1536, - 150 mm dia	metre	1638
B1554	Screwed double flanged centrifugally cast (spun) C.I. Pipe of Class B conforming to I.S. 1536, - 200 mm dia	metre	2590
B1555	Screwed double flanged centrifugally cast (spun) C.I. Pipe of Class B conforming to I.S. 1536, - 250 mm dia	metre	3124
B1556	Screwed double flanged centrifugally cast (spun) C.I. Pipe of Class B conforming to I.S. 1536, - 300 mm dia	metre	3992
B1557	Ductile Iron Class K- 7 pipe conforming to I.S. 8329 - 100 mm dia	metre	810
B1558	Ductile Iron Class K- 7 pipe conforming to I.S. 8329 - 150 mm dia	metre	912
B1559	Ductile Iron Class K- 7 pipe conforming to I.S. 8329 - 200 mm dia	metre	1120
B1560	Ductile Iron Class K- 7 pipe conforming to I.S. 8329 - 250 mm dia	metre	1440
B1561	Ductile Iron Class K- 7 pipe conforming to i.S. 8329 - 300 mm dia	metre	1800
B1562	Salem Stainless steel AISI - 304 (18/8) Orrisa pattern W.C. pan 724mm X 578 mm	each	4500
B1563	Salem Stainless steel AISI - 304 (18/8) Round basin 405mm X 355 mm	each	1500
B1564	Salem Stainless steel AISI - 304 (18/8) Wash basin 530mm X 345 mm	each	2000
B1565	Centrifugally cast (spun) iron S&S 100 mm inlet and 100 mm outlet	each	450
B1566	Centrifugally cast (spun) iron S&S 100 mm inlet and 75 mm outlet	each	500
B1567	P.T.M.T. Urinal cock 15 mm dia	each	107
B1568	P.T.M.T. Bib cock with nozzle 15 mm	each	155
B1569	P.T.M.T. Stop cock (concealed) 15 mm	each	134
B1570	15 mm nominal bore and 30 cm length PVC connection pipe with P.T.M.T. Nuts	each	47
B1571	15 mm nominal bore and 45 cm length PVC connection pipe with P.T.M.T. Nuts	each	57
B1572	P.T.M.T. extension nipple 15 mm dia	each	30
B1573	P.T.M.T. extension nipple 20 mm dia	each	54
B1574	P.T.M.T. extension nipple 25 mm dia	each	78
B1575	GI injection nipple 32mm dia, 75mm long	each	120
B1576	1216 mm PE-AL-PE Composite pressure pipe	metre	62
B1577	1620 mm PE-AL-PE Composite pressure pipe	metre	78
B1578	2025 mm PE-AL-PE Composite pressure pipe	metre	110
B1579	2532 mm PE-AL-PE Composite pressure pipe	metre	157
B1580	3240 mm PE-AL-PE Composite pressure pipe	metre	235
B1581	4050 mm PE-AL-PE Composite pressure pipe	metre	330
B1582	PPR Union 20 mm	each	48
B1583	PPR Union 25 mm	each	97
B1584	PPR Union 32 mm	each	137
B1585	PPR Union 40 mm	each	185
B1586	PPR Union 50 mm	each	353
B1587	PPR Union 63 mm	each	484
B1588	PPR Union 75 mm	each	933
B1589	40 mm long S.S screws with plastic rawl plugs	100 nos.	40
B1590	Poly propylene- Random - Co - Polymer (PPR) pipes PN-16 (SDR 7.4) - 20 mm Outer dia	metre	43
B1591	Poly propylene- Random - Co - Polymer (PPR) pipes PN-16 (SDR 7.4) - 25 mm Outer dia	metre	67
B1592	Poly propylene- Random - Co - Polymer (PPR) pipes PN-16 (SDR 7.4) - 32 mm Outer dia	metre	107
B1593	Poly propylene- Random - Co - Polymer (PPR) pipes PN-16 (SDR 7.4) - 40 mm Outer dia	metre	161
B1594	Poly propylene- Random - Co - Polymer (PPR) pipes PN-10 (SDR 11) - 50 mm Outer dia	metre	252
B1595	Poly propylene- Random - Co - Polymer (PPR) pipes PN-10 (SDR 11) - 63 mm Outer dia	metre	282
B1596	Poly propylene- Random - Co - Polymer (PPR) pipes PN-10 (SDR 11) - 75 mm Outer dia	metre	418

B1597	Poly propylene- Random - Co - Polymer (PPR) pipes PN-10 (SDR 11) - 90 mm Outer dia	metre	598
B1598	Chlorinated Polyvinyl - chloride (CPVC) pipe 15 mm outer dia	metre	45
B1599	Chlorinated Polyvinyl - chloride (CPVC) pipe 20 mm outer dia	metre	74
B1600	Chlorinated Polyvinyl - chloride (CPVC) pipe 25 mm outer dia	metre	108
B1601	Chlorinated Polyvinyl - chloride (CPVC) pipe 32 mm outer dia	metre	155
B1602	Chlorinated Polyvinyl - chloride (CPVC) pipe 40 mm outer dia	metre	220
B1603	Chlorinated Polyvinyl - chloride (CPVC) pipe 50 mm outer dia	metre	365
B1604	Chlorinated Polyvinyl - chloride (CPVC) pipe 62.5 mm inner dia	metre	780
B1605	Chlorinated Polyvinyl - chloride (CPVC) pipe 75 mm inner dia	metre	1015
B1606	Chlorinated Polyvinyl - chloride (CPVC) pipe 100 mm inner dia	metre	1450
B1607	Chlorinated Polyvinyl - chloride (CPVC) pipe 150 mm inner dia	metre	3050
B1608	SS pipe 304 grades with press fit technology as per JIS 3448 standard 15.88 mm outer dia	metre	130
B1609	SS pipe 304 grades with press fit technology as per JIS 3448 standard 22.22 mm outer dia	metre	243
B1610	SS pipe 304 grades with press fit technology as per JIS 3448 standard 28.58 mm outer dia	metre	297
B1611	SS pipe 304 grades with press fit technology as per JIS 3448 standard 34.00 mm outer dia	metre	423
B1612	SS pipe 304 grades with press fit technology as per JIS 3448 standard 42.70 mm outer dia	metre	441
B1613	SS pipe 304 grades with press fit technology as per JIS 3448 standard 48.60 mm outer dia	metre	610
B1614	Coupling/Socket fittings for 22.22 mm outer dia SS pipe	each	63
B1615	Coupling/Socket fittings for 28.58 mm outer dia SS pipe	each	89
B1616	Coupling/Socket fittings for 34.00 mm outer dia SS pipe	each	131
B1617	Coupling/Socket fittings for 42.70 mm outer dia SS pipe	each	158
B1618	Coupling/Socket fittings for 48.60 mm outer dia SS pipe	each	180
B1619	Reducer for 22.22 mm X 15.88 mm outer Dia SS pipe	each	103
B1620	Reducer for 28.58 mm X 15.88 mm outer Dia SS pipe	each	141
B1621	Reducer for 28.58 mm X 22.22 mm outer Dia SS pipe	each	145
B1622	Reducer for 34.00 mm X 15.88 mm outer Dia SS pipe	each	184
B1623	Reducer for 34.00 mm X 22.22 mm outer Dia SS pipe	each	187
B1624	Reducer for 34.00 mm X 28.58 mm outer Dia SS pipe	each	190
B1625	Reducer for 42.70 mm X 15.88 mm outer Dia SS pipe	each	359
B1626	Reducer for 42.70 mm X 22.22 mm outer Dia SS pipe	each	362
B1627	Reducer for 42.70 mm X 28.58 mm outer Dia SS pipe	each	362
B1628	Reducer for 42.70 mm X 34.00 mm outer Dia SS pipe	each	387
B1629	Reducer for 48.60 mm X 15.88 mm outer Dia SS pipe	each	410
B1630	Reducer for 48.60 mm X 22.22 mm outer Dia SS pipe	each	410
B1631	Reducer for 48.60 mm X 28.58 mm outer Dia SS pipe	each	410
B1632	Reducer for 48.60 mm X 34.00 mm outer Dia SS pipe	each	410
B1633	Reducer for48.60 mm X 42.70 mm outer Dia SS pipe	each	410
B1634	Slip Coupling / Socket 15.88 mm outer dia SS pipe	each	47
B1635	Slip Coupling / Socket 22.22 mm outer dia SS pipe	each	63
B1636	Slip Coupling / Socket 28.58 mm outer dia SS pipe	each	89
B1637	Slip Coupling / Socket 34.00 mm outer dia SS pipe	each	131
B1638	Slip Coupling / Socket 42.70 mm outer dia SS pipe	each	158
B1639	Slip Coupling / Socket 48.60 mm outer dia SS pipe	each	170
B1640	Elbow 90° for 15.88 mm outer dia SS pipe	each	58
B1641	Elbow 90° for 22.22 mm outer dia SS pipe	each	63
B1642	Elbow 90° for 28.58 mm outer dia SS pipe	each	96
B1643	Elbow 90° for 34.00 mm outer dia SS pipe	each	109
B1644	Elbow 90° for 42.70 mm outer dia SS pipe	each	116
B1645	Elbow 90° for 48.60 mm outer dia SS pipe	each	150
B1646	Reducing Elbow 90° for 22.22 mm X 15.88 mm outer dia SS pipe	each	148
B1647	Reducing Elbow 90° for 28.58 mm X 15.88 mm outer dia SS pipe	each	191
B1648	Reducing Elbow 90° for 28.58 mm X 22.22 mm outer dia SS pipe	each	221
B1649	Reducing Elbow 90° for 34.00 mm X 22.22 mm outer dia SS pipe	each	287
B1650	Reducing Elbow 90° for 34.00 mm X 28.58 mm outer dia SS pipe	each	345
B1651	Reducing Elbow 90° for 42.70 mm X 34.00 mm outer dia SS pipe	each	179
B1652	Equal Tee for 15.88 mm outer dia SS pipe	each	159
B1653	Equal Tee for 22.22 mm outer dia SS pipe	each	231
B1654	Equal Tee for 28.58 mm outer dia SS pipe	each	273
B1655	Equal Tee for 34.00 mm outer dia SS pipe	each	437
B1656	Equal Tee for 42.70 mm outer dia SS pipe	each	683
B1657	Equal Tee for 48.60 mm outer dia SS pipe	each	887
B1658	Reducing Tee for 22.22 mm X 15.88 mm outer dia SS	each	179

B1659	Reducing Tee for 28.58 mm X 15.88 mm outer dia SS pipe	each	273
B1660	Reducing Tee for 28.58 mm X 22.22 mm outer dia SS pipe	each	273
B1661	Reducing Tee for 34.00 mm X 15.88 mm outer dia SS pipe	each	437
B1662	Reducing Tee for 34.00 mm X 22.22 mm outer dia SS pipe	each	437
B1663	Reducing Tee for 34.00 mm X 28.58 mm outer dia SS pipe	each	437
B1664	Reducing Tee for 42.70 mm X 15.88 mm outer dia SS pipe	each	683
B1665	Reducing Tee for 42.70 mm X 22.22 mm outer dia SS pipe	each	683
B1666	Reducing Tee for 42.70 mm X 28.58 mm outer dia SS pipe	each	683
B1667	Reducing Tee for 42.70 mm X 34.00 mm outer dia SS pipe	each	683
B1668	Reducing Tee for 48.60 mm X 15.88 mm outer dia SS pipe	each	887
B1669	Reducing Tee for 48.60 mm X 22.22 mm outer dia SS pipe	each	887
B1670	Reducing Tee for 48.60 mm X 28.58 mm outer dia SS pipe	each	887
B1671	Reducing Tee for 48.60mm X 34.00 mm outer dia SS pipe	each	887
B1672	Reducing Tee for 48.60mm X 42.70mm outer dia SS pipe	each	887
B1673	Stainless steel Male thread Tee for 15.88 mm outer dia X 15 mm nominal dia threaded	each	179
B1674	Stainless steel Male thread Tee for 22.22 mm outer dia X 15 mm nomina dia threaded	each	200
B1675	Stainless steel Male thread Tee for 22.22 mm outer dia X 20 mm nominal dia threaded	each	205
B1676	Stainless steel Male thread Tee for 28.58 mm outer dia X 15 mm nomina dia threaded	each	273
B1677	Stainless steel Male thread Tee for 28.58 mm outer dia X 20 mm nominal dia threaded	each	273
B1678	Stainless steel Male thread Tee for 28.58 mm outer dia X 25 mm nominal dia threaded	each	273
B1679	Stainless steel Male thread Tee for 34.00 mm outer dia X 15 mm nominal dia threaded	each	437
B1680	Stainless steel Male thread Tee for 34.00 mm outer dia X 20 mm nominal dia threaded	each	437
B1681	Stainless steel Male thread Tee for 34.00 mm outer dia X 25 mm nominal dia threaded	each	437
B1682	Stainless steel Male thread Tee for 34.00 mm outer dia X 32 mm nominal dia threaded	each	437
B1683	Stainless steel Male thread Tee for 42.70 mm outer dia X 15 mm nominal dia threaded	each	683
B1684	Stainless steel Male thread Tee for 42.70 mm outer dia X 20 mm nominal dia threaded	each	683
B1685	Stainless steel Male thread Tee for 42.70 mm outer dia X 25 mm nominal dia threaded	each	683
B1686	Stainless steel Male thread Tee for 42.70 mm outer dia X 32 mm nominal dia threaded	each	683
B1687	Stainless steel Male thread Tee for 42.70 mm outer dia X 40 mm nominal dia threaded	each	683
B1688	Stainless steel Male thread Tee for 48.60 mm outer dia X 15 mm nominal dia threaded	each	887
B1689	Stainless steel Male thread Tee for 48.60 mm outer dia X 20 mm nominal dia threaded	each	887
B1690	Stainless steel Male thread Tee for 48.60 mm outer dia X 25 mm nominal dia threaded	each	887
B1691	Stainless steel Male thread Tee for 48.60 mm outer dia X 32 mm nominal dia threaded	each	887
B1692	Stainless steel Male thread Tee for 48.60 mm outer dia X 40 mm nominal dia threaded	each	887
B1693	Stainless steel Male thread Tee for 48.60 mm outer dia X 50 mm nominal dia threaded	each	887
B1694	Stainless steel Female thread Tee for 15.88 mm outer dia X 15 mm nominal dia threaded	each	179
B1695	Stainless steel Female thread Tee for 22.22 mm outer dia X 15 mm nominal dia threaded	each	200
B1696	Stainless steel Female thread Tee for 22.22 mm outer dia X 20 mm nominal dia threaded	each	200
B1697	Stainless steel Female thread Tee for 28.58 mm outer dia X 15 mm nominal dia threaded	each	273
B1698	Stainless steel Female thread Tee for 28.58 mm outer dia X 20 mm nominal dia threaded	each	273
B1699	Stainless steel Female thread Tee for 28.58 mm outer dia X 25 mm nominal dia threaded	each	273
B1700	Stainless steel Female thread Tee for 34.00 mm outer dia X 15 mm nominal dia threaded	each	437
B1701	Stainless steel Female thread Tee for 34.00 mm outer dia X 20 mm nominal dia threaded	each	437
B1702	Stainless steel Female thread Tee for 34.00 mm outer dia X 25 mm nominal dia threaded	each	437
B1703	Stainless steel Female thread Tee for 34.00 mm outer dia X 32 mm nominal dia threaded	each	437
B1704	Stainless steel Female thread Tee for 42.70 mm outer dia X 15 mm nominal dia threaded	each	683
B1705	Stainless steel Female thread Tee for 42.70 mm outer dia X 20 mm nominal dia threaded	each	683
B1706	Stainless steel Female thread Tee for 42.70 mm outer dia X 25 mm nominal dia threaded	each	683
B1707	Stainless steel Female thread Tee for 42.70 mm outer dia X 32 mm nominal dia threaded	each	683
B1708	Stainless steel Female thread Tee for 42.70 mm outer dia X 40 mm nominal dia threaded	each	683
B1709	Stainless steel Female thread Tee for 48.60 mm outer dia X 15 mm nominal dia threaded	each	887
B1710	Stainless steel Female thread Tee for 48.60 mm outer dia X 20 mm nominal dia threaded	each	887
B1711	Stainless steel Female thread Tee for 48.60 mm outer dia X 25 mm nominal dia threaded	each	887
B1712	Stainless steel Female thread Tee for 48.60 mm outer dia X 32 mm nominal dia threaded	each	887
B1713	Stainless steel Female thread Tee for 48.60 mm outer dia X 40 mm nominal dia threaded	each	887
B1714	Stainless steel Female thread Tee for 48.60 mm outer dia X 50 mm nominal dia threaded	each	887
B1715	Stainless steel Female threaded Connector/Adapter for 15.88 mm outer dia X 15 mm	each	190
B1716	Stainless steel Female threaded Connector/Adapter for 22.22 mm outer dia X 15 mm	each	230
B1717	Stainless steel Female threaded Connector/Adapter for 22.22 mm outer dia X 20 mm	each	237
B1718	Stainless steel Female threaded Connector/Adapter for 28.58 mm outer dia X 15 mm	each	277
B1719	Stainless steel Female threaded Connector/Adapter for 28.58 mm outer dia X 20 mm	each	286
B1720	Stainless steel Female threaded Connector/Adapter for 28.58 mm outer dia X 25 mm	each	337

B1721	Stainless steel Female threaded Connector/Adapter for 34.00 mm outer dia X 25 mm	each	409
B1722	Stainless steel Female threaded Connector/Adapter for 34.00 mm outer dia X 32 mm	each	538
B1723	Stainless steel Female threaded Connector/Adapter for 42.70 mm outer dia X 32 mm	each	576
B1724	Stainless steel Female threaded Connector/Adapter for 42.70 mm outer dia X 40 mm	each	681
B1725	Stainless steel Female threaded Connector/Adapter for 48.60 mm outer dia X 40 mm	each	838
B1726	Stainless steel Female threaded Connector/Adapter for 48.60 mm outer dia X 50 mm	each	965
B1727	Stainless steel Male threaded Connector/Adapter for 15.88 mm outer dia X 15 mm nominal threaded	each	193
B1728	Stainless steel Male threaded Connector/Adapter for 22.22 mm outer dia X 15 mm nominal threaded	each	227
B1729	Stainless steel Male threaded Connector/Adapter for 22.22 mm outer dia X 20 mm nominal threaded	each	248
B1730	Stainless steel Male threaded Connector/Adapter for 28.58 mm outer dia X 20 mm nominal threaded	each	313
B1731	Stainless steel Male threaded Connector/Adapter for 28.58 mm outer dia X 25 mm nominal threaded	each	320
B1732	Stainless steel Male threaded Connector/Adapter for 34.00 mm outer dia X 25 mm nominal threaded	each	461
B1733	Stainless steel Male threaded Connector/Adapter for 34.00 mm outer dia X 32 mm nominal threaded	each	565
B1734	Stainless steel Male threaded Connector/Adapter for 42.70 mm outer dia X 32 mm nominal threaded	each	649
B1735	Stainless steel Male threaded Connector/Adapter for 42.70 mm outer dia X 40 mm nominal threaded	each	726
B1736	Stainless steel Male threaded Connector/Adapter for 48.60 mm outer dia X 40 mm nominal threaded	each	840
B1737	Stainless steel Male threaded Connector/Adapter for 48.60 mm outer dia X 50 mm nominal threaded	each	1138
B1738	Stainless steel Valve Connector for 15.88 mm outer dia X 15 mm nominal dia threaded	each	234
B1739	Stainless steel Valve Connector for 22.22 mm outer dia X 15 mm nominal dia threaded	each	276
B1740	Stainless steel Valve Connector for 22.22 mm outer dia X 20 mm nominal dia threaded	each	295
B1741	Stainless steel Valve Connector for 28.58 mm outer dia X 25 mm nominal dia threaded	each	424
B1742	Stainless steel Valve Connector for 34.00 mm outer dia X 32 mm nominal dia threaded	each	629
B1743	Stainless steel Valve Connector for 42.70 mm outer dia X 40 mm nominal dia threaded	each	875
B1744	Stainless steel Valve Connector for 48.60 mm outer dia X 50 mm nominal dia threaded	each	1176
B1745	SS Female Threaded Elbow 90o for 15.88 mm outer dia X 15 mm nominal dia threaded	each	150
B1746	Stainless steel Female Threaded Elbow 90o for 22.22 mm outer dia X 15 mm nominal dia threaded	each	191
B1747	Stainless steel Female Threaded Elbow 90o for 22.22 mm outer dia X 20 mm nominal dia threaded	each	191
B1748	Stainless steel Female Threaded Elbow 90o for 28.58 mm outer dia X 25 mm nominal dia threaded	each	205
B1749	Stainless steel Female Threaded Elbow 90o for 34.00 mm outer dia X 32 mm nominal dia threaded	each	287
B1750	Stainless steel Female Threaded Elbow 90o for 42.70 mm outer dia X 32 mm nominal dia threaded	each	478
B1751	Stainless steel Female Threaded Elbow 90o for 42.70 mm outer dia X40 mm nominal dia threaded	each	478
B1752	Stainless steel Female Threaded Elbow 90o for 48.60 mm outer dia X 40 mm nominal dia threaded	each	683
B1753	Stainless steel Female Threaded Elbow 90o for 48.60 mm outer dia X 50 mm nominal dia threaded	each	683
B1754	Stainless steel Male Threaded Elbow 90o for 15.88 mm outer dia X15 mm nominal dia threaded	each	191
B1755	Stainless steel Male Threaded Elbow 90o for 22.22 mm outer dia X15 mm nominal dia threaded	each	205
B1756	Stainless steel Male Threaded Elbow 900 for 22.22 mm outer dia X20 mm nominal dia threaded	each	205
B1757	Stainless steel Male Threaded Elbow 900 for 28.58 mm outer dia X25 mm nominal dia threaded	each	205
B1758	Stainless steel MaleThreaded Elbow 900 for 34.00 mm outer dia X25 mm nominal dia threaded	each	287

B1759	Stainless steel Male Threaded Elbow 900 for 34.00 mm outer dia X32 mm nominal dia threaded	each	287
B1760	Stainless steel Male Threaded Elbow 900 for 42.70 mm outer dia X32 mm nominal dia threaded	each	478
B1761	Stainless steel Male Threaded Elbow 900 for 42.70 mm outer dia X40 mm nominal dia threaded	each	478
B1762	Stainless steel Male Threaded Elbow 900 for 48.60 mm outer dia X40 mm nominal dia threaded	each	683
B1763	Stainless steel Male Threaded Elbow 900 for 48.60 mm outer dia X50 mm nominal dia threaded	each	683
B1764	Stainless steel Cap for 15.88 mm outer dia pipe	each	45
B1765	Stainless steel Cap for 22.22 mm outer dia pipe	each	64
B1766	Stainless steel Cap for 28.58 mm outer dia pipe	each	84
B1767	Stainless steel Cap for 34.00 mm outer dia pipe	each	163
B1768	Stainless steel Cap for 42.70 mm outer dia pipe	each	236
B1769	Stainless steel Cap for 48.60 mm outer dia pipe	each	299
B1770	Stainless steel Pipe Bridge for 15.88 mm outer dia pipe	each	214
B1771	Stainless steel Pipe Bridge for 22.22 mm outer dia pipe	each	271
B1772	Stainless steel Pipe Bridge for 28.58 mm outer dia pipe	each	407
B1773	C.P. Brass Centre Hole Basin Mixer With Cast Spout	each	1600
B1774	Stone grit 6 mm and down size or pea sized gravel	cum	700
B1775	Cinder (12 nominal Size)	cum	700
B1776	Cinder ballast	cum	600
B1777	GI Cramps	kg	64
B1778	Water stops Serrated with central bulb (225 mm wide, 8-11 mm thick)	metre	200
B1779	Water stops Dumb bell with central bulb	metre	160
B1780	Kickers	metre	185
B1781	Polymer modified cementation coating	kg	140
B1782	Fibre glass cloth	sqm	25
B1783	Fibre reinforced elastomeric liquid water proofing membrane	litre	199
B1784	Cementitious water proofing coating with elastic polymers	kg	189
B1785	Acrylic modified resin based texture	kg	36
B1786	Zycosil / equivalent	litre	1600
B1787	Zycoprime /equivalent	litre	185
B1788	HDPE Membrane (1.2mm thick)	sqm	405
B1789	HDPE Sealed Tape	sqm	16
B1790	HDPE Sanded Tape	sqm	16
B1791	Non-shrink grout chemical	kg	85
B1792	HDPE Membrane (4-5mm thick)	kg	950
B1793	Detailed Strip	sqm	16
B1794	SBS Membrane	sqm	370
B1795	Primer for SBS Membrane	litre	160
B1796	PU primer	kg	160
B1797	PU primer	litre	450
B1798	Liquid applied polyurethane mambrane	kg	230
B1799	Liquid applied polyurethane mambrane	litre	480
B1800	Non-shrink cementacious chemical for grouting	kg	120
B1801	PUF Insulation @ 3.5 kg/sqm coverage	kg	240
B1802	21mm thick clear toughened Laminated glass for fins with holes	sqm	6000
B1803	Structural sealant - 6 mm x 12 mm	metre	30
B1804	Spacer tape 6.4 mm thick x 6 mm wide	metre	20
B1805	6 mm thick High performance glass	sqm	1000
B1806	6 mm thick clear heat strengthened glass	sqm	650
B1807	6 mm thick clear heat strengthened glass	each	128
B1808	ARMS GS HD - Top Hung -20"- Type P- Couple	pair	1350
B1809	Connection Block for vision glass panel	each	35
B1810	Curtain wall striker for vision glass panel	each	85
B1811	Adjustable Fastening Pawl for vision glass panel	each	35
B1812	Corner drive for vision glass panel	each	255
B1813	Top wedge Block for vision glass panel	each	120
B1814	Glass wool of denisity @ 48 kg / cum with black glass tissue (BGT)	sqm	250
B1815	Weather Sealant - DC 789	cartridge	120

B1816	Cement Board	sqm	235
B1817	Fire Stop	metre	480
B1818	GI/Aluminium Sheet (0.8 mm thick)	kg	55
B1819	Aluminium T or L sections	kg	190
B1820	Stainless steel U Channel of size (50x25x2mm)	metre	160
B1821	Non staining water resistant clear silicon sealant	metre	65
B1822	4 Point facade glass bracket without flat head bolts	No.	3318
B1823	2 Point facade glass bracket (wall mounted with out flat head bolt)	No.	1659
B1824	1 Point facade glass bracket (wall mounted with out flat head bolt)	No.	1300
B1825	Flate head bolt for brackets of spider glazing	No.	651
B1826	400 mm long fin plate without fastners	pair	5931
B1827	Brass single acting spring hinges 150 mm	each	425
B1828	Brass single acting spring hinges 125 mm	each	285
B1829	Brass single acting spring hinges 100 mm	each	250
B1830	Brass double acting spring hinges 150 mm	each	480
B1831	Brass double acting spring hinges 125 mm	each	400
B1832	Brass double acting spring hinges 100 mm	each	390
B1833	Brass flush bolt 250 mm	each	150
B1834	Brass flush bolt 150 mm	each	130
B1835	Brass flush bolt 100 mm	each	90
B1836	Brass 150 mm floor door stopper weighing not less than 0.357kg	each	160
B1837	Brass hard drawn hooks and eyes 300 mm	10 nos.	600
B1838	Brass hard drawn hooks and eyes 250 mm	10 nos.	574
B1839	Brass hard drawn hooks and eyes 200 mm	10 nos.	510
B1840	Brass hard drawn hooks and eyes 150 mm	10 nos.	400
B1841	Brass hard drawn hooks and eyes 100 mm	10 nos.	345
B1842	Brass quadrant stays 300 mm	each	110
B1843	Brass fanlight catch (14mm)	10 nos.	170
B1844	Brass fanlight pivot	10 nos.	168
B1845	Brass chain with hook for fan light catch	each	36
B1846	Brass helical spring 150 mm	each	290
B1847	Brass curtain rod 20 mm dia 1.25 mm thick	metre	140
B1848	Brass curtain rod 25 mm dia 1.25 mm thick	metre	190
B1849	Brass brackets (curtain rods) 20 mm	each	45
B1850	Chromium plated Brass butt hinges (heavy) type 75x65x4 mm weighing not less than 200gms	10 nos.	905
B1851	Chromium plated Brass butt hinges (light/ordinary) type 125x70x4mm	10 nos.	805
B1852	Chromium plated Brass butt hinges (light/ordinary) type 100x70x4 mm	10 nos.	690
B1853	Chromium plated Brass butt hinges (light/ordinary) type 75x40x2.5 mm	10 nos.	421
B1854	Chromium plated Brass butt hinges (light/ordinary) type 50x40x2.5 mm	10 nos.	180
B1855	Commercial LPG in cylinder	kg	82
B1856	Dismenteled P or S trap scrap (approx wt 2kg)	kg	22
B1857	Chromium plated Brass pull bolt lock (locking bolt) of size 85 mm x 42 mm with screws, bolts, nuts and washers complete	each	165
B1858	Spigot for standard jointing	kg	43
B1859	Base Jack	each	145
B1860	Challies	each	765
B1861	Cup locks	each	48
B1862	Wheel 75 mm dia. 40 mm wide	each	62
B1863	Stone cleaning chemical approved by ASI	litre	295
B1864	Water repallent chemical approved by ASI	litre	1200
B1865	Stone surface strengthening chemical approved by ASI	litre	900
B1866	Turpentine oil	litre	55
B1867	Liquid Ammonia 5%	litre	160
B1868	Sodium pentachlorophenate	kg	550
B1869	A.P.P. modified polymeric felt (two layers) 1.5 mm thick	sqm	80
B1870	A.P.P. modified polymeric felt (two layers) 2 mm thick	sqm	100
B1871	A.P.P. modified 2 mm thick membrane reinforced with glass fibre matt	sqm	127
B1872	A.P.P. modified 3 mm thick membrane reinforced with glass fibre matt	sqm	190
B1873	A.P.P. modified 3 mm thick membrane reinforced with polyester matt	sqm	205
B1874	Bitumen primer for bitumen membrane	litre	80
B1875	Geotextile 120 grams per sqm membrane	sqm	45

B1876	Water for jetting / blowback	1000 litre	1500
B1877	Rebarring 8 mm dia bar hole size 12 mm dia & depth upto 80 mm	each	250
B1878	Rebarring 10 mm dia bar hole size 14 mm.& hole depth upto 100 mm	each	450
B1879	Rebarring 12mm dia bar hole size 16mm.& hole depth upto 120 mm	each	550
B1880	Rebarring 16 mm dia bar hole size 20 mm dia & depth upto 160 mm	each	700
B1881	Rebarring 20mm dia bar hole size 24 mm dia & depth upto 240mm	each	850
B1882	Rebarring 25mm dia bar hole size 30 mm dia & depth upto 300 mm	each	1000
B1883	Rebarring 32 mm dia bar hole size 36 mm dia & depth upto 320 mm	each	1100
B1884	Chemical Rust Remover	litre	210
B1885	Epoxy	kg	585
B1886	SBR Polymer	kg	190
B1887	Woven PVC cloth	sqm	25
B1888	Adhesive chemical	ml	2
B1889	Bit of drilling machine for Hole upto 30mm dia	each	500
B1890	GI injection nipple 12mm dia, 75mm long	each	42
B1891	Blowing compressed air for cleaning holes upto 30mm dia	each	10
B1892	L shaped 100mm long, 10mm dia mild steel shear key	kg	67
B1893	Acrylic Polymer chemical for cracks	kg	31
B1894	Calcium silicate base compound for jointing calcium silicate tiles	kg	26
B1895	FY-1860 grade wire strands	quintal	5700
B1896	GI Wire mesh 100x100 mm	kg	55
B1897	Shear stud	each	50
B1898	Epoxy based sealing Compound	kg	535
B1899	Acrylic based sealing compound	kg	500
B1900	Non woven reinforcement Tape	metre	0
B1901	M-60 grade cemetitious grout (Non Shrink)	kg	28
B1902	GI Screws of gauge 10, length 25 mm for fixing cement fibre board to C section	each	3
B1903	GI Screws of gauge 10, length 45 mm for fixing cement fibre board to C section	each	3
B1904	Stone ballast	cum	800
B1905	Self tapping pan head nickel coated mild steel screws of size 13 x 3.2 mm	1000 nos.	525
B1906	Fibre joint tape 50 mm wide (90 metre) roll	each roll	165
B1907	25 mm thick Resin Bonded Rockwool 48 kg/m3	sqm	120
B1908	50 mm thick Resin Bonded Rockwool 48 kg/m4	sqm	150
B1909	65 mm thick Resin Bonded Rockwool 48 kg/m5	sqm	180
B1910	75 mm thick Resin Bonded Rockwool 48 kg/m6	sqm	210
B1911	Glass wool 50 mm thick	sqm	238
B1912	Lock Bar (E 250) - 10 thick MS Plate	kg	76
B1913	Glass reinforced Gypsum (GRG) plaster board 12.5 mm thick confirming to IS 2095 (Part 3):1996	sqm	240
B1914	Galvanised M.S. sheet 0.5 mm thick pressed channel section of size 50x32 mm	metre	57
B1915	GFRG Panel of 124 mm thick	sqm	848
B1916	Galvanised M.S. sheet 0.50 mm thick pressed stud : 48x34x36 mm	metre	71
B1917	12 mm dia 50 mm long wedge type expanded zinc alloy dash fastener	each	7
B1918	Concrete paver block of grade M-30 made of C&D waste (60mm thickness)	sqm	317
B1919	Ceramic Glazed Tiles 1st quality minimum thickness 5mm in all colours shades and designs except burgundy, bottle green, black	sqm	212
B1920	Shear loops (6mm dia GI wire rope) (For vertical joints) 6 No. on each side	each	192
B1921	dowel tubes (Corrugated GI pipes 50 to 80mm dia) (For horizontal joints)	metre	120
B1922	Hooks for lifting (Alloy steel) having 2.5 tonne capacity	each	250
B1923	Factory made EPS light weight composite sandwitched wall/roof panel (50mm thick) having core material of EPS granule balls/beads (conforming to IS 4671:1984 and shall have density not less than 15kg per cum). The outer face on both sides of the panels will be non asbestos fiber cement board confirming to IS 14862:2000 or Calcium silicate board confirming to EN 14306:2009 of 5mm thick each.	sqm	735
B1924	Factory made EPS light weight composite sandwitched wall/roof panel (60mm thick) having core material of EPS granule balls/beads (conforming to IS 4671:1984 and shall have density not less than 15kg per cum). The outer face on both sides of the panels will be non asbestos fiber cement board confirming to IS 14862:2000 or Calcium silicate board confirming to EN 14306:2009 of 5mm thick each	sqm	845

B1925	Factory made EPS light weight composite sandwitched wall/roof panel (75mm thick) having core material of EPS granule balls/beads (conforming to IS 4671:1984 and shall have density not less than 15kg per cum). The outer face on both sides of the panels will be non asbestos fiber cement board confirming to IS 14862:2000 or Calcium silicate board confirming to EN 14306:2009 of 5mm thick each	sqm	1047
B1926	Factory made EPS light weight composite sandwitched wall/roof panel (90mm thick) having core material of EPS granule balls/beads (conforming to IS 4671:1984 and shall have density not less than 15kg per cum). The outer face on both sides of the panels will be non asbestos fiber cement board confirming to IS 14862:2000 or Calcium silicate board confirming to EN 14306:2009 of 5mm thick each	sqm	1268
B1927	Factory made EPS light weight composite sandwitched wall/roof panel (100mm thick) having core material of EPS granule balls/beads (conforming to IS 4671:1984 and shall have density not less than 15kg per cum). The outer face on both sides of the panels will be non asbestos fiber cement board confirming to IS 14862:2000 or Calcium silicate board confirming to EN 14306:2009 of 5mm thick each	sqm	1512
B1928	Factory made EPS Core wallpanel /roof panel sandwiched between two Engineered welded wire fabric mesh of 3 mm dia G.I. wire mesh,with 50 mm pitch in both the directions, kept at 120-135 mm gap and interconnected by the zig zag G.I. wire of 3 mm dia at alternate row by welding.	sqm	1650
B1929	GI sheet 0.8 mm thick confirming to IS 277:1992	kg	65
B1930	Factory made EPS Core wall panel /roof panel sandwiched between two Engineered welded wire fabric mesh of 3 mm dia G.I. wire mesh, with 50 mm pitch in both the directions, connected by G.I. wire of 3mm dia at alternate row by welding	sqm	600
B1931	Aluminium sheets Grade 5052, 4 mm thick for wall panel/deck panel/WRB panel/Kicker Panels/door closing panels (for form work)	sqm	8500
B1932	Aluminium sheets Grade 5052, 4 mm thick for Internal Corner/Column Corners/ (for form work)	sqm	11500
B1933	Aluminium sheets Grade 5052, 4 mm thick for Mid Soldier/End soldier (for form work)	sqm	32000
	Accessories for aluminium form work		
B1934	External corner 2050 mm	each	1400
B1935	External corner 825 mm	each	590
B1936	soldier tie 370mm	each	290
B1937	Adjustable prop-2.0 x2.0 m	each	1080
B1938	Pin-50	each	15
B1939	Pin-127	each	55
B1940	wedge	each	14
B1941	wall tie-150 (355 mm)	each	45
B1942	Polythene Sleeve 90 x 150mm	each	3
B1943	Polythene Roll - 150mm Long.	each	6
B1944	Vertical Soldier -1100mm	each	365
B1945	Wall Attached Bracket 600x1000mm	each	985
B1946	Allignment Pipe - 3.00 Mtr.	each	995
B1947	Allignment Bracket	each	475
B1948	Tie Rod for Bracket - 500mm	each	115
B1949	Anchor Wing Nut Ø100 mm	each	64
B1950	Debit Pin - 250mm	each	60
B1951	PVC Pipe Ø20mm - 150mm long	each	5
B1952	PVC Cone	each	5
B1953	Bolt+Nut - 16 x 80 mm	each	30
B1954	Flat Washer Ø16, 3mm thik	each	5
B1955	Bolt+Nut - 16 x 30 mm	each	18
B1956	Door spacer 45x45x5-1135mm Long	each	360
B1957	Door spacer 45x45x5-1135mm Long	each	315
B1958	Galavanised MS 8 mm outer diameter M-6 dash fastener 50mm long	each	31
B1959	ZMB 60/equivalent	kg	105
B1960	ZMB thinner	litre	205
B1961	Mineral fibre beveled tegular edged ceiling tiles 595 x595mm,16 mm thick	sqm	830
B1962	Mineral fibre beveled tegular edged ceiling tiles 595 x595mm,16 mm thick with bio-block conforming to ISO 5 (class 100) specifications.	sqm	920
B1963	Mineral fiber beveled tegular edged ceiling tiles 595 x595mm,20 mm thick.	sqm	1040
B1964	G.I main runner 15 x32 mm of 3000 mm length, 0.33 mm thick	each	185
B1965	G.I cross-T 15 x32 mm of 1200 mm length, 0.33 mm thick	each	78

B1966	G.I cross-T 15 x32 mm of 600 mm length, 0.33 mm thick	each	35
B1967	G.I hanger rod 6mm dia fully threaded upto 1000 mm length	each	26
B1968	Extruded polystyrene rigid insulation board 25 mm thick	sqm	275
B1969	Extruded polystyrene rigid insulation board 50 mm thick	sqm	525
B1970	Extruded polystyrene rigid insulation board 75 mm thick	sqm	800
B1971	Extruded polystyrene rigid insulation board 100 mm thick	sqm	1075
B1972	15 mm thick, light weight, integral densified micro look edged,false ceiling tiles of size 595x595 mm.	sqm	720
B1973	15 mm thick, light weight,fully perforated square/butt edge integral densified,false ceiling tiles of size 595x595 mm.	sqm	900
B1974	Powder coated steel section main-T ceiling sections 15x42x0.40 mm (3000 mm long)	each	235
B1975	Galvanized mild steel perimeter wall angle 22x19x0.40 mm (3000mm long)	each	115
B1976	Powder coated Galvanised Iron intermediate cross-T section 15x42x0.40 mm (1200 mm long)	each	95
B1977	Powder coated Galvanized Iron intermediate cross-T section 15x42x0.40mm (600mm long)	each	47
B1978	Cold form light gauge Steel C-section of thickness 0.75mm i/c zink coating/sliting etc.	kg	130
B1979	Wastage of cold form light gauge steel	kg	17
B1980	12 mm thick micro tegular edged semi perforated GRG (Glass Fibre Reinforced Gypsum)	sqm	510
B1981	12 mm thick micro tegular edged fully perforated GRG (Glass Fibre Reinforced Gypsum)	sqm	600
B1982	Galvanized iron intermediate cross-T section 15x32x0.33 mm (600mm long)	each	35
B1983	Galavanised MS hanger rod 6mm dia MS fully threaded up to 1000mm length	each	26
B1984	Precast C&D waste concrete block	1000 nos.	25150
B1985	Coupling/Socket fittings for 15.88 mm outer dia SS pipe	each	59
B1986	Aluminium profile industrial troughed sheet of Alloy 31500/31000/40800, conforming to IS 1254, IS 737, IS 2676, 0.71 mm thick, the profile detail width 1044/920 mm, cover width 1000/875 mm.	sqm	600
B1987	Aluminium profile industrial troughed sheet of Alloy 31500/31000/40800, conforming to IS 1254, IS 737, IS 2676, 0.91 mm thick, the profile detail width 1044/920 mm, cover width 1000/875 mm.	sqm	785
B1988	Cemfil AntiCrak Chopped Glass Fibre	kg	565
B1989	Cemfil AntiCrak Copped Glass Fibre	kg	711
	Green Building Materials		
B1990	40mm CFC, HCFC FREE Zero ODP Polyurethane foam(PUF) rigid insulation	sqm	500
B1991	50mm CFC, HCFC FREE Zero ODP Polyurethane foam(PUF) rigid insulation	sqm	600
B1992	60mm CFC, HCFC FREE Zero ODP Polyurethane foam(PUF) rigid insulation	sqm	700
B1993	70mm CFC, HCFC FREE Zero ODP Polyurethane foam(PUF) rigid insulation	sqm	800
B1994	40 mm thick PUF Spray	sqm	410
B1995	50 mm thick PUF Spray	sqm	510
B1996	60 mm thick PUF Spray	sqm	610
B1997	70 mm thick PUF Spray	sqm	710
B1998	Polymersied Adhesive (Patch applied)	sqm	80
B1999	Fibreglass mesh 150 Gsm	sqm	50
B2000	Cold Adhesive like CPRX compound	litre	150
B2001	Polymerized mastic	sqm	2
B2002	Casing pipe 100 mm dia	metre	335
B2003	S.C.I. hand pump	each	670
B2004	Strainer brass 40 mm dia 1.5 metre long	each	600
B2005	M.S. pipe 150 mm dia casing pipe	metre	1126
B2006	M.S. pipe 200 mm dia casing pipe	metre	1400
B2007	PVC blind pipe 150 mm dia as per IS: 12818	metre	508
B2008	PVC blind pipe 200 mm dia as per IS: 12818	metre	788
B2009	M.S. cap 150 mm dia	each	150
B2010	M.S. cap 200 mm dia	each	200
B2011	M.S bail plug 150 mm dia	each	200
B2012	M.S bail plug 200 mm dia	each	220
B2013	PVC slotted pipe 150 mm dia as per IS: 12818	metre	550
B2014	PVC slotted pipe 200 mm dia as per IS: 12818	metre	840
B2015	Stone Boulder 50 mm to 200 mm	cum	850
B2016	Gravel 5 mm to 10 mm	cum	850
B2017	Gravel 1.5 mm to 2 mm	cum	850
B2018	M.S. pipe 100 mm dia casing pipe	metre	800
B2019	uPVC blind pipe 100 mm dia as per IS: 12818	metre	442

B2020	uPVC slotted pipe 100 mm dia as per IS: 12818	metre	480
B2021	M.S. cap 100 mm dia	each	135
B2022	M.S. bail plug 100 mm dia	each	160
B2023	Precast R.C.C. perforated slab	each	875
B2024	Water supply tanker of 5000 litre capacity	each	900
B2025	M.S. socket 100 mm dia	each	125
B2026	M.S. socket 150 mm dia	each	205
B2027	M.S. socket 200 mm dia	each	265
B2028	Pea Gravel	cum	950
	Materials for PHED works		
	Repair of leakage in underground pipes		
	80 mm internal dia AC PIPE C-15 (Rural)		
PH001	with PCC including CID joints	per joint	1478
PH002	without PCC but including CID joints	per joint	721
PH003	with PCC excluding CID joints	per joint	1129
PH004	without PCC excluding CID joints	per joint	372
	100 mm internal dia AC PIPE C-15 (Rural)		
PH005	with PCC including CID joints	per joint	1597
PH006	without PCC but including CID joints	per joint	840
PH007	with PCC excluding CID joints	per joint	1165
PH008	without PCC excluding CID joints	per joint	408
	150 mm internal dia AC PIPE C-15 (Rural)		
PH009	with PCC including CID joints	per joint	1999
PH010	without PCC but including CID joints	per joint	1242
PH011	with PCC excluding CID joints	per joint	1292
PH012	without PCC excluding CID joints	per joint	535
	80mm internal dia PVC pipes (Rural)		
PH013	with PCC including CID joints	per joint	1393
PH014	without PCC but including CID joints	per joint	636
	100mm internal dia PVC pipes (Rural)		
PH015	with PCC including CID joints	per joint	1489
PH016	without PCC but including CID joints	per joint	732
	150mm internal dia PVC pipes (Rural)		
PH017	with PCC including CID joints	per joint	1817
PH018	without PCC but including CID joints	per joint	1060
	80 mm internal dia AC PIPE C-15 (Urban)		
PH019	with PCC including CID joints	per joint	1483
PH020	without PCC but including CID joints	per joint	726
	100 mm internal dia AC PIPE C-15 (Urban)		
PH021	with PCC including CID joints	per joint	1604
PH022	without PCC but including CID joints	per joint	846
	150 mm internal dia AC PIPE C-15 (Urban)		
PH023	with PCC including CID joints	per joint	2006
PH024	without PCC but including CID joints	per joint	1249
	80 mm internal dia AC PIPE C-25 (Urban)		
PH025	with PCC including CID joints	per joint	1604
PH026	without PCC but including CID joints	per joint	847
	100 mm internal dia AC PIPE C-25 (Urban)		
PH027	with PCC including CID joints	per joint	1765
PH028	without PCC but including CID joints	per joint	1008
	150 mm internal dia AC PIPE C-25 (Urban)		
PH029	with PCC including CID joints	per joint	2287
PH030	without PCC but including CID joints	per joint	1529
	80mm internal dia PVC pipes (Urban)		
PH031	with PCC including CID joints	per joint	1398
PH032	without PCC but including CID joints	per joint	641
	100mm internal dia PVC pipes (Urban)		
PH033	with PCC including CID joints	per joint	1495
PH034	without PCC but including CID joints	per joint	738
	150mm internal dia PVC pipes (Urban)		
PH035	with PCC including CID joints	per joint	1824
PH036	without PCC but including CID joints	per joint	1067

	80mm internal dia CI & DI Pipes		
PH037	with PCC including CID joints	per joint	1787
PH038	without PCC but including CID joints	per joint	1029
	100mm internal dia CI & DI Pipes		
PH039	with PCC including CID joints	per joint	2020
PH040	without PCC but including CID joints	per joint	1263
	150mm internal dia CI & DI Pipes		
PH041	with PCC including CID joints	per joint	2773
PH042	without PCC but including CID joints	per joint	2016
	Supplying & Fixing of Bell Mouth		
PH043	100 mm i/d (9kg)	each	434
PH044	150 mm i/d (15kg)	each	723
PH045	200 mm i/d (23kg)	each	1109
PH046	250 mm i/d (31kg)	each	1495
PH047	300 mm i/d (45kg)	each	2170
PH048	350 mm i/d (58kg)	each	3263
PH049	400 mm i/d (80kg)	each	4500
PH050	450 mm i/d (93kg)	each	5231
PH051	500 mm i/d (120kg)	each	6750
PH052	600 mm i/d (201kg)	each	11306
PH053	700 mm i/d (304kg)	each	21985
PH054	800 mm i/d (435kg)	each	31460
PH055	P&F Ceiling fan 48'(1200mm)	each	1795
PH056	P&F Ceiling fan 56" (1400mm)	each	2063
PH057	P&F Exhaust fan (45cum/minute)	each	1170
PH058	V-notch Cast Iron	per kg	48
	Floating Arm		
PH059	150 mm (460kg)	each	22179
PH060	200 mm (648kg)	each	31243
PH061	250 mm (972kg)	each	46829
PH062	300 mm (1555kg)	each	74973
PH063	350 mm (2177kg)	each	122456
PH064	350 mm (2177kg)	each	159188
PH065	450 mm (3538kg)	each	199013
PH066	500 mm (4564kg)	each	256725
PH067	600 mm (5887kg)	each	331144
	FILTER BEDS WASHING		
PH068	Taking out and placing filter media of filter bed after screened washed & cleaned top layer	cum	625
PH069	Providing and fixing bed plates	each	89
PH070	Taking out filter media Top , 2nd, 3rd & 4th layer after washed, cleaned & screened and replacing the same into filter bed to correct alignment.	cum	714
PH071	Taking out filter media Top & 2nd layer after washed, cleaned & screened and replacing the same into filter bed to correct alignment.	cum	696
PH072	Taking out filter media 3rd and 4th & bottom layer and replacing the same into filter bed to correct alignment.	cum	696
PH073	Taking out filter media other layer.	cum	446
PH074	Taking out bed plates from filter beds and replacing same after washing.	each	625
PH075	P&F Rubber matting 1 M x 2 M x 12 mm thick (IS code 15652-40091)	each	1339
	Sluice Gates		
PH076	P&F aluminium open channel sluice gate of opening size 600 x 400mm	per job	4464
	P&F CI Sluice gates with operating arrangement of size		
PH078	500 X1000mm	per job	7232
PH079	400 X 400mm	per job	8929
PH080	500 X 1000mm	per job	10000
PH081	600 X 1200mm	per job	10848
PH082	750 X 1500mm	per job	15188
PH083	600 X600mm	per job	21250
	PVC Water bar		
PH084	150 mm wide X 4.65 mm thickness of wall	metre	134
PH085	150mm wide X 6.00 mm thickness of wall	metre	179
PH086	250 mm x 8-11 mm thickness of wall	metre	313
PH087	300 mm x 8 mm thickness of wall	metre	438

PH088	P&I 11 KV sub-station	per job	1517857
	P&I LT Panels with copper bus bar		
PH089	Suitable for 7.50 BHP (90 x 15 M/hour).	each	16071
PH090	Suitable for 15 BHP (180x15 M /hour).	each	17857
PH091	LT aluminium armored/copper PVC cable 1100 V grade 3.1/2 core 10 Sq. mm XLPE or for motor side 3 core aluminum 2x6 sq.mm XLPE	metre	179
	BOKKY TYPE SHALLOW TUBWELL		
	Drilling of 250mm dia of bore through bokky type instrument		
PH093	0-50m BGL	metre	714
PH094	50-75m BGL	metre	759
PH095	75-100m BGL	metre	804
PH096	P&L 225 mm dia PVC pipe threaded (10kg/CM2	metre	1116
PH097	P&F 225mm outer dia filter Jali (10 Kg/CM2)	metre	107
PH098	P&F 250 mm M.S. clamp	each	1339
PH099	P&F PVC cap. For 225mm outer dia PVC pipe	each	625
PH100	Development of tubewell with pump of suitable rating to tht full satisfaction and as directed by the Engineer-in-charge	per hour	1786
PH101	P&F 250mm bore plate	each	893
	INSTALLATION OF SHALLOW/ MEDIUM/ DEEP TUBEWELLS		
PH102	Drilling of 609.60mm dia bore by hydraulic rotary drilling (reverse circulation method)	metre	594
PH103	P&L 273.10mm outer dia ERW steel pipes as per IS 4270/1992	metre	2500
PH104	P&L 219.10mm outer dia ERW steel pipes as per IS 4270/1992	metre	1518
PH105	P&L 200mm i/d all welded S.S. Screen cage type V-wire wound screen	metre	5089
PH106	P&F reducing socket as per IS:226/1975	each	446
PH107	P&F bail plug hook of 219.10mm as per IS 226/1975	each	446
PH108	Supplying and packing graded gravel of size as per ISI 4097/1988	cum	1250
PH109	P&F well threaded M.S. cap for 273.10mm outer dia M.S. pipe as per ISI 226/1975	each	446
PH110	Supplying deodar wooden box as per IS 226/1975 made of 20mm thick wood size 60 cm x 75 cm x 30 cm	each	446
PH111	P&F 273.10mm M.S. clamp as per IS 226 / 1975	each	1786
	Development of tubewell using compressor including the cost of all consumable stores, fuel, oil, compressors, pumps and machinery etc.		
PH113	450cfm x 250 psi	per hour	4732
PH114	800cfm x 500 psi	per hour	5803
PH115	1100cfm x 350 psi	per hour	7500
PH116	Electric logging of tubewell.	per job	16071
PH117	P&F clay seal of thickness 4.00 m or above	per job	893
PH118	P&F centralizer guides at a spacing of 12 m centre to centre	each	89
	P&L ERW M.S. pipes in bore wells ISI marked		
PH120	200x6.4mm	metre	2054
PH121	250x8.0mm	metre	2679
	P&L ISI marked ERW Cage Type MS Vee Wire Wound Screens		
PH123	219.10x6.40mm	metre	2143
PH124	273.10x8.00mm	metre	3080
	P&L ISI marked metal Cage Type Vee Wire Wound Screens		
	Stainless Steel Screens		
PH126	200x8.0x0.50mm	metre	6786
PH127	200x8.0x0.75mm	metre	6696
PH128	200x6.3x0.50mm	metre	6250
PH129	200x6.3x0.75mm	metre	6161
PH130	250x7.3x0.50mm	metre	6875
PH131	250x7.3x0.75mm	metre	6785
PH132	250x8.2x0.50mm	metre	7232
PH133	250x8.2x0.75mm	metre	7143
	Galvanized Screens		
PH134	200x7.0x0.50mm	metre	3482
PH135	250x8.0x0.50mm	metre	4375
PH136	250x8.0x0.75mm	metre	4196
PH137	250x10.0x0.50mm	metre	5000
PH138	250x10.0x0.75mm	metre	4911
PH139	Ductile Iron class K-9 pipe conforming to IS 8329-1100mm dia	metre	23850
PH140	Ductile Iron class K-9 pipe conforming to IS 8329-1200mm dia	metre	26300

	Material		
PH141	PVC pipe including labour for laying, dismantling including cost of pipe		120
PH142	100mm i/d MS blind pipe	per metre	350
PH143	Temporary shed of length 100 metres for Panel Board/Gen. Set etc	each	8000
PH144	Foundation for installation of Gen. Set	LS	5000
PH145	HS Diesel	litres	57
PH146	Mobile Oil	litres	250
	Machinery		
PH147	Providing & installation of Horizontal Centrifugal Pumping Set of 3-5 HP with electric motor including all accessories and main switch, starter, clamps for suction pipe etc. complete in all respects	each	20000
PH148	Trollies for shifting of pumping sets from one point to other point	each	2000
PH149	Gen. Set (25 KVA Capacity DG Set / 20 KW capacity)	each	200000
PH150	Installation of Gen. Set including cost of nut & bolts etc. complete	LS	2000
PH151	Excavation of Entry pit of suitable size, the item includes 25% extra rate for working fould condition including pumping out water and disposal of extra soil complete as per satisfaction of the Engineer - in - charge.	cum	44
PH152	Excavation of Exit Pit of size 4 x 3 x 3m complete as per satisfaction of the Engineer-in-charges.	cum	44
PH153	Centering and shuttering of flat services for entry and exit pit complete in all respects as per site condition.	sqm	203
PH154	Mechanical and consumable to complete the trenchless job (1.5 to 2m depth) of pipe size 200 to 280mm o/d for 50 metres including dewatering etc. complete.	hour	8000
PH155	Mechanical and consumable to complete the trenchless job (2 to 4m depth) of pipe size 200 to 280mm o/d for 50 metres including dewatering etc. complete.	hour	9500
PH156	Mechanical and consumable to complete the trenchless job (4.5 to 7m depth) of pipe size 315 to 500mm o/d for 50 metres including dewatering etc. complete.	hour	14000
PH157	Mechanical and consumable to complete the trenchless job (4.5 to 7m depth) of pipe size 560 to 1000mm o/d for 50 metres including dewatering etc. complete.	hour	27000
PH158	Diversion of traffic and lighting.	metre	80
PH159	Gantry 1 tonne capacity	tonne	45000
PH160	Gantry 1.5 tonne capacity	tonne	60000
PH161	Gantry 2 tonne capacity	tonne	85000
PH162	Gantry 2.5 tonne capacity	tonne	105000
PH163	Gantry 3 tonne capacity	tonne	149000
PH164	Job charges for installation of gantry 1 tonne capacity	job	1400
PH165	Job charges for installation of gantry 1.5 tonne capacity	job	1400
PH166	Job charges for installation of gantry 2.0 tonne capacity	job	1550
PH167	Job charges for installation of gantry 2.5 tonne capacity	job	1550
PH168	Job charges for installation of gantry 3.0 tonne capacity	job	1925
PH169	LED 100 watt	each	1950
PH170	CFL 100 watt	each	990
PH171	Erection, fixing of all accessories and complete testing of LED light	job	1400
PH172	Erection, fixing of all accessories and complete testing of CFL light	job	1400
PH173	15 KVA Capacity DG Set Transformer	each	120000
PH174	25 KVA Capacity DG Set Transformer	each	150000
PH175	50 KVA Capacity DG Set Transformer	each	170000
PH176	63 KVA Capacity DG Set Transformer	each	180000
PH177	100 KVA Capacity DG Set Transformer	each	210000
PH178	150 KVA Capacity DG Set Transformer	each	420000
PH179	175 KVA Capacity DG Set Transformer	each	500000
PH180	200 KVA Capacity DG Set Transformer	each	550000
PH181	250 KVA Capacity DG Set Transformer	each	610000
PH182	300 KVA Capacity DG Set Transformer	each	690000
PH183	400 KVA Capacity DG Set Transformer	each	785000
PH184	500 KVA Capacity DG Set Transformer	each	840000
PH185	600 KVA Capacity DG Set Transformer	each	890000
PH186	700 KVA Capacity DG Set Transformer	each	925000
PH187	800 KVA Capacity DG Set Transformer	each	1110000
PH188	900 KVA Capacity DG Set Transformer	each	1200000
PH189	1000 KVA Capacity DG Set Transformer	each	1500000
PH190	1100 KVA Capacity DG Set Transformer	each	1700000

PH191	1200 KVA Capacity DG Set Transformer	each	1900000
PH192	Installation charges for 15 KVA Capacity DG Set transformer	job	1925
PH193	Installation charges for 25 KVA Capacity DG Set Transformer	job	2300
PH194	Installation charges for 50 KVA Capacity DG Set Transformer	job	2300
PH195	Installation charges for 63 KVA Capacity DG Set Transformer	job	2700
PH196	Installation charges for 100 KVA Capacity DG Set Transformer	job	2700
PH197	Installation charges for 150 KVA Capacity DG Set Transformer	job	3080
PH198	Installation charges for 175 KVA Capacity DG Set Transformer	job	3080
PH199	Installation charges for 200 KVA Capacity DG Set Transformer	job	3470
PH200	Installation charges for 250 KVA Capacity DG Set Transformer	job	3470
PH201	Installation charges for 300 KVA Capacity DG Set Transformer	job	3470
PH202	Installation charges for 400 KVA Capacity DG Set Transformer	job	3850
PH203	Installation charges for 500 KVA Capacity DG Set Transformer	job	4225
PH204	Installation charges for 600 KVA Capacity DG Set Transformer	job	4225
PH205	Installation charges for 700 KVA Capacity DG Set Transformer	job	4625
PH206	Installation charges for 800 KVA Capacity DG Set Transformer	job	4625
PH207	Installation charges for 900 KVA Capacity DG Set Transformer	job	4625
PH208	Installation charges for 1000 KVA Capacity DG Set Transformer	job	4625
PH209	Installation charges for 1100 KVA Capacity DG Set Transformer	job	5000
PH210	Installation charges for 1200 KVA Capacity DG Set Transformer	job	5000
PH211	G.O. Switch	each	11000
PH212	Installation charges for G.O. Switch	job	1150
PH213	Diesel Engine-5 Cs. Suitable for 25 BHP	each	260000
PH214	Diesel Engine-2 Cs. Suitable for 10 BHP	each	185000
PH215	Wall mounted Chlorinator	each	13000
PH216	Electro chlorinator	each	375000
PH217	Installation charges wall mounted chlorinator	job	600
PH218	Installation charges electro chlorinator	job	3000
PH219	CT Meter	each	11500
PH220	Fluoride Revival RO System	each	1080000
PH221	RO System 250lph (WHO Specifications)	each	95000
PH222	Installation charges Fluoride revival RO System	job	3000
PH223	Installation charges 250 lph RO System (WHO)	job	1500
PH224	10 KVA Capacity DG Set	each	238000
PH225	20 KVA Capacity DG Set	each	340000
PH226	25 KVA Capacity DG Set	each	360000
PH227	50 KVA Capacity DG Set	each	509000
PH228	62.50 KVA Capacity DG Set	each	540000
PH229	100 KVA Capacity DG Set	each	725000
PH230	125 KVA Capacity DG Set	each	755000
PH231	160 KVA Capacity DG Set	each	800000
PH232	200 KVA Capacity DG Set	each	1244000
PH233	250 KVA Capacity DG Set	each	1615000
PH234	300 KVA Capacity DG Set	each	2054000
PH235	360 KVA Capacity DG Set	each	2400000
PH236	400 KVA Capacity DG Set	each	3060000
PH237	500 KVA Capacity DG Set	each	3500000
PH238	600 KVA Capacity DG Set	each	3700000
PH239	700 KVA Capacity DG Set	each	4000000
PH240	800 KVA Capacity DG Set	each	4200000
PH241	900 KVA Capacity DG Set	each	4800000
PH242	1000 KVA Capacity DG Set	each	5600000
PH243	Installation Charges 10 KVA Capacity DG Set	job	3850
PH244	Installation Charges 20 KVA Capacity DG Set	job	3850
PH245	Installation Charges 25 KVA Capacity DG Set	job	3850
PH246	Installation Charges 50 KVA Capacity DG Set	job	3850
PH247	Installation Charges 62.50 KVA Capacity DG Set	job	3850
PH248	Installation Charges 100 KVA Capacity DG Set	job	4600
PH249	Installation Charges 125 KVA Capacity DG Set	job	4600
PH250	Installation Charges 160 KVA Capacity DG Set	job	4600
PH251	Installation Charges 200 KVA Capacity DG Set	job	4600
PH252	Installation Charges 250 KVA Capacity DG Set	job	4600

PH253	Installation Charges 300 KVA Capacity DG Set	job	4600
PH254	Installation Charges 360 KVA Capacity DG Set	job	4600
PH255	Installation Charges 400 KVA Capacity DG Set	job	4600
PH256	Installation Charges 500 KVA Capacity DG Set	job	4600
PH257	Installation Charges 600 KVA Capacity DG Set	job	6150
PH258	Installation Charges 700 KVA Capacity DG Set	job	6150
PH259	Installation Charges 800 KVA Capacity DG Set	job	6150
PH260	Installation Charges 900 KVA Capacity DG Set	job	6150
PH261	Installation Charges 1000 KVA Capacity DG Set	job	6150
PH262	Spun yarn/Hemp yarn	kg	50
PH263	Manhole cover and frame 20 kg with CC topping	each	1200
PH264	Manhole cover and frame 38 kg with CC topping	each	2250
PH265	10 mm dia threaded MS rod	kg	65
PH266	Cleaning out plug 100mm dia	each	700
PH267	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-200 mm outer diametre	metre	1138
PH268	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-225 mm outer diametre	metre	1438
PH269	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-250 mm outer diametre	metre	1772
PH270	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-280 mm outer diametre	metre	2219
PH271	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-315 mm outer diametre	metre	2788
PH272	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-355 mm outer diametre	metre	3556
PH273	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-400 mm outer diametre	metre	4604
PH274	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-450 mm outer diametre	metre	5930
PH275	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-500 mm outer diametre	metre	7311
PH276	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-560 mm outer diametre	metre	9157
PH277	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-630 mm outer diametre	metre	11554
PH278	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-710 mm outer diametre	metre	14953
PH279	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-800 mm outer diametre	metre	18946
PH280	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-900 mm outer diametre	metre	23985
PH281	HDPE Pipe (PE-80 grade and PN-4 for sewer application)-1000 mm outer diametre	metre	29617
PH282	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-200 mm outer diametre	metre	1344
PH283	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-225 mm outer diametre	metre	1695
PH284	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-250 mm outer diametre	metre	2090
PH285	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-280 mm outer diametre	metre	2614
PH286	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-315 mm outer diametre	metre	3309
PH287	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-355 mm outer diametre	metre	4193
PH288	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-400 mm outer diametre	metre	5450
PH289	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-450 mm outer diametre	metre	6994
PH290	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-500 mm outer diametre	metre	8644
PH291	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-560 mm outer diametre	metre	10805
PH292	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-630 mm outer diametre	metre	13685
PH293	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-710 mm outer diametre	metre	17645
PH294	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-800 mm outer diametre	metre	22383
PH295	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-900 mm outer diametre	metre	25200
PH296	HDPE Pipe (PE-100 grade and PN-6 for sewer application)-1000 mm outer diametre	metre	31135
PH297	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-200 mm outer diametre	metre	1715
PH298	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-225 mm outer diametre	metre	2165
PH299	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-250 mm outer diametre	metre	2677
PH300	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-280 mm outer diametre	metre	3350
PH301	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-315 mm outer diametre	metre	4241
PH302	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-355 mm outer diametre	metre	5370
PH303	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-400 mm outer diametre	metre	6973
PH304	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-450 mm outer diametre	metre	8969
PH305	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-500 mm outer diametre	metre	11057
PH306	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-560 mm outer diametre	metre	13855
PH307	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-630 mm outer diametre	metre	17539
PH308	HDPE Pipe (PE-100 grade and PN-8 for sewer application)-710 mm outer diametre	metre	22600
PH309	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-200 mm outer diametre	metre	2058
PH310	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-225 mm outer diametre	metre	2604
PH311	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-250 mm outer diametre	metre	3214
PH312	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-280 mm outer diametre	metre	4006
PH313	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-315 mm outer diametre	metre	5095
PH314	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-355 mm outer diametre	metre	6463

PH315	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-400 mm outer diametre	metre	8372
PH316	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-450 mm outer diametre	metre	10779
PH317	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-500 mm outer diametre	metre	13292
PH318	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-560 mm outer diametre	metre	16677
PH319	HDPE Pipe (PE-100 grade and PN-10 for sewer application)-630 mm outer diametre	metre	21072
PH320	Extra for every additional 4 metres depth or part thereof for depth of the invert level beyond 1.5 metres below ground level.	factor	8
PH321	quantity of lime and cement concrete		3
PH322	Quantity of brick work		8
PH323	Core cutting upto 200mm RCC slab - 40mm dia	each	200
PH324	Core cutting upto 200mm RCC slab - 100mm dia	each	550
PH325	Core cutting upto 200mm RCC slab - 125mm dia	each	700
PH326	Core cutting upto 200mm RCC slab - 150mm dia	each	800
PH327	Core cutting upto 200mm RCC slab - 175mm dia	each	950
PH328	Plastic encapsulated M.S. foot rest 30x20x15 cm	each	110
	Lowering of sub soil water upto 1.00 m below the foundation concrete by providing well point system		
PH329	Under water for inlet chamber & screening Chamber- Water table 0.00 M to 1.00 M above the bed level of structure	sqm	446
PH330	Under water for collectine Tank / sump-Water table 0.00 M to 4.00 M above the bed level of structure	sqm	2679
PH331	Under water for collectine Tank / sump-Water table 0.00 M to 6.00 M above the bed level of structure	sqm	4464
	Supply & Erection of non clog submersible sewage pump with suitable electrical motors with accessories		
PH332	90 M 3/ Hour x 15 M head	each	223214
PH333	180 M 3/ Hour x 15 M head	each	250000
	P&F CI/DF pipe and specials / bell mouth		
PH334	CI/DF bends, Reducers, tees etc. 150mm i/d/ 200mm i/d/ 450mm i/d	kg	80
	150mm i/d		
PH335	Suction of CI/DF pipes	metre	3125
PH336	Delivery of CI/DF pipes	metre	3125
PH337	Bell Mouth	each	4464
	200mm i/d		
PH338	Suction of CI/DF pipes	metre	4464
PH339	Delivery of CI/DF pipes	metre	4464
PH340	Bell Mouth	each	4464
	Electrcal Materials		
EL001	Drilling of 46 Nos 12 mm dia holes on G.I. pipe	LS	300
EL002	Solder jointing	each	12
	WIRE		
EL003	1.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable	metre	11
EL004	2.5 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable	metre	18
EL005	4.0 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable	metre	26
EL006	6.0 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable	metre	34
EL007	10 sq. mm ISI marked, FRLS PVC insulated, single core copper conductor cable	metre	80
EL008	16/0.20 mm (0.5 sqmm) twin core FRLS PVC sheathed, flat flexible copper cable	metre	9
EL009	2 pair, 0.5 mm dia annealed copper conductor, FRLS PVC insulated, unarmoured, telephone cable	metre	3
EL010	4 pair, 0.5 mm dia annealed copper conductor, FRLS PVC insulated, unarmoured, telephone cable	metre	9
EL011	Cat6 Cable	meter	24
EL012	Cat6a Cable	meter	35
	CONDUIT (STEEL & PVC) AND ACCESSORIES		
	SUBMERSIBLE CABLE COPPER		
EL013	SUBMERSIBLE COPPER CABLE 3 Core 1.5 sqmm	metre	31
EL014	SUBMERSIBLE COPPER CABLE 3 Core 2.5 sqmm	metre	48
EL015	SUBMERSIBLE COPPER CABLE 3 Core 4 sqmm	metre	72
EL016	SUBMERSIBLE COPPER CABLE 3 Core 6 sqmm	metre	108
EL017	SUBMERSIBLE COPPER CABLE 3 Core 10 sqmm	metre	142
EL018	SUBMERSIBLE COPPER CABLE 3 Core 16 Sqmm	metre	225

EL019	SUBMERSIBLE COPPER CABLE 3 Core 25 Sqmm	metre	340
	MS CONDUIT		
EL020	20 mm dia, ISI marked, steel conduit	metre	45
EL021	25 mm dia, ISI marked, steel conduit	metre	55
EL022	32 mm dia, ISI marked, steel conduit	metre	80
EL023	40 mm dia, ISI marked, steel conduit	metre	135
	PVC CONDUIT		
EL024	20 mm dia, ISI marked, PVC conduit	metre	12
EL025	25 mm dia, ISI marked, PVC conduit	metre	16
EL026	32 mm dia, ISI marked, PVC conduit	metre	25
EL027	40 mm dia, ISI marked, PVC conduit	metre	34
EL028	GI flexible conduit 15 mm	metre	21
EL029	GI flexible conduit 20 mm	metre	23
EL030	GI flexible conduit 25 mm	metre	35
EL031	U-PVC trunking channel 25*12 mm	metre	11
EL032	U-PVC trunking channel 32*12 mm	metre	14
EL033	U-PVC trunking channel 38*25 mm	metre	32
EL034	U-PVC trunking channel 50*50 mm	metre	58
EL035	MS CLAMPS	each	20
EL036	Hinges	each	10
	Metal Boxes		
EL037	Modular GI box for 2 module	each	23
EL038	Modular GI box for 3 module	each	31
EL039	Modular GI box for 4 module	each	38
EL040	Modular GI box for 6 module	each	51
EL041	Modular GI box for 8 module	each	66
EL042	Modular GI box for 12 module	each	81
EL043	75 mm X 75 mm X 60 mm deep metal box	each	20
EL044	100 mm X 100 mm X 60 mm deep metal box	each	28
EL045	150 mm X 75 mm X 60 mm deep metal box	each	31
EL046	150 mm X 150 mm X 60 mm deep metal box	each	44
EL047	180 mm X 100 mm X 60 mm deep metal box	each	37
EL048	200 mm X 150 mm X 60 mm deep metal box	each	60
EL049	200 mm X 250 mm X 75 mm deep metal box	each	90
	WIRING SWITCHES AND ACCESSORIES		
EL050	3 mm thick phenolic laminated sheet	sqcm	0
EL051	Ceiling rose, 3 pin, 5 A ISI marked	each	12
EL052	S.P. 5/6 A, one way modular switch, ISI marked	each	28
EL053	S.P. 5/6 A, two way modular switch, ISI marked	each	57
EL054	S.P. 15/16 A, one way modular switch, ISI marked	each	63
EL055	3 pin 5/6 A modular socket outlet, ISI marked	each	60
EL056	6 pin 15/16 A modular socket outlet, ISI marked	each	96
EL057	Modular bell push, ISI marked	each	59
EL058	Stepped type Modular Fan regulator (2 module)	each	210
EL059	Telephone Socket outlet modular type	each	54
EL060	T.V. Socket outlet modular type	each	54
EL061	Modular blanking plate	each	12
EL062	RJ 45 Computer DATA socket outlet for CAT 6 or CAT6e cable Modular type	each	250
EL063	USB Charger, 1000mA, 5V, 1 Module	each	398
EL064	32A D.P. Main Switch With Key Ring Tag 2 Module	each	271
EL065	Modular base & cover plate for 2 module	each	38
EL066	Modular base & cover plate for 3 module	each	48
EL067	Modular base & cover plate for 4 module	each	56
EL068	Modular base & cover plate for 6 module	each	78
EL069	Modular base & cover plate for 8 module	each	100
EL070	Modular base & cover plate for 12 module	each	123
EL071	Passive Infrared(PIR) technology based occupancy sensor	each	3090
EL072	Passive Infrared(PIR) technology based occupancy sensor with day light dimming(lighting level shall be regulated as per availability of natural day light	each	4674
EL073	S.P. 5/6 A, one way switch, piano type ISI marked	each	10
EL074	S.P. 5/6 A, two way switch, piano type ISI marked	each	17
EL075	S.P. 15/16 A, one way switch, piano type ISI marked	each	47

EL076	3 pin 5/6 A socket outlet, piano type ISI marked	each	19
EL077	6 pin 15/16 & 5/6 A socket outlet, piano type ISI marked	each	60
EL078	Bell push, piano type	each	12
EL079	Telephone Socket outlet piano type	each	20
EL080	Call BELL MUSICAL	each	70
EL081	Call bell/ buzzer, single phase	each	35
EL082	Bakellite Batten/ Angle Holder	each	28
EL083	Bed Switch Piano type	each	18
EL084	Rotary electronic step type Fan regulator	each	150
EL085	3 mm thick phenolic laminated sheet	sqcm	0
EL086	5 mm thick phenolic laminated sheet	sqcm	0
	CAPACITORS		
EL085	2 to 3.5 micro Fd	each	28
EL086	4 to 6 micro Fd	each	32
EL087	7 to 8 micro Fd	each	35
	SWITCH DISCONNECTOR SFU AND MCCB		
EL088	CHANGE OVER SWITCH MANUAL ON LOAD FOUR POLE in SS Enclosure 63 A	each	5224
EL089	CHANGE OVER SWITCH MANUAL ON LOAD FOUR POLE in SS Enclosure 100 A	each	6664
EL090	CHANGE OVER SWITCH MANUAL ON LOAD FOUR POLE in SS Enclosure 200 A	each	12536
EL091	CHANGE OVER SWITCH MANUAL ON LOAD FOUR POLE in SS Enclosure 300 A	each	18264
EL092	CHANGE OVER SWITCH MANUAL ON LOAD FOUR POLE in SS Enclosure 400 A	each	26616
EL093	MCCB Thermal Magnetic Release DY , 25 Ka, 2 POLE 16 to 100 A	each	992
EL094	MCCB Thermal Magnetic Release DY , 25 Ka, 2 POLE 125 A	each	1544
EL095	MCCB Thermal Magnetic Release DY , 25 Ka, 3 POLE 16 to 100 A	each	1368
EL096	MCCB Thermal Magnetic Release DY , 25 Ka, 3 POLE 125 A	each	2184
EL097	MCCB Thermal Magnetic Release DY , 25 Ka, 4 POLE 16 to 100 A	each	1808
EL098	MCCB Thermal Magnetic Release DY , 25 Ka, 4 POLE 125 A	each	2872
EL099	MCCB Thermal Magnetic Release DU , 25 Ka, adjustable OL setting 0.8 to 1,3 POLE 200A	each	6176
EL100	MCCB Thermal Magnetic Release DU , 25 Ka, adjustable OL setting 0.8 to 1,3 POLE 250A	each	6952
EL101	MCCB Thermal Magnetic Release DU , 50 Ka, adjustable OL setting 0.8 to 1,3 POLE 400A	each	12816
EL102	MCCB Thermal Magnetic Release DTH, 50 Ka, adjustable OL setting 0.8 to1,3 POLE 600 to 800 A	each	38000
EL103	MCCB Thermal Magnetic Release DU , 25 Ka, adjustable OL setting 0.8 to1,4 POLE 200 A	each	7776
EL104	MCCB Thermal Magnetic Release DU , 50 Ka, adjustable OL setting 0.8 to 1,4 POLE 400A	each	16024
EL105	MCCB Thermal Magnetic Release DTH, 50 Ka, adjustable OL setting 0.8 to 1 4 POLE 600 to 800 A	each	38000
EL106	MCCB Enclosure made of Sheet Steel suitable for mounting MCCB up to 125 A MCCB	each	1248
EL107	MCCB Enclosure made of Sheet Steel suitable for mounting MCCB up to 250 A MCCB	each	2872
EL108	1 phase Energy meter wth LCD display with optical port 5-30 A	each	1472
EL109	1 phase Energy meter wth LCD display with optical port 10-60 A	each	1622
EL110	LCD display 100*100 Ammeter/Voltmeter	each	800
	MCB		
EL111	Blanking plate for MCB DB	each	5
EL112	SP MCB 6-32 A	each	110
EL113	SP MCB 40 A	each	250
EL114	SP MCB 63 A	each	250
EL115	DP MCB 6-32 A	each	348
EL116	DP MCB 40 A	each	563
EL117	DP MCB 63 A	each	563
EL118	TP MCB 6-32 A	each	568
EL119	TP MCB 40 A	each	873
EL120	TP MCB 63 A	each	873
EL121	FP MCB 6-32 A	each	763
EL122	FP MCB 40 A	each	1090
EL123	FP MCB 63 A	each	1090
EL124	DP RCCB 30ma sensitivity , 25 A	each	1250
EL125	DP RCCB 30ma sensitivity , 40 A	each	1415
EL126	DP RCCB 30ma sensitivity , 63 A	each	1763
EL127	FP RCCB 30ma sensitivity , 25 A	each	1655
EL128	FP RCCB 30ma sensitivity , 40 A	each	1663
EL129	FP RCCB 30ma sensitivity , 63 A	each	1908
EL130	SPN enclosure	each	250

EL131	TP enclosure;	each	300
EL132	SPN DB Double Door 4 way (2 incoming and 2 outgoing)	each	855
EL133	SPN DB Double Door 8 way (2 incoming and 6 outgoing)	each	1056
EL134	SPN DB Double Door 12 way (2 incoming and 10 outgoing)	each	1275
EL135	SPN DB Double Door 16 way (2 incoming and 14 outgoing)	each	1596
EL136	TPN DB Horizomtal type Double Door 4 way (8 incoming and 3phase*4 outgoing)	each	2097
EL137	TPN DB Horizomtal type Double Door 6 way (8 incoming 3phase*6 outgoing)	each	2586
EL138	TPN DB Horizomtal type Double Door 8 way (8 incoming 3phase*8 outgoing)	each	3096
EL139	TPN DB Horizomtal type Double Door 12 way (8 incoming 3phase*12 outgoing)	each	4638
EL140	Vertical TPN DB Double Door 4 way (8 incoming and 3phase*4 outgoing)	each	4923
EL141	Vertical TPN DB Double Door 6 way (8 incoming 3phase*6 outgoing)	each	5898
EL142	Vertical TPN DB Double Door 8 way (8 incoming 3phase*8 outgoing)	each	6597
EL143	Vertical TPN DB Double Door 12 way (8 incoming 3phase*12 outgoing)	each	8943
	MCB'S,ISOLATORS,RCCB'S AND MCB DB'S		
	COPPER LUGS		
EL144	PVC insulated copper terminal pin type 1.5 Sqmm	each	1
EL145	PVC insulated copper terminal pin type 2.5 Sqmm	each	1
EL146	PVC insulated copper terminal pin type 4 Sqmm	each	3
EL147	PVC insulated copper terminal pin type 6 Sqmm	each	4
EL148	PVC insulated copper terminal pin type 10 Sqmm	each	4
EL149	PVC insulated copper terminal pin type 16 Sqmm	each	6
	BRASS COMPRESSION GLANDS		
EL150	Single compression Gland : Brass Upto 6 Sq mm cable 2 to 4 Core	set	20
EL151	Single compression Gland : Brass 10 Sqmm to 16 Sqmm Cable 2 to 4 Core	set	27
EL152	Single compression Gland : Brass 25 Sqmm to 50 Sqmm Cable 2 to 4 Core	set	51
EL153	Single compression Gland : Brass 70 Sqmm to 95 Sqmm Cable 3 to 3½ Core	set	67
EL154	Single compression Gland : Brass 120 Sqmm to 185 Sqmm Cable 3 to 32 Core	set	85
EL155	Single compression Gland : Brass 240 Sqmm to Cable 3 to 32 Core	set	105
EL156	Single compression Gland : Brass 300 Sqmm to 400 Sqmm Cable 3 to 3½ Core	set	158
	ALUMINIUM LUGS		
EL157	Aluminium Lugs/terminals 1.5 Sqmm to 2.5 Sqmm	each	1
EL158	Aluminium Lugs/terminals 4 Sqmm to 6 Sqmm	each	1
EL159	Aluminium Lugs/terminals 10 Sqmm	each	2
EL160	Aluminium Lugs/terminals 16 Sqmm	each	2
EL161	Aluminium Lugs/terminals 25 Sqmm	each	3
EL162	Aluminium Lugs/terminals 35 Sqmm	each	4
EL163	Aluminium Lugs/terminals 50 Sqmm	each	5
EL164	Aluminium Lugs/terminals 70 Sqmm	each	8
EL165	Aluminium Lugs/terminals 95 Sqmm	each	9
EL166	Aluminium Lugs/terminals 120 Sqmm	each	13
EL167	Aluminium Lugs/terminals 150 Sqmm	each	16
EL168	Aluminium Lugs/terminals 185 Sqmm	each	20
EL169	Aluminium Lugs/terminals 240 Sqmm	each	35
EL170	Aluminium Lugs/terminals 300 Sqmm	each	49
EL171	Aluminium Lugs/terminals 400 Sqmm	each	71
	MV CABLE JOINTING KITS		
EL172	Straight Through Cable Joint Kit, For 1.5 to to 6 Sqmm Cable 2 Core	set	352
EL173	Straight Through Cable Joint Kit, For 1.5 to to 6 Sqmm Cable 3 to 4 Core	set	605
EL174	Straight Through Cable Joint Kit, For 10 to 16 Sqmm Cable 2 Core	set	954
EL175	Straight Through Cable Joint Kit, For 10 to 16 Sqmm Cable 3 to 4 Core	set	1079
EL176	Straight Through Cable Joint Kit, For 25 Sqmm to 50 Sqmm Cable 3 to 4 Core	set	2000
EL177	Straight Through Cable Joint Kit, For 70 Sqmm to 150 Sqmm Cable 3 to 4 Core	set	3070
EL178	Straight Through Cable Joint Kit, For 185 Sqmm Cable 300 Sqmm cable 3 to 4 Core	set	5674
EL179	Straight Through Cable Joint Kit, For 400 Sqmm Cable 3 to 4 core	set	6000
	GI POLES		
EL180	GI OCTAGONAL POLES	kg	100
EL181	Anchor bolts for pole foundations	kg	75
	11 kV & 33 kV CABLE JOINTING KITS		
EL182	Heat Shrikable 11 KV indoor Terminations , earthed 70 to 120 Sqmm	set	6062
EL183	Heat Shrikable 11 KV indoor Terminations , earthed 150 to 185 sqmm	set	7406
EL184	Heat Shrikable 11 KV indoor Terminations , earthed 240 to 400 Sqmm	set	8712
EL185	Heat Shrikable 11 KV outdoor Terminations , earthed 70 to 120 Sqmm	set	9810

EL186	Heat Shrikable 11 KV outdoor Terminations , earthed 150 to 185 sqmm	set	11236
EL187	Heat Shrikable 11 KV outdoor Terminations , earthed 240 to 400 Sqmm	set	14938
EL188	Heat Shrikable 11 KV straight through joint 70 to 95 Sqmm	set	22054
EL189	Heat Shrikable 11 KV straight through joint 120 to 150 sqmm	set	23273
EL190	Heat Shrikable 11 KV straight through joint 185 to 240 Sqmm	set	29475
EL191	Heat Shrikable 11 KV straight through joint 300 to 400 Sqmm	set	32822
EL192	Heat Shrikable 33 KV indoor Terminations , earthed 70 to 95 Sqmm	set	7972
EL193	Heat Shrikable 33 KV indoor Terminations , earthed 120 to 185 sqmm	set	12055
EL194	Heat Shrikable 33 KV indoor Terminations , earthed 240 to 400 Sqmm	set	13669
EL195	Heat Shrikable 33 KV outdoor Terminations , earthed 70 to 95 Sqmm	set	12923
EL196	Heat Shrikable 33 KV outdoor Terminations , earthed 120 to 185 sqmm	set	16750
EL197	Heat Shrikable 33 KV outdoor Terminations , earthed 240 to 400 Sqmm	set	22170
EL198	Heat Shrikable 33 KV outdoor straight throgh joint 95 to 150 Sqmm	set	28754
EL199	Heat Shrikable 33 KV outdoor straight throgh joint 185 to 300 sqmm	set	40836
	CABLE TRAYS		
EL200	MS perforated cable tray painted with powder coating 100 X 50 X 1.6 mm^3	metre	144
EL201	MS perforated cable tray painted with powder coating 225 X 50 X 1.6 mm^3	metre	226
EL202	MS perforated cable tray painted with powder coating 375 X 50 X 2 mm^3	metre	258
EL203	MS perforated cable tray painted with powder coating 600 X 50 X 2 mm^3	metre	311
	ANGLE/FLAT IRON AND STEEL SHEET		
EL204	MS Rod 10 mm dia 0.5m long	each	32
EL205	MS Rod 8 mm dia 0.5m long	each	22
EL206	35 mm X 35 mm X 4 mm angle iron	kg	43
EL207	50 mm X 50 mm X 6 mm angle iron	kg	43
EL208	M.S. sheet	kg	48
EL209	ALUMINIUM	kg	150
	GI AND RCC PIPE		
EL210	15 mm dia, G.I. pipe (heavy class)	metre	101
EL211	20 mm dia, G.I. pipe (heavy class)	metre	130
EL212	40 mm to 20 mm reducer	each	33
EL213	40 mm dia, G.I. bend (medium class)	each	57
	SCREWS, NUT BOTS AND OTHER ACCESSORIES		
EL214	Al. Alloy/ cadmium plated iron screws, 20 mm	each	1
EL215	Iron screws, 35 mm X 6 mm	each	1
EL216	Iron screws, 45 mm X 6 mm	each	1
EL217	Steel fastener 6 mm X 75 mm	each	6
EL218	PVC fastener 40mm long	each	3
EL219	10 mm X 25 mm long G.I. bolt with nut etc	each	9
EL220	GI saddles 19mm x 0.55mm for conduit	each	1
EL221	GI saddles 25mm x 0.90mm for conduit above 25mm	each	2
EL222	Girder clip complete for girder up to 100 mm deep	each	20
EL223	Girder clip complete for girder up to 300 mm deep	each	40
	HDPE Pipe 10Kg/cm2		
EL224	63 mm dia	metre	67
EL225	90 mm dia	metre	96
EL226	120 mm dia	metre	156
EL227	145 mm dia	metre	200
EL228	40 mm dia	metre	48
EL229	50 mm dia	metre	55
EL230	180 mm dia	metre	234
	HDPE Pipe Coupler		
EL231	25 mm X 5 mm copper tape (1.15 kg/mtr)	kg	538
EL232	8 SWG copper wire (4.0 mm dia)	kg	540
EL233	600 mm X 600 mm X 3 mm thick copper plate (10.5 kg)	each	5649
EL234	Lightning finial, 25 mm dia X 300 mm long, G.I.	each	127
EL235	20 mm X 3 mm G.I. Tape (0.461 kg/mtr)	kg	61
EL236	25 mm X 3 mm G.I. strip (0.6 kg/mtr)	kg	57
EL237	25 mm X 6 mm G.I. strip (1.2 kg/mtr)	kg	55
EL238	600 mm X 600 mm X 6 mm thick G.I. plate	each	1438
EL239	6 SWG G.I. wire	kg	61
EL240	GI saddle 20mm x 3mm	each	3
EL241	Funnel	each	19

EL242	G.I. nuts and through bolts with washer	each	26
EL243	CI/MS cover plate hinged to FRLSame with Locking arrangement	each	277
EL244	Rubber reel, nut & bolts with washers and safety pin	set	60
EL245	250 mm X 200 mm H.T. danger notice plate	each	62
EL246	200 mm X 150 mm M.V. danger notice plate	each	48
EL247	Cement, paint, sand etc.	LS	5
EL248	Charcoal	kg	8
EL249	Salt	kg	8
EL250	Common burnt clay F.P.S. (non modular) bricks class designation 7.5	each	7
EL251	Bricks ballast	cum	650
EL252	MS Bucket for fire	each	200
EL253	Shock treatment chart	each	200
EL254	SS grade 304 2 mm thick, 50 per inch Wire Mesh	sqft	100
EL255	8 mm thick Outdoor duty Ply wood	sqft	59
EL256	C fan Ball or bush bearing	each	50
EL257	LT line Phase separator	each	20
EL258	Sundries/bending charges	LS	1
	HVAC Items		
	The Pipes of sizes 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia, and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.		
EL259	M.S. Pipe 300 mm dia,	metre	4532
EL260	M.S. Pipe 250mm dia,	metre	3806
EL261	M.S. Pipe 200mm dia,	metre	3210
EL262	M.S. Pipe 150mm dia,	metre	2038
EL263	M.S. Pipe 125mm dia,	metre	1742
EL264	M.S. Pipe 100mm dia,	metre	1399
EL265	M.S. Pipe 80mm dia,	metre	1183
EL266	M.S. Pipe 65mm dia,	metre	1010
EL267	M.S. Pipe 50mm dia,	metre	775
EL268	M.S. Pipe 40mm dia,	metre	620
EL269	BUTTERFLY VALVE (MANUAL) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating for chilled water/hot eater circulation as specified		
EL270	300 mm dia	each	14875
EL271	250mm dia,	each	12593
EL272	200 mm dia	each	7431
EL273	150mm dia,	each	3723
EL274	125mm dia,	each	2855
EL275	100mm dia,	each	2103
EL276	80mm dia,	each	1595
EL277	65mm dia,	each	1417
EL278	50mm dia,	each	1256
EL279	40mm dia,	each	1053
	BALANCING VALVE WITH BUILT IN MEASURING FACILITY with C I body flanged construction with EPDM coated disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled / hot water circulation as specified.		
EL280	200 mm dia	each	29102
EL281	150mm dia,	each	15390
EL282	125mm dia,	each	11351
EL283	100mm dia,	each	7963
EL284	80mm dia,	each	5353
EL285	65 mm dia	each	4557
EL286	50mm dia,	each	4146
EL287	40 mm dia	each	2500
	NON - RETURN VALVE with duel plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified.		
EL288	200 mm dia	each	10000
EL289	150mm dia,	each	6800
EL290	125mm dia,	each	4500
EL291	100 mm dia	each	3400
EL292	80mm dia,	each	2800

EL293	65 mm dia	each	2600
EL294	50mm dia,	each	2400
EL295	40 mm dia	each	1800
	GSS sheet metal of following sheet thickness		
EL296	Thickness 0.63 mm sheet	sqm	400
EL297	Thickness 0.80 mm sheet	sqm	500
EL298	Thickness 1.00 mm sheet	sqm	600
EL299	Thickness 1.25 mm sheet	sqm	750
EL300	Anchor bolts for pole foundations	kg	75
	Horticulture Materials		
HO001	Royalty for good earth	cum	40
HO002	Manure at source	cum	295
HO003	De-oiled Neem Cake	quintal	1750
HO004	Sludge	cum	400
HO005	Bermuda grass (Selection No.1)	sqm	55
HO006	Urea	kg	6
HO007	DAP (Di-Ammonium Phosphate)	kg	23
HO008	Hedge plants	each	12
HO009	Neel giri/maxican grass turf	sqm	150
HO010	Doob grass	sqm	40
HO011	Oasis floral foam bricks	per box	600
HO012	Hardwar pebles 2" to 2.5 " dia i/c carriage	quintal	1000
HO013	Cost of PVC Hexagonal net (Tuflex or equivalent)	sqm	150
HO014	Bamboo 90 cm height (Including Cartage)	each	33
HO015	PCC tree guard made of 4 panels each weighing 35 kg, contaning MS bars not less than 2.5 kg with overall Height 1800mm, Width 620 mm & Legs 450mm.	each	1650
HO016	Carriage of tree guard	quintal	50
HO017	38mm dia 1.50 mtr. Long bamboo stick	each	50
HO018	Average rate for sapling above 6 feet height and 5 cm to 6cm cm caliper size.	each	120
HO019	Fertilizer urea	quintal	560
HO020	Shrub plants of 75cm to 1 metre height well developed plant in poly bag/pots 30cm x 30 cm	each	45
HO021	Average cost of plant to be planted	each	5
HO022	Plants - Rasselia, Chlorophytum, Juniperous prostata, Apraragus grass, cuphea chinensis,	each	25
HO023	200 cm to 240 cm tall sapling	each	800
HO024	Seasonal flower seedlings	each	5
HO025	Fungicide Blitox	kg	600
HO026	30 cm x 30 cm size earthen pot	each	80
HO027	Well finished 23 cm dia x 23 cm deep size earthen tray pot	each	70
HO028	30 cm dia x 23 cm deep size earthen tray pot	each	150
HO029	Pot plant	each	200
HO030	Vermi compost manure	quintal	500
HO031	Cocopeat	kg	25
HO032	Vermiculite	quintal	5000
HO033	Perlite	quintal	7000
HO034	Murate of Potash	kg	18
HO035	Single super phosphate (SSP)	kg	9
HO036	Metsulfuron methyl 20% WG	gm	45
HO037	Halosulfuron methyl 75% WD	gm	50
HO038	DAP	quintal	2300
HO039	Cotton Niwar	kg	300
HO040	Coir Rope	kg	150
HO041	Plants at flowering stage in polybags	each	28
HO042	Fungicide	kg	360
HO043	Flower bulbs	each	25
HO044	Ground cover plants	each	8
HO045	Rose plants	each	30
HO046	Edging plants	each	10
HO047	Polybags (550 polybags per kg)	kg	130
HO048	Well burnt cylidrical / conical earthen pots - 15 cm	each	25
HO049	Well burnt cylidrical / conical earthen pots - 20 cm	each	40
HO050	Well burnt cylidrical / conical earthen pots - 25 cm	each	50

HO051	Well burnt cylidrical / conical earthen pots - 30 cm	each	70
HO052	cement pots size 30cm x30cm	each	65
HO053	cement pots size 35cm x35cm	each	105
HO054	cement pots size 45cm x45cm	each	168
HO055	cement pots size 50cm x50cm	each	250
HO056	cement pots size 60cm x60cm	each	360
HO057	1st quality heavy duty plastic pot-15cm size	each	10
HO058	1st quality heavy duty plastic pot-20cm size	each	20
HO059	1st quality heavy duty plastic pot-25cm size	each	40
HO060	1st quality heavy duty plastic pot-30cm size	each	65
HO061	1st quality heavy duty plastic pot-35cm size	each	80
HO062	1st quality heavy duty plastic pot-40cm size	each	125
HO063	1st quality heavy duty plastic pot-45cm size	each	205
HO064	1st quality heavy duty plastic pot-50cm size	each	320
HO065	1st quality heavy duty plastic pot-60cm size	each	580
HO066	Chrysanthemum/Dahlia cuttings	each	7
HO067	NPK 20:20:20 @ 20gm	kg	90
HO068	Plastic plate-30 cm	each	15
HO069	Plastic plate-45 cm	each	40
HO070	Indoor decorative plants with fresh foliage,60cm-75 cm in height' 3-4 stems each pot, full lof leaves	each	100
HO071	Specimen pot plant with fresh foliage,60 cm-75 cm in height'/ 3-4 stems / full lof leaves	each	400
HO072	Outdoor pot plant	each	125
HO073	Imidachloprid 30.5%	litre	3140
HO074	Chair type garden bench with L-shaped sides made of reinforced concrete (M30), thickness 100 mm, overall height 1000 mm, base width 620 mm. Back and seat shall consist of 5 Nos. reinforced concrete planks 1500 mm x 100 mm x 50 mm, one plank 1500 mm x 200 mm x 50 mm. Seating height of the bench shall be 450 mm.	each	3950
HO075	Rectangular garden bench with h-shaped sides made of reinforced concrete (M30), thickness 100 mm, back height 750 mm, base width 450 mm. Back and seat shall consist of rectangular reinforced concrete planks 1500 mm x 350 mm x 50 mm. Seating height of the bench shall be 450 mm.	each	2900
HO076	Cast Iron bench of 1800 mm length, 900 mm width, 450 mm seating height, sides made of cast iron. Seat and back shall be made of 10 strips of M.S. pipes 63 mm x 25 mm of 14 gauge with one M.S. Flat 25 x 10 mm welded at the centre, below and back of the seat and back rest. Spray painted with approved brand paint. (Minimum weight of each bench 105 kg)	each	9500
HO077	Aluminium tubes 50 x 25 x 1.5 mm	kg	150
HO078	Cup and frame type planter panels 45 x 30 cm size.	each	105
HO079	LDPE lateral Pipe 16 mm; Class 2, 2.5 kg/cm2	metre	15
HO080	LDPE lateral Pipe 12 mm; Class 2, 2.5 kg/cm2	metre	12
HO081	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), Anti-rodent	metre	20
HO082	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), Anti-rodent	metre	18
HO083	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), Anti-rodent	metre	18
HO084	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), Anti-rodent	metre	18
HO085	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph)	metre	18
HO086	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph)	metre	18
HO087	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph)	metre	18
HO088	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph)	metre	18
HO089	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), pressure compensating	metre	18
HO090	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), pressure compensating	metre	18
HO091	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), pressure compensating	metre	18
HO092	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), pressure compensating	metre	18
HO093	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), pressure compensating, Anti siphoning	metre	18
HO094	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), pressure compensating, Anti siphoning	metre	20
HO095	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), pressure compensating Anti siphoning	metre	20
HO096	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), pressure compensating Anti siphoning	metre	22
HO097	Stake dipper	each	30

HO098	Disc Filter 15 cum/hr	each	3200
HO099	Irrigation timer	each	4500
HO100	Pressure compensating drip emitters	metre	10
HO101	Pressure compensating Non leakage drip emitters	metre	10
HO102	Non Pressure compensating drip emitters	metre	5
HO103	Micro sprinkler having 1.5-4 m throw radius with stake, vinyl tubing and all other accessories	metre	100
HO104	Adjustable flow bubblers with connecting pipe and all other accessories	metre	335
HO105	Pop up Impact Rotors 3/4" inlet and radius ranging from 7-12 m with interchangeable nozzles and all accessories complete	each	850
HO106	Pop up geared rotors 3/4" inlet and radius ranging from 7-12 m with interchangeable nozzles and all accessories complete	each	850
HO107	Pop up Spray heads 1/2" inlet and radius ranging from 3-5 m	each	250
HO108	Swing joint size 3/4", length 12", three way movement for height	each	150
HO109	Swing joint size 1/2", length 12", three way movement for height	each	120
HO110	adjustment	each	150
HO111	Service saddle, heavy duty 3/4"	each	120
HO112	interchangeable nozzles and all accessories complete	each	50
HO113	Rain Gun with throw radius of 14-22 m, interchangeable	each	6500
HO114	Rain Gun with throw radius of 20-35 m, interchangeable	each	19500
HO115	nozzles and arc adjustment and all accessories complete	each	150
HO116	Rain gun stand	each	2800
HO117	Sand/Media filter 25 cum/hr, with back wash and bypass	each	28500
HO118	Sand/Media filter 40 cum/hr, with back wash and by-pass	each	32000
HO119	Sand/Media filter 50 cum/hr, with back wash and bypass	each	41550
HO120	Disc filter 15 cum/hr, with flush valve	each	3200
HO121	Disc filter 25 cum/hr, with flush valve	each	6500
HO122	Disc filter 50 cum/hr, with flush valve	each	8800
HO123	Hydrocyclone/ Sand separator 10-16 cum/hr, with flush valve	each	6000
HO124	Hydrocyclone/ Sand separator 12-30 cum/hr, with flush valve	each	8000
HO125	Hydrocyclone/ Sand separator 20-40 cum/hr, with flush valve	each	9200
HO126	Hydraulic pressure relief valve 1.5/2"	each	10500
HO127	40 mm artificial turf with density of 16800/sqm	sqm	615
HO128	35 mm artificial turf with density of 16800/sqm	sqm	480
HO129	25 mm artificial turf with density of 16800/sqm	sqm	450
HO130	20 mm artificial turf with density of 16800/sqm	sqm	380
HO131	10 mm artificial turf with density of 16800/sqm	sqm	290
HO132	Indoor plants for vertical garden	each	50
HO133	Outdoor plants for vertical garden	each	40
HO134	HDPE root barrier 1 mm thick	sqm	120
HO135	Water borne stone aggregate (12 mm-13.2 mm nominal size)	cum	790
HO136	Water borne stone aggregate (10 mm- 11.2 mm nominal size)	cum	850
HO137	Water borne stone aggregate (6 mm nominal size)	cum	850
HO138	Lightweight expanded clay aggregates 2-8 mm crushed	cum	10000
HO139	Geotextile 200 gsm	sqm	50
HO140	Geotextile 120 gsm	sqm	25
HO141	Drain Cell panels 20 mm thick	sqm	185
HO142	Drain Cell panels 30 mm thick	sqm	264
HO143	Biochar	quintal	3000
HO144	Non woven coir mat 600 gsm without netting, latex bound	sqm	88
HO145	Plastic Dustbin 100 litre volume made of virgin plastic	each	3000
HO146	MS Hollow section 50 x 50 x 3 mm (4.26 Kg/m)	quintal	4600
HO147	MS Hollow section 50 x 25 x 3 mm (3.07 Kg/m)	quintal	4600
HO148	Dahlia /chrysanthemum plants in flowering stage in 25 cm poly bag exhibition type	each	200
HO149	Chlorpyriphos 20% EC (Dursban)	litre	330
	FOLIAGE AND SHADE LOVING PLANTS		
HO150	Aglaonema Parrot Jungle plant (three in one), having ht. 30 cm and above with 20 to 25 leaves, well developed, fresh & healthy in 25 cm size of poly bag	each	66
HO151	Aglaonema dove variety having ht. 30 cm to 45 cm with 8 to 10 leaves, well developed, fresh and healthy in 25 cm size of poly bag	each	85
HO152	Aglaonema Pseudo bractatum plants, having ht. 30 cm and above with 3 to 4 suckers & 20 to 25 leaves, well developed, fresh and healthy in 25 cm size of poly bag.	each	85

HO153	Aglaonema Snow White hybrid plant (three in one), having ht. 30 cm & above with 6 to 8 leaves, bright colour, well developed, fresh and healthy in 25 cm size of Earthen pot / Plastic pot. (Specimen Plant).	each	212
HO154	Aglaonema Silver Queen having ht. 30 cm to 45 cm. with 12 to 15 leaves, multi suckers, well developed, fresh and healthy in 25 cm size of Earthen pot / Plastic pot.	each	158
HO155	Aglaonema ernesto Plant (three in one), having ht. 45 cm & above with 12 to 15 leaves, well developed, fresh and healthy in 25 cm size of Earthen pot / Plastic pot.	each	184
HO156	Aglaonema marentifolium variety having ht. 23 cm to 30 cm with 8 to 10 leaves, well developed, fresh and healthy with colorful leaves in 20 cm size of Poly bag/Earthen pot / Plastic pot..	each	66
HO157	Aglaonema modestum having ht. 23 cm to 30 cm with 3 to 4 suckers & 15 to 20 leaves, well developed, fresh and healthy in 25 cm size of poly bag..	each	66
HO158	Aglaonema nitida having ht. 30 cm to 45 cm with 8 to 10 leaves, well developed, fresh and healthy with attractive leaves in 25 cm size of Earthen pot / Plastic pot..	each	158
HO159	Araucaria cookie having ht. 45 cm to 60 cm, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 20 cm size of Earthen pot/Plastic pot.	each	180
HO160	Araucaria cookie having ht. 60 cm to 75 cm, straight, well developed, fresh and healthy with lush Earthen pot/Plastic pot.	each	210
HO161	Araucaria cookie having ht.90 cm to 1.20 m, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot.	each	368
HO162	Araucaria cookie having ht.1.50 m to 1.80 m, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 30 cm size of Earthen pot/Plastic pot .	each	550
HO163	Areca Palm having ht. 90 cm to 1.05 m with 4 to 5 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot .	each	154
HO164	Areca Palm having ht. 1.05 m to 1.20 m with 5 to 6 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot.	each	165
HO165	Areca palm having ht. 1.20 m to 1.50 m with 6 to 8 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot.	each	189
HO166	Areca Palm having ht. 1.50 m to 1.95 m with 8 to 10 suckers, well developed, fresh and healthy with Plastic pot.	each	341
HO167	Areca Palm having ht. 1.95 m to 2.40 m with 12 to 14 suckers, well developed, fresh and healthy with lush green foliage in 35 cm size of Bucket type cement pots.	each	578
HO168	Brassia Variegated having ht. 30 cm, well developed with fresh and healthy foliage in 20 cm size of Earthen pot/Plastic pot/Poly bag.	each	74
HO169	Brassia Variegated having ht. 30 cm to 45 cm, well developed with fresh and healthy foliage in 25 cm size of Earthen pot / Plastic pot..	each	116
HO170	Chamaedorea elegans palm having ht. 60 cm to 75 cm, well developed with fresh and healthy leaves in 25 cm size of Earthen pot / Plastic pot.	each	105
HO171	Croton Challenger variety having ht. 30cm and above, well developed with full of fresh and healthy leaves in 20 cm size of Poly bag.	each	44
HO172	Croton baby golden variety having ht.30 cm and above, well developed with full of fresh and healthy leaves in 20 cm size of Poly bag.	each	40
HO173	Croton Baby Golden Punctatumaureum having ht. 23 cm to 30 cm, well developed with fresh and healthy foliage in 15 cm size of Poly bag.	each	33
HO174	Croton Golden having ht. 45 cm to 60 cm with 2 to 3 branches, well developed, fresh and healthy foliage in 25 cm size of Poly bag.	each	55
HO175	Croton Baby Golden plant (three in one), having ht. 30cm, multi branches, well developed with fresh and healthy foliage in 25 cm size of Poly bag.	each	83
HO176	Croton Golden (Broad Leaves) having ht. 60 cm to 75 cm with 3 to 4 branches, well developed, fresh and healthy leaves in 25 cm size of Poly bag.	each	55
HO177	Croton Golden specimen having ht. 90 cm to 1.05 cm with 5 to 6 branches, well developed, fresh and healthy foliage in 30 cm size of Earthen pot/Plastic pot/Poly bag.	each	168
HO178	Croton Duck Foot (Elite) having ht. 45 cm and above with 3 to 4 branches, well developed, fresh and healthy leaves in 25 cm size of Earthen pot / Plastic pot.	each	110
HO179	Croton Duck Foot (Elite) having ht. 60 cm to 75 cm with 4 to 5 branches, well developed, fresh and healthy colorful leaves in 30 cm size of Earthen pot / Plastic pot.	each	315
HO180	Croton Petra Bangalore variety having ht 30 cm & above, well developed with fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot.	each	115
HO181	Croton Petra having ht. 30 cm & above with 2 to 3 branches, well developed, fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot.	each	120
HO182	Croton Petra Bangalore variety having ht. 60 cm to 75 cm with 4 to 6 branches, well developed, fresh and healthy colorful leaves in 25 cm size of Earthen pot / Plastic pot.	each	336

HO183	Croton Petra Bangalore (Specimen) variety having ht. 60 cm to 75 cm with 4 to 6 branches, well developed, fresh & healthy foliage approximately 60- 65 leaves in 30 cm size of Earthen pot / Plastic pot.	each	525
HO184	Dieffenbachia Tropic-snow having ht. 45 cm & above with 8 - 10 leaves, well developed, fresh & healthy in 20 cm size of Earthen pot/Plastic pot.	each	77
HO185	Dieffenbachia Mosaic having ht. 23 cm to 30 cm with 10-12 leaves, well developed, fresh andhealthy in 20 cm size of Earthen pot/Plastic pot.	each	77
HO186	Dieffenbachia Maculata having ht. 30 cm to 45 cm with 5 and above leaves, well developed, fresh and healthy & attractive variegated foliage in 20 cm size of Earthen pot/Plastic pot.	each	147
HO187	Dracaena 'Song of India' plant (three in one), having ht. 30 cm and above, multibranched, well developed with fresh and healthy leaves in 20 cm size of Earthen pot/Plastic pot.	each	110
HO188	Dracaena 'Song of India' specimen plant (three in one), having ht. 60 cm & above, well developed, fresh and healthy with good foliage in 20 cm size of Earthen pot/Plastic pot.	each	138
HO189	Dracaena 'Song of India' Green plant (three in one), having ht. 30 cm, well developed, fresh & healthy, lush green foliage from bottom to top in 20 cm size of Polybag.	each	44
HO190	Dracaena 'Song of India' variegated having ht. 30 cm to 45 cm, well developed, fresh & healthy foliage with bright leaves in 20 cm size of Polybag.	each	44
HO191	Dracaena Kedarnath having ht. 30 cm & above, well developed with good colorful foliage in 20 cm size of Polybag.	each	44
HO192	Dracaena Marginata having ht. 30 cm to 45 cm with colorful leaves, fresh and healthy in 20 cm size of Polybag.	each	46
HO193	Dracaena Mahatma having ht. 30 cm to 45 cm, well developed, fresh and healthy foliage in 20 cm size of Polybag.	each	44
HO194	Dracaena Rosea having ht. 30 cm & above with 8 to10 leaves, well developed, fresh and healthy in 15 cm size of Earthen pot/Plastic pot.	each	58
HO195	Dracaena Victoria having ht. 30 cm & above, well developed with full of leaves, fresh and healthy in 15 cm size of Earthen pot/Plastic pot.	each	58
HO196	Dracaena Fragrans"Massangeana'' having ht. 30 cm & above with full of leaves, well developed, fresh and healthy in 15 cm size of Earthen pot/Plastic pot.	each	58
HO197	Dracaena Waraneckii having ht. 30 cm to 45 cm. with good colour foliage, well developed, fresh and healthy in 15 cm size of Earthen pot/Plastic pot.	each	55
HO198	Livistona Palm having ht. 30 cm to 45 cm, well developed with 5 to 6 leaves, fresh & healthy foliage in 20 cm size of Earthen pot/Plastic pot.	each	84
HO199	Livistona Palm having ht. 60 cm to 75 cm, well developed with 8 to 10 leaves, fresh & healthy foliage in 30 cm size of Earthen pot / Plastic pot	each	210
HO200	Monestaria plant mounted on moss stick 90 cm ht., 2 to 3 plant in one pot well developed with fresh & healthy foliage in 25 cm size of Earthen pot / Plastic pot.	each	210
HO201	Money Plant Broad Leaves mounted on moss stick 75 cm ht., 3 to 4 plants in each pot, well developed with full of fresh & healthy leaves in size of 25 cm height Earthen pot/Plastic pot. Top dia x 18 cm Bottom dia x 25 cm Perpendicular	each	180
HO202	Money Plant Broad Leaves mounted on moss stick 0.90 m ht., 5 to 6 plants in each pot, well developed with full of fresh & healthy leaves in size of 25 cm Top dia x 18 cm Bottom dia x 25 cm Perpendicular height Earthen pot/Plastic pot.	each	240
HO203	Money Plant Golden leaves mounted on moss stick 90cm ht., having 3 plants at equal distance, well developed with full of fresh, shinning and healthy leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot.	each	180
HO204	Philodendron Burgundy plant mounted on moss stick 90 cm ht., well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot.	each	252
HO205	Philodendron emerald red colour mounted on moss stick 90 cm ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot / Plastic pot.	each	368
HO206	Philodendron Envy mounted on moss stick 90 cm ht., well developed with full of fresh & healthy leaves in 30 cm size of Earthen pot / Plastic pot.	each	420
HO207	Philodendron Oxicodium mounted on moss stick 90 cm ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 20 cm size of Earthen pot/Plastic pot.	each	158
HO208	Philodendron Oxicodium Golden Colour Mounted on moss stick 90 cm ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 20 cm Top dia x 16 cm Bottom dia x 20 cm Perpendicular height Earthen pot/ Plastic pot.	each	168
HO209	Philodendron Oxicodium Golden Colour Mounted on moss stick 1.20 m ht., having 3 to 4 plants placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot / Plastic pot.	each	228

HO210	Philodendron Oxicodium mounted on moss stick 1.20 m ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot / Plastic pot.	each	240
HO211	Philodendron Selloum having ht. 30 cm to 45 cm with 8 to 10 leaves, well developed, fresh and healthy foliage in 20 cm size of Earthen pot/Plastic pot.	each	158
HO212	Philodendron Selloum having ht. 45 cm to 60 cm with 12 to 16 leaves, well developed, fresh and healthy foliage in 25 cm size of Earthen pot/Plastic pot.	each	210
HO213	Philodendron Ceylon gold having ht. 30 cm to 45 cm with 8 to10 leaves, well developed, fresh & healthy bright colour leaves in 25 cm size of Earthen pot/Plastic pot.	each	187
HO214	Philodendron Xanadu having 15 to 20 leaves, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/Plastic pot.	each	179
HO215	Philodendron Moonlight having ht. 30 cm to 45 cm with 10 to 12 leaves, well developed, fresh & healthy bright colour leaves in 25 cm size of Earthen pot / Plastic pot.	each	200
HO216	Phoenix Palm having ht. 75 cm to 90 cm with 10 to 15 or more leaves, well developed, fresh and healthy in 25 cm size of Earthen pot / Plastic pot.	each	210
HO217	Rhapis Palm having ht. 45 cm to 60 cm with 5 to 7 suckers, well developed, full of fresh and healthy leaves in 25 cm size of Earthen pot / Plastic pot.	each	180
HO218	Rhapis Palm having ht. 75 cm to 90 cm with 12 to 15 equal suckers, well developed, full of fresh & healthy leaves from bottom to top in 25 cm size Earthen pot / Plastic pot.	each	315
HO219	Rhapis Palm having ht. 75 cm to 90 cm with 15 to 18 equal suckers, well developed, full of fresh and healthy leaves from bottom to top in 35 cm PVC Pots/C.Pots.	each	345
HO220	Rhapis Palm specimen having ht. 1.50 m to 1.65 m with 40 to 50 lush green suckers, well developed, fresh & healthy foliage leaves in 40 cm size of Earthen Pot / Chili / tray.	each	518
HO221	Seaforthia Palm having ht. 90cm to 1.20 m with 6-8 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 20 cm size of Earthen pot / Plastic pot.	each	350
HO222	Seaforthia Palm having ht. 1.20 m. to 1.50 m. with 8-10 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot.	each	385
HO223	Seaforthia Palm having ht. 1.50 m to 1.80 m with 12-15 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 30 cm size of Earthen pot / Plastic pot.	each	495
HO224	Sanchezia Nobili's having ht. 30 cm & above, well developed with fresh & healthy foliage in 15 cm size of Earthen pot/Plastic pot.	each	35
HO225	Schefflera high colour having ht. 25 cm to 30 cm, well developed with fresh & healthy foliage in 15cm size of Earthen pot/Plastic pot.	each	40
HO226	Schefflera high colour plant (three in one), having ht. 25 cm to 30 cm, well developed with fresh and healthy foliage in 30 cm size of Earthen pot / Plastic pot.	each	132
HO227	Schefflera Green plant (three in one), mounted on moss stick 90 cm, well developed with full of fresh & healthy leaves from bottom to top with rich foliage in 25 cm size of Earthen pot / Plastic pot.	each	275
HO228	Schefflera Variegated mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy bright leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot.	each	275
HO229	Syngonium golden mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot.	each	189
HO230	Syngonium Variegated mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot / Plastic pot.	each	189
	SEASONAL PLANTS		
	Winter seasonal plants		
HO231	Allyssum white in full bloom well developed fresh & healthy in 15 cm Earthen Pot/Plastic Pot.	each	42
HO232	Anemone hybrid (3 in one) variety well developed with fresh & healthy Flower in full bloom in 20 cm Earthen Pot/Plastic Pot.	each	84
HO233	Antirrhinum Hybrid Dwarf variety (3 in one) well developed with fresh & healthy Flower multi branch in full bloom in 20 cm Earthen Pot/Plastic Pot.	each	53
HO234	Antirrhinum Hybrid dwarf variety, specimen (8-10 s) with fresh & healthy foliage in full bloom well developed in 35 cm Earthen tray/Challi Pot	each	525
HO235	Antirrhinum variety, well developed, fresh & healthy multi branched 30 to 45 cm ht, in full bloom with stacking in 20 cm Earthen Pot/Plastic Pot.	each	53
HO236	Asiatic lilly hybrid variety (3 in one) in each pot having in full bloom 3 to 5 flowers 30 to 45 cm ht. well developed in 25 cm Earthen Pot/Plastic Pot.	each	126
HO237	Aster Hybrid variety in different colour, well developed with fresh & healthy foliage in full bloom 25 to 30 cm ht., in 15 cm Earthen Pot/Plastic Pot.	each	42

HO238	Bigonia rex having 15 to 25 cm ht., well developed with fresh & healthy foliage with 10 to 12 flowers in bloom in 20 cm Earthen Pot/Plastic Pot.	each	63
HO239	Brachycome well developed with fresh & healthy foliage with 100 to 120 flowers stacking with green painted bamboo stick in 25 cm Earthen Pot/ Plastic Pot.	each	126
HO240	Calceolaria hybrid variety in full bloom well developed with fresh & healthy foliage in 20 cm Earthen Pot/Plastic Pot.	each	116
HO241	Calendula double variety well developed with fresh & healthy foliage in full bloom in 20 cm Earthen Pot/Plastic Pot.	each	53
HO242	Chrysanthemum double variety, well developed, having 45 to 60 cm ht., with 6 and above flowers with half blooming condition, fresh and healthy with bamboo stacking in 25 cm Earthen Pot	each	116
HO243	Chrysanthemum single variety in different colour well developed having 45 to 60 cm ht., minimum 100 and above half bloom flowers open well stacked with bamboo stick having three layer tiding by thread fresh and healthy foliage in 25 cm Earthen Pot	each	126
HO244	Chrysanthemum single named variety in different colour well developed, having 45 to 60 cm ht., minimum 150 and above half bloom flowers well stacked with bamboo stick having three layer tied by thread fresh and healthy foliage in 30 cm Earthen Pot	each	147
HO245	Cineraria dwarf in different colour with fresh & healthy foliage well developed in 20 cm Earthen Pot/Plastic Pot.	each	53
HO246	Cineraria Hybrid dwarf variety in different colour well developed with fresh & healthy foliage in bloom in 25 cm Earthen Pot/Plastic Pot.	each	63
HO247	Cineraria long 45 to 60 cm ht., 8 to 10 branch with full bloom specimen with green painted stacking in 30 cm Earthen Pot/Plastic Pot.	each	126
HO248	Clarkia well developed with fresh & healthy foliage, 5 to 6 branch in full bloom with stacking in 25 cm Earthen Pot/Plastic Pot.	each	105
HO249	Clianthus well developed,with fresh & healthy foliage in bloom 30 to 45 cm ht., with stacking in 25 cm Earthen Pot/Plastic Pot.	each	84

HO250	Coleus broad leaves having 3 to 4 branches equal well developed with fresh & healthy foliage in different colour in 25 cm Earthen Pot/Plastic Pot.	each	53
HO251	Coleus broad leaves having 5 to 6 branches equal well developed with fresh & healthy foliage in different colour in 25 cm Earthen Pot/Plastic Pot.	each	84
HO252	Cyclamen hybrid variety fresh & healthy in full bloom well developed in 25 cm Earthen Pot/Plastic Pot.	each	210
HO253	Cyclamen hybrid variety specimen 5-6 fresh & healthy in full bloom well developed in 35 cm Earthen tray/ Nand.	each	394
HO254	Dahlia double kenya variety in different colour well developed with 3 to 4 flowers in half bloom, good foliage stacked with Green painted Bamboo sticks, 45 to 60 cm height in 25 cm Earthen Pot/Plastic Pot.	each	84
HO255	Dahlia single in different colour with fresh & healthy foliage well developed with 6 to 8 half blooming buds in 15 cm Earthen Pot/Plastic Pot.	each	26
HO256	Daisy well developed with fresh & healthy foliage in full bloom in 15 cm Earthen Pot/Plastic Pot.	each	42
HO257	Dianthus dwarf in different colour fresh & healthy bloom in 15 cm Earthen Pot/Plastic Pot.	each	42
HO258	Dianthus dwarf specimen 6-8 s with fresh & healthy foliage in full bloom well developed in 60 cmx35 cm Earthen Tray/Nand	each	368
HO259	Dianthus in different colour well developed with fresh & healthy foliage 30 cm ht., in full bloom with stacking in 20 cm Earthen Pot/Plastic Pot.	each	53
HO260	Freesia hybrid 6 to 8 in full bloom, with fresh and healthy flower and foliage stacked with Green painted bamboo sticks in 25 cm Earthen Pot/ Plastic Pot.	each	84
HO261	Gazania hybrid in different colour well developed with fresh & healthy foliage with full bloom in 25 cm Earthen Pot/Plastic Pot.	each	63
HO262	Geranium double variety having 30 cm ht., in different colour well developed with fresh & healthy foliage (3 in one) well bloomed in 25 cm Earthen Pot/ Plastic Pot.	each	131
HO263	Gerbera Hybrid, well developed, with fresh and healthy foliage, fully blooms in 25 cm Earthen Pot/Plastic Pot.	each	84
HO264	Helianthus different colour with full bloom (3 in one) fresh & healthy in 35 cm Earthen Pot/Plastic Pot. well developed	each	210
HO265	Impatiens in different colour well developed fresh and healthy (3 in one) well bloomed in 30 cm Earthen Pot/Plastic Pot.	each	105
HO266	Marigold jaffri dwarf in different colour well developed with fresh & healthy foliage with 12 to 15 flowers in full bloom specimen 23 to 30 cm ht. in 20 cm Earthen Pot/Plastic Pot.	each	53
HO267	Marigold jaffri orange/yellow/Russet colour well developed with fresh & healthy foliage with 40 to 50 flowers in bloom specimen 60 to 75 cm ht in 30 cm Earthen Pot/Plastic Pot.	each	147
HO268	Marigold jaffri french orange/yellow/Russet colour well developed with fresh & healthy foliage with 60 to 75 flowers in bloom specimen 60 to 75 cm ht in 30 cm Earthen Pot/Plastic Pot.	each	105
HO269	Kalanchoe Hybrid variety in different colour well developed with fresh & healthy foliage in full bloom in 20 cm Earthen pot/Plastic Pot.	each	53
HO270	Marigold(Tagetes) inca hybrid different colour having 30 cm and above ht., with 6 to 8 flowers in bloom & blooming condition, well developed pot should be fully covered with fresh and healthy, foliage and flowers in 20 cm Earthen Pot/Plastic Pot.	each	63
HO271	Mimulus multi branching bushy in different colour well developed fresh & healthy in full bloom in 20 cm Earthen Pot in 20 cm Earthen Pot/Plastic Pot.	each	74
HO272	Mesembryanthemum in different colour well developed with fresh & healthy foliage in full bloom in 15 cm Earthen Pot/Plastic Pot.	each	32
HO273	Nemesia well developed with fresh & healthy with good attractive foliage full blooming in 20 cm Earthen Pot/Plastic Pot.	each	53
HO274	Nasturtium in different colour well developed with fresh & healthy foliage with full bloom in 20 cm Earthen Pot /Plastic Pot.	each	53
HO275	Ornamental Kale Hybrid variety in full bloom with fresh & healthy foliage well developed in 20 cm Earthen Pot/Plastic Pot.	each	53
HO276	Pansy Hybrid Sakata in different colour specimen 15-20 plants with fresh & healthy foliage in full bloom well developed in 60x35 cm Earthen Tray/ Nand	each	315
HO277	Pansy Hybrid Sakata well developed with fresh & healthy foliage with 3 to 4 flower in bloom in 20 cm Earthen Pot/Plastic Pot.	each	53

HO278	Pansy hybrid sakata in different colour with fresh & healthy foliage well developed in 15 cm Earthen Pot/Plastic Pot.	each	26
HO279	Petunia hybrid different colour single well developed in full bloom in 20 cm Earthen/Plastic Pot.	each	42
HO280	Petunia hybrid different variety in different colour well developed with fresh and healthy foliage in full bloom in 25 cm Earthen Pot/Plastic Pot.	each	63
HO281	Petunia hybrid well developed with fresh & healthy foliage in full bloom 15-20 plants in 60x35 cm Earthen Tray	each	26
HO282	Petunia hybrid well developed with fresh & healthy foliage in full bloom 15-20 plants in 60x35 cm Earthen Tray	each	315
HO283	Phlox in different colour well developed with fresh & healthy foliage 30 cm ht., in full bloom with stacking in 25 cm Earthen Pot/Plastic Pot.	each	53
HO284	Poinsettia Dwarf variety different colour well developed 25 to 30 cm ht., 3 to 4 branch full bloom with fresh & healthy foliage in 20 cm Earthen Pot/ Plastic Pot.	each	179
HO285	Poinsettia dwarf multi head, having 25 to 30 cm ht., with 5 to 7 branches with fully different coloured top with fresh & healthy foliage well developed in 25 cm Earthen Pot/Plastic Pot.	each	252
HO286	Primula Hybrid variety specimen 5-6 s in each Pot with fresh & healthy foliage in full bloom different colour well developed in 60x35 cm Earthen Tray	each	420
HO287	Primula Hybrid variety well developed with fresh & healthy foliage with full bloom in 25 cm Earthen Pot/Plastic Pot.	each	84
HO288	Ranunculus Hybrid variety in different colour specimen 5-6 s in each Pot with fresh & healthy foliage in full bloom well developed in 60x35 cm Earthen Tray	each	504
HO289	Ranunculus Hybrid variety well developed with fresh & healthy foliage with 2-3 flower in bloom in 25 cm Earthen Pot/Plastic Pot.	each	105
HO290	Salvia dwarf variety with fresh & healthy foliage well developed multi branching in blooming stage in 15 cm Earthen Pot/Plastic Pot.	each	26
HO291	Salvia ht. 45 to 60 cm multi branches stacking with bamboo stick specimen type with full bloom well developed in 30 cm Earthen Pot/Plastic Pot.	each	126
HO292	Salvia ht. 45 to 60 cm multi branches stacking with bamboo stick specimen type with full bloom well developed in 25 cm Earthen Pot/Plastic Pot.	each	105
HO293	Salvia red Hybrid dwarf variety having 15 cm to 25 cm ht., well developed with fresh & healthy foliage in bloom in 20 cm Earthen Pot/Plastic Pot.	each	53
HO294	Salvia red Hybrid dwarf variety having 15 to 25 cm ht., specimen 6 with fresh & healthy foliage in full bloom well developed in 35 cm Earthen tray	each	53
HO295	Star of Bethlehem (Chinchi - Rinchi), 5 to 6 in each Pot full bloom, with fresh and healthy foliage flower in 35 cm Earthen Pot/Plastic Pot.	each	336
HO296	Stock Double Blue non-branching having 30 to 45 cm ht., with full bloom, well developed in 20 cm Earthen Pot/Plastic Pot.	each	53
HO297	Stock double white colour dwarf variety with fresh and healthy foliage with bloom in 20 cm Earthen Pot/Plastic Pot.	each	63
HO298	Stock single in different colour well developed with fresh & healthy foliage with full bloom in 20 cm Earthen Pot/Plastic Pot.	each	53
HO299	Tulip Dutch hybrid variety (3 in one) in each pot in full bloom fresh & bright in different colour well developed in 25 cm Earthen Pot/Plastic Pot.	each	179
HO300	Verbena in different colour having 30 to 45 cm ht., well developed with fresh & healthy foliage in bloom condition in 25 cm Earthen Pot/Plastic Pot.	each	63
	SUMMER & RAINY SEASONAL		
HO301	Celosia well developed fresh & healthy 20 to 25 cm ht. (attractive) multi branching at blooming stage in 20 cm Earthen Pot/Plastic Pot.	each	53
HO302	Cladium Hybrid variety 3 to 4 well developed with fresh & healthy foliage 30 to 45 cm ht. in different colour 25 cm Earthen Pot/Plastic Pot.	each	63
HO303	Cockscomb well developed fresh & healthy 20 to 25 cm ht. attractive colours fully bloomed in 20 cm Earthen Pot/Plastic Pot.	each	42
HO304	Cosmos well developed fresh & healthy 20 to 25 cm ht. attractive colours multi branching at blooming stage in 20 cm Earthen Pot/Plastic Pot.	each	42
HO305	Gaillardia double hybrid variety well developed 30 to 45 cm ht 20 to 30 fresh & healthy flower with green painted bamboo stick in 25 cm Earthen Pot/Plastic Pot.	each	53
HO306	Gamphrena well developed fresh & healthy 30 to 45 cm ht. bushy 15 & above flower in 20 cm Earthen Pot/Plastic Pot.	each	42
HO307	Kochia well developed fresh & healthy 20 to 25 cm ht. lush green well shaped in 15 cm Earthen Pot/Plastic Pot	each	32

HO308	Kochia well developed fresh & healthy 30 to 45 cm ht. lush green well shaped in 25 cm Earthen Pot/Plastic Pot.	each	42
HO309	Portulaca hybrid in different colour with bloom well developed fresh & healthy in 20 cm Earthen Pot/Plastic Pot.	each	84
HO310	Sunflower hybrid well developed 15 to 20 cm ht. with fresh & healthy foliage at blooming stage in 15 cm Earthen Pot/Plastic Pot.	each	32
HO311	Sunflower single well developed 8 to 10 half bloom buds multi branched in fresh & healthy full stacked with green painted bamboo stick stacking in 25 cm Earthen Pot/Plastic Pot.	each	63
HO312	Tapioca variegated (Manihot esculenta) well developed fresh & healthy 30 to 45 cm ht. in bright colour foliage in 15 cm Earthen Pot/Plastic Pot.	each	32
HO313	Vinca different colour 6 to 8 well developed branch in full bloom stacked with green painted Bamboo stick in 20 cm Earthen Pot/Plastic Pot.	each	53
HO314	Vinca different colour fresh & healthy 25 to 30 cm ht. with bloom multi branchy in 15 cm Earthen Pot/Plastic Pot.	each	26
HO315	Vinca Hybrid in different colour fresh & healthy 20 to 25 cm ht. with bloom in 20 cm Earthen Pot/Plastic Pot.	each	42
HO316	Zinnia hybrid double in different colour well developed fresh & healthy 30 to 45 cm ht. (3 to 4 s in each pot) full bloom in 20 cm Earthen Pot/Plastic Pot.	each	42
	ROSE Plants		
HO317	Budded Rose (H.T. variety) 3 to 4 healthy branch 30 cm and above ht. well developed with one and above flower in 15 cm Earthen Pot.	each	32
HO318	Creeper Rose variety 3 to 4 healthy branch 60 cm and above ht. well developed with one and above flowers in 20 cm Earthen Pot.	each	74
HO319	Standard Rose (H.T. variety) 3 to 4 healthy branch 90 cm and above ht. well developed with one and above flowers in 25 cm Earthen Pot,	each	147
	ORNAMENTAL PLANTS		
HO320	Acalypha Different colour well developed, fresh & healthy with good foliage, multi branch 30 to 45 cm ht. plant in 15 cm size of Earthen Pot/ Plastic Pot.	each	35
HO321	Acalypha green well developed, fresh & healthy with good foliage, multi branch 30 to 45 cm ht. plant in 15 cm size Earthen Pot/ Plastic Pot.	each	35
HO322	Acalypha red well developed with fresh & healthy 30 to 45 cm ht. plant in 15 cm size Earthen Pot/ Plastic Pot.	each	40
HO323	Acalypha twisted well developed with fresh & healthy 30 cm ht. plant in 15 cm size Earthen Pot/ Plastic Pot.	each	40
HO324	Adenium Obesum grafted well developed with fresh & healthy 30 to 60 cm ht. plant in 25 cm size Earthen Pot/ Plastic Pot	each	280
HO325	Adenium Obesum well developed with fresh & healthy 4 to 5 branch 60 to 75 cm ht. plant in 40 cm size Earthen Pot/ Plastic Pot	each	550
HO326	Bamboo Buddha valley with fresh & healthy 3 to 4 suckers having 75 to 90 cm ht. plant in 30 cm size Earthen Pot/ Plastic Pot.	each	450
HO327	Bamboo Buddha valley variety with umbrella shape plant having 120 to 135 ht. plant with fresh & healthy foliage well developed in 40 cm Cement pot multy branch, bushy plant	each	1000
HO328	Bamboo Buddha Valley with fresh & healthy 5 to 6 suckers 1.80 m to 2.10m ht umbrella type plant well developed in 50 cm Cement Pot	each	1400
HO329	Bird of paradise well developed with fresh & healthy 90 to 120 cm ht in 30 cm Earthen Pot/ Plastic Pot	each	380
HO330	Bismarckia Palm 115 to 180 cm ht. plant, well developed 12 and above good color fresh and healthy leaves in 40 cm Cement Pot	each	1890
HO331	Bougainvillea named variety, Sobhra, Thema, Marry palmar, Cherry Blossom etc. well developed with fresh & healthy bushy plant in full bloom 75 to 90 cm ht. plant in 35 cm Cement Pot	each	315
HO332	Cycus cirsnallis well developed with fresh & healthy 35 to 40 lush green leaves in 40 cm Cement Pot	each	1900
HO333	Cycus revoluta in 35 cm challi, specimen plant, having 30 to 40 with fresh and healthy, leaves having 25cm to 30cm circumfrance of base stem well developed	each	1155
HO334	Cycus revoluta specimen plant, having 45 to 50 fresh and healthy, leaves having 30cm to 35cm circumfrance of base stem well developed in 40 cm challi,	each	1500
HO335	Cyprus Golden 30 to 45 cm ht. plant well developed good Golden colour foliage, Conial Shape in 30 cm Earthen Pots	each	370
HO336	Cyprus golden well shaped developed with good colored foliage fresh & healthy 60 to 75 cm ht in 35 cm Earthen Pot	each	420

HO337	Cyprus Golden Conical Shape 150 to 165 cm ht. plant, with fresh and healthy Golden colour foliage in 40 cm Cement Pot	each	1575
HO338	Euphorbia milli hybrid variety with multi branch, full bloom, with fresh and healthy well developed having 30 to 45 cm ht. plant in 35 cm Cement Pot	each	630
HO339	Ficus black vivion piller Topairy (sylinder type) well developed with fresh & healthy 180 to 210 cm ht in 40 cm Cement Pot	each	2000
HO340	Ficus Long Island Topairy well developed with fresh & healthy 5 to 6 big ball specific size and shape 120 to 150 cm ht in 40 cm Cement Pot	each	1200
HO341	Ficus Nuda Topairy well developed with fresh & healthy 8 to 10 big ball specific size and shape 180 to 210 cm ht in 40 cm Cement Pot	each	2530
HO342	Ficus Nuda well developed with fresh & healthy foliage 45 to 60cm spread 75 to 90 cm ht. plant bushy plant in 35 cm Cement Pot	each	330
HO343	Ficus Retusa Topairy well developed with fresh & healthy 8 to 10 big ball specific size and shape 180 to 210cm ht in 40 cm Cement Pot	each	2100
HO344	Ficus reginold well developed fresh & healthy foliage 60 to 75 cm spread 105 to 120 cm ht. plant, Bushy plant in 35 cm Cement Pot	each	368
HO345	Ficus reginold piller type Topairy well developed with fresh & healthy 210 to 240 cm ht in 40 cm Cement Pot	each	2400
HO346	Ficus resnold Topairy well developed with fresh & healthy 8 to 10 big ball specific size 210 to 240 cm ht in 50 cm Cement Pot	each	1995
HO347	Ficus Starlight with fresh, healthy and attractive foliage 90 to 120 cm spread 75 to 90 cm ht. plant, specimen bushy plant,in 35 cm Cement Pot	each	840
HO348	Fishtail palm well developed with fresh & healthy foliage leaves of ht 180 to 190 cm Specimen plant in 35 cm Cement Pot	each	300
HO349	Foxtail palm well developed with fresh & healthy foliage of ht. plant 210 to 240 cm in big 40 cm Cement Pot	each	1155
HO350	Furcaira variegated well developed with fresh & healthy foliage 8 to 10 leaves in 30 cm Earthen Pot	each	220
HO351	Furcaria Variegated hybrid well developed with fresh & healthy foliage 20 and above attractive leaves in 35 cm Cement Pot	each	440
HO352	Golden Bottle brush Topairy well developed with fresh & healthy foliage 5 to 6 big ball 115 to 180 cm ht in 40 cm Cement Pot	each	475
HO353	Zamia palm well developed with fresh & healthy leaves 120 cm ht in 35 cm cement pot	each	900
HO354	Latania Rubra Palm well developed with fresh & healthy foliage 150 to 180 cm ht. plant with 6 to 7 leaves in big 35 cm Cement Pot	each	1000
HO355	Mascarena palm well developed with fresh & healthy foliage leaves 180 to 210 cm ht in 40 cm Cement Pot	each	1800
HO356	Phoenix roebelenii palm well developed having 20 to 25 fresh & healthy leaves 90 to 135 cm ht. plant in 35 cm Cement Pot	each	525
HO357	Topairy plant of Ficus Bush King well developed with fresh & healthy foliage from Top to Bottom with single piller 60 to 75 cm spread, 210 to 225 cm ht. plant, in 35 cm Cement tray/Cement Pot	each	1260
HO358	Topairy plant of Ficus Nuda well developed with fresh & healthy foliage from Top to Bottom with single piller 75 to 90 cm spread, 195 to 210 cm ht. plant in 35 cm Cement tray /Cement Pot	each	1260
HO359	opairy plant of Ficus Panda well developed with fresh & healthy foliage with 6 to 7 Balls and 75 to 90 cm spread each Ball, 150 to 165 cm ht., in 35 cm Cement Tray /Cement Pot	each	1100
HO360	Topiary planted Casuarina plant fresh & healthy having 8 to 10 specific shape and size ball well developed 195 to 210 cm ht. plant in 40 cm Cement Pot	each	1050
HO361	Travelers palm well developed with fresh & healthy foliage 150 to 180 cm ht. plant in 35 cm Cement Pot	each	473
HO362	Travelers palm well developed with fresh & healthy leaves foliage 210 to 240 cm ht specimen plant in 40 cm Cement Pot	each	950
HO363	Washingtonia filifera palm well developed 90 to 105 cm stem ht. plant having 5 to 6 straight fresh and healthy leaves in 35 cm Cement Pot	each	525
	GROUND COVER PLANTS		
HO364	Alpinia Variegated (three in one) having ht. 30 cm and above, with fresh and healthy variegated foliage in 20 cm size of Earthen Pot / Plastic Pot.	each	121
HO365	Alternanthera species of height 15 cm to 20 cm, full of branches and foliage in 15 cm size of Polybag	each	20
HO366	Asparagus Meyeri, well developed 15 to 20 leaves, full of branches and foliage in 15 cm size of Earthen Pot / Plastic Pot.	each	55

HO367	Asparagus sprengeri of height 30 cm to 45 cm, full of leafy branches in 20 cm size of Polybag.	each	40
HO368	Aspidistra, having 10 to 15 leaves well developed with fresh & healthy in 15 cm size of Earthen Pot / Plastic Pot.	each	40
HO369	Clerodendrum inerme of ht. 20 cm to 30 cm multi branched in 20 cm size of polybag	each	10
HO370	Clerodendrum inerme having ht. 25 cm to 30 cm multi branched in 25 cm size of Earthen Pot / Plastic Pot.	each	20
HO371	Chlorophytum (Green), full of leafy suckers in 20 cm size of Polybag .	each	20
HO372	Plastic Chlorophytum-variegated, full of leafy suckers in 15 cm size of Polybag.	each	20
HO373	Cuphea chinensis of ht. 20-30 cm full of branches and healthy foliage in 15 cm size of Polybag.	each	20
HO374	Dianella variegated, with 3 to 4 variegated leaves in 15 cm size of Earthen Pot / Plastic Pot.	each	30
HO375	Duranta Golden, having ht.15 to 20 cm bushty shape with fresh and healthy leaves in 20 cm size of Polybag.	each	20
HO376	Euphorbia milli hybrid variety, having ht.30 cm to 45 cm with multi branch, full bloom, fresh and healthy leaves in 20 cm size of Earthen Pot / Plastic Pot.	each	70
HO377	Euphorbia milli hybrid variety, having ht. 30 cm to 45 cm with multi branch, full bloom, fresh and healthy leaves in 25 cm size of Earthen Pot / Plastic Pot.	each	105
HO378	Ipomoea (Golden leaves), with fresh and healthy leaves in 10 cm size of Earthen Pot / Plastic Pot.	each	20
HO379	Iresine herbstii, of height 20-30 cm. full of branches well developed in 10 cm size of Earthen Pot / Plastic Pot.	each	15
HO380	Iresine herbstii, of height 20-30 cm., full of branches well developed in 10 cm size of Earthen Pot / Plastic Pot.	each	20
HO381	Juniperus prostrata with 5 to 6 latral branches and green foliage in 15 cm size of Earthen Pot / Plastic Pot.	each	30
HO382	.Ophiopogon, Green/Black full of leaves in 10 cm size of Earthen Pot / Plastic Pot.	each	20
HO383	Ophiopogon jaburan (variegated), full of variegated leaves in 10 cm size of Earthen Pot / Plastic Pot	each	20
HO384	Ophiopogon jaburan (variegated), full of variegated leaves in 15 cm Earthen Pot/Plastic Pot	each	30
HO385	Portulacaria afra (Jade) with 5 to 6 branches in 15 cm size of Earthen Pot / Plastic Pot.	each	30
HO386	Schefflera green, having 3 to 4 branch, ht. 30 to 45 cm well developed with fresh & healthy in 15 cm size of Earthen Pot/Plastic Pot.	each	30
HO387	Setcreasea purpurea full of variegated leaves in 15 cm size of Earthen Pot/Plastic Pot.	each	20
HO388	Syngonium (Butterfly) variegated with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 15 cm.each	each	30
HO389	Syngonium golden of height 30-45 cm. with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 12.50 cm	each	30
HO390	Syngonium miniature dwarf, having height 30-45 cm. with 2-3 suckers healthy foliage in Earthen Pot/ Plastic Pot of size 15 cm.	each	42
HO391	Syngonium variegated, of height 30-45 cm. with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 10 cm.	each	21
HO392	Tradescantia, full of leaves in Earthen Pot/Plastic Pot of size 15 cm.	each	21
HO393	Tradescantia zebrina having in 15 cm size of Earthen Pot / Plastic Pot.	each	20
HO394	Wadelia trilobata,full of leaves in 15 cm size of Earthen Pot / Plastic Pot.	each	15
	TREE PLANTS		
HO395	Acacia auriculiformis ht 150-165 cm in bag size 25 cm	each	65
HO396	Adansonia digitata (kalp vricksh) ht 150-165 cm in bag size 25 cm	each	265
HO397	Albizia lebbeck height 150-165 cm. in bag size 25 cm	each	65
HO398	Alstonia scholaris height 150-165 cm. in bag size 25 cm	each	65
HO399	Azadirachta indicia (Neem) height 120-130cm in big polybag size 25 cm	each	65
HO400	Bassia latifolia (Mahua) height 90-105 cm. in big polybag size 25 cm	each	65
HO401	Bauhinia blakeana (Kachnar) height 120-150 cm. in big poly bag size 25 cm	each	80
HO402	Bauhinia purpurea (Kachnar) height 150-165 cm. in big poly bag size 25 cm	each	50
HO403	Bombax ceiba height 150-165 cm. in big poly bag size 25 cm	each	70
HO404	Bottle palm ht. 120-150 cm bottom girth 15-20 cm well developed in big poly bags size 25 cm	each	180
HO405	Bottle palm ht. 210-240 cm bottom girth 25-30 cm well developed in big HDPE bags.	each	350
HO406	Bottle palm ht. 270-300 cm bottom girth 30-40 cm well developed in big HDPE bags	each	550
HO407	Butea frondosa (Flame Fores t) height 60-75 cm. in big poly bag size 25 cm	each	55
HO408	Callistemon lanceolatus height 150-165 cm. in big poly bag size 25 cm	each	65
HO409	Casuarina equisetifolia height 150-165 cm in big poly bag size 25 cm	each	60

HO410	Cassia fistula (Amaltash) height 120-135 cm. in big poly bag size 25 cm	each	65
HO411	Cassia siamea height 150-165 cm. in big poly bag size 25 cm	each	65
HO412	Cassia javanica height 120-150 cm. in big poly bag size 25 cm	each	85
HO413	Cassia nodosa height 120-150 cm. in big poly bag size 25 cm	each	65
HO414	Ceiba pentandra height 150-165 cm. in big poly bag size 25 cm	each	65
HO415	Chorisia speciosa height 150-165 cm. in big poly bag size 25 cm	each	80
HO416	Chukrassia tabularis height 150-165 cm. in big poly bag size 25 cm	each	65
HO417	Dalbergia sissoo (Seasam) height 120-135 cm. in big poly bag size 25 cm	each	55
HO418	Delonix regia (Gulmohar) height 150-165 cm. in big poly bag size 25 cm	each	60
HO419	Erythrina indicia height 150-165 cm. in big polybag size 25 cm	each	65
HO420	Ficus benjamina (green) height 120-135 cm. with 6-8 branches and lush green foliage in gunny bag size 25 cm	each	105
HO421	Ficus benjamina (green) height 150-165 cm., bushy with healthy branches and lush green foliage in 35 cm bags	each	180
HO422	Ficus benghalensis (Banyan) height 120-135 cm. in big poly bag size 25 cm	each	65
HO423	Ficus bengalensis (variegated) height 75-90 cm., multibranched in earthen pot size 30 cm	each	80
HO424	Ficus bengalensis krishna height 75-90 cm., multibranched in earthen pot size 30 cm	each	120
HO425	Ficus elastica Decora (Rubber plant) height 45-60 cm. in earthen pot size 25 cm	each	65
HO426	Ficus infectoria (Pilkhan) height 150-165 cm. in big polybag size 25 cm	each	65
HO427	Ficus lyrata height 45-60 cm. in earthen pot size 25 cm	each	90
HO428	Ficus nuda height 120-135 cm. with 6-8 branches and lush green foliage in gunny bag size 25 cm	each	120
HO429	Ficus nuda height 150-165 cm., bushy with healthy branches and lush green foliage in big size HDPE bag	each	190
HO430	Ficus religiosa (Pepal) height 150-165 cm. in big poly bag size 30 cm	each	65
HO431	Ficus retusa well branched height 120-135 cm. in big poly bag size 30 cm	each	120
HO432	Ficus shiela height 150-165 cm. in big poly bag size 25 cm	each	85
HO433	Fishtail palm ht. 150-180 cm bottom girth 15-20 cm well developed in big poly bag size 25 cm	each	200
HO434	Fishtail palm ht. 210-240 cm bottom girth 25-30 cm well developed in 30 cm HDPE bags	each	300
HO435	Fishtail palm ht. 270-300 cm bottom girth 30-35 cm well developed in 40 cm HDPE bags	each	550
HO436	Foxtail palm ht. 120-150 cm bottom girth 12-15 cm well developed in big poly bags size 25 cm	each	230
HO437	Foxtail palm ht. 180-210 cm bottom girth 15-20 cm well developed in big size HDPE bags	each	480
HO438	Foxtail palm ht. 240-270 cm bottom girth 25-30 cm well developed in big size HDPE bags	each	650
HO439	Grevillea Robusta (Silver Oak) height 150-165 cm. in big poly bag size 25 cm	each	50
HO440	Heterophragma adenophyllum (Marore fali) height 150-165 cm. in Big poly bag size 25 cm	each	60
HO441	Ingla dulcis (Jungle Jalebi) height 150-165 cm. in big poly bag size 25 cm	each	80
HO442	Jacaranda mimosifolia height 150-165 cm. in big poly bag size 25 cm	each	60
HO443	Kigelia pinnata height 150-165 cm. in big poly bag size 25 cm	each	80
HO444	Lagerstroemia flosreginae height 150-165 cm.in big poly bag size 25 cm	each	120
HO445	Lagerstroemia thorelli height 150-165 cm.in big poly bag size 25 cm	each	120
HO446	Magnolia grandiflora height 150-165 cm. in big poly bag size 25 cm	each	380
HO447	Mangifera indicia (Mango-grafted) height 60-75 cm. in big poly bag size 25 cm	each	55
HO448	Melia azedarach height 120-135 cm. in big poly bag size 25 cm	each	45
HO449	Michelia champa (Golden Champa) height 90-105 cm. in earthen pot size 25 cm	each	90
HO450	Milletia ovalifolia height 120-135 cm. in big poly bag size 25 cm	each	55
HO451	Millingtonia hortensis height 150-165 cm. in big poly bag size 25 cm	each	70
HO452	Mimusops elengi (Maulsri) height 150-165 cm. in big poly bag size 25 cm	each	75
HO453	Mimusops elengi (Maulsri) height 180-195 cm., well developed with thick stem in 30 cm HDPE bag	each	125
HO454	Nauclea cadamba (Kadam) height 150-165 cm. in big poly bag size 25 cm	each	65
HO455	Parkinsonia species height 120-135 cm. in big poly bag size 25 cm	each	45
HO456	Peltophorum species height 150-165 cm. in big poly bag size 25 cm	each	60
HO457	Phoenix sylvestris Roxb. (Wild date palm/khajur) height 150-165 cm. in 30-35 cm size HDPE Bag	each	650
HO458	Phyllanthus emblica (Amla) height 150-165 cm. in 30 cm HDPE Bag	each	90
HO459	Pinus longifolia (Pinus) height 90-105 cm. in cement pot size 35 cm	each	550
HO460	Pithecellobium dulce (Jungle Jalebi) height 120-150 cm. in Big HDPE Bag	each	60
HO461	Plumeria acutifolia height 120-135 cm. with 2-3 branches in HDPE bag size 30 cm	each	110
HO462	Plumeria acutifolia height 150-165 cm. with 3-4 branches in 35 cm HDPE bag	each	200
HO463	Plumeria alba height 120-135 cm. with 2-3 branches in bag size 30 cm	each	120

HO464	Plumeria alba height 165-180 cm. with 3-4 branches and thick stem in 35 cm HDPE bags	each	225
HO465	Plumeria alba dwarf height 90-105 cm. with 3-4 branches and thick stem in 40 cm HDPE bags	each	750
HO466	Plumeria alba dwarf height 90-105 cm. with 3-4 branches and thick stem in 35 cm HDPE bags	each	400
HO467	Pongamia glabra (Papri) height 120-135 cm. in big poly bag size 25 cm	each	50
HO468	Polyalthia longifolia (Ashok) height 150-165 cm. in polybags size 25 cm	each	80
HO469	Polyalthia longifolia (Ashok) height 180-195 cm. in gunny bag size 30 cm	each	100
HO470	Polyalthia pendula (Ashok Pendula) height 150-165 cm. in polybags size 25 cm	each	80
HO471	Polyalthia pendula (Ashok Pendula) height 180-195 cm. in gunny bag size 30 cm	each	100
HO472	Pterospermum acerifolium (Kanak Champa) height 150-165 cm. in big poly bag size 25 cm	each	65
HO473	Putranjiva roxburghii height 90-105 cm. in big polybag size 25 cm	each	45
HO474	Saraca indica (Sita Ashok) height 105-120 cm. in big poly bag size 25 cm	each	80
HO475	Schleichera trijuga (Kusum) height 150-165 cm. in big poly bag size 25 cm	each	70
HO476	Spathodea campanulata height 150-165 cm. in big poly bags size 25 cm	each	75
HO477	Eugenia jambolana (Jamun) height 150-165 cm. in big poly bag size 25 cm	each	75
HO478	Tabebuia sp. height 150-165 cm. in big polybag size 25 cm	each	85
HO479	Tamarindus indica (Imli) height 120-150 cm. in big polybag size 25 cm	each	80
HO480	Tecoma argentea height 120-135 cm. in big poly bag size 25 cm	each	80
HO481	Tectona grandis (Teak) height 150-165 cm. in big polybag size 25 cm	each	110
HO482	Terminalia arjuna height 150-165 cm. in big polybag size 25 cm	each	60
HO483	Washingtonia filifea palm stem ht. 60-90 cm with 6-7 healthy leaves lush green leaves well developed in big size HDPE Bags	each	400
HO484	Washingtonia filifea palm stem ht. 90-120 cm with 8-10 healthy leaves lush green leaves well developed in big size HDPE Bags	each	650
	SHRUBS		
HO485	Bauhinia acuminata height 60-75 cm. in polybag of size 20 cm	each	45
HO486	Bauhinia tomentosa (yellow) of height 60-75 cm. in polybag of size 20 cm	each	45
HO487	Beloperone species of height 30-45 cm. in poly bag of size 20 cm	each	40
HO488	Caesalpinia pulcherrima species of height 45-60 cm. in polybag of size 20 cm	each	45
HO489	Calliandra, emarginata of height 45-60 cm. in polybag of size 20 cm	each	35
HO490	Calliandra hybrida of height 75-90 cm. with 4-5 branches in bag of size 25 cm	each	45
HO491	Calliandra hybrida of height 105-120 cm., well branched, bushy in big size HDPE bag	each	90
HO492	Cassia biflora of height 45-60 cm. in earthen pots of size 15 cm	each	45
HO493	Cassia biflora of height 60-75 cm. with 4-5 branches in earthen pot of size 20 cm	each	55
HO494	Cassia biflora of height 90-105 cm., well branched, bushy in 30 cm HDPE bag	each	100
HO495	Cassia laevigata of height 45-60 cm. in polybag of size 20 cm	each	35
HO496	Cassia laevigata of height 60-75 cm. with 4-5 branches in bag of size 20 cm	each	40
HO497	Cestrum nocturnum (Raat ki Rani) of height 60-75 cm. with 4-5 branches in bag of size 25 cm	each	40
HO498	Dombeya mastersii of height 60-75 cm. with 4-5 branches in bag of size 25 cm	each	110
HO499	Euphorbia caracasana (bronze colour leaves) of height 60-75 cm. with 2-3 branches in earthen pots of size 15 cm	each	40
HO500	Euphorbia caracasana (bronze colour leaves) of height 60-75 cm. with 4-5 branches in bag of size 25 cm	each	55
HO501	Euphorbia caracasana (bronze colour leaves) of height 90-105 cm., bushy in big size HDPE bag	each	105
HO502	Euphorbia pulcherrima (dark red double bracts) well branched of height 60- 75 cm. in earthen pot of size 25 cm	each	110
HO503	Euphorbia pulcherrima (dark red) well branched (poinsettia Red Hegg) of height 60-75 cm. In earthen pots of size 20 cm	each	60
HO504	Excoecaria bicolor of height 45-60 cm. in earthen pots of size 15 cm	each	40
HO505	Ficus blackii (F.vivion) of height 45-60 cm. with 6-8 branches healthy foliage in earthen pot of size 25 cm	each	110
HO506	Ficus blackii (F.vivion) (bushy) of height 150-165 cm. with 8-10 branches and healthy foliage in earthen pot of size 30 cm	each	250
HO507	Ficus regineld well branched, bushy of height 60-75 cm. in earthen pot of size 25 cm	each	100
HO508	Ficus panda of height 30-45 cm. with 3-4 branches and healthy foliage in polybag of size 20 cm	each	35
HO509	Ficus panda of height 45-60 cm. with 6-7 branches and healthy foliage in polybag of size 25 cm	each	55

HO510	Ficus panda of height 60-90 cm, with 8-10 branches, and healthy foliage, bushy in big size HDPE bag	each	180
HO511	Ficus panda of height 90-105 cm. with 10-12 branches and healthy foliage, well formed in cement pot of size 30 cm	each	225
HO512	Gardenia jasminoides of height 45-60 cm. with 3-4 branches in earthen pots of size 15 cm	each	50
HO513	Hamelia patens of height 30-45 cm. with 3-4 branches in poly bag of size 20 cm	each	20
HO514	Hamelia patens of height 60-75 cm. with 6-8 branches in poly bag of size 25 cm	each	50
HO515	Hamelia patens of height 90-105 cm. bushy in big size HDPE bag	each	100
HO516	Hamelia patens (Dwarf) of height 30-45 cm. with 3-4 branches in earthen pots of size 15 cm	each	40
HO517	Hibiscus rosasinensis of height 45-60 cm. with 3-4 branches in earthen pots of size 15 cm	each	35
HO518	Hibiscus rosasinensis of height 60-75 cm. with 5-6 branches in p.bag of size 20 cm	each	45
HO519	Hibiscus rosasinensis of height 90-105 cm., bushy in 35 cm HDPE bag	each	90
HO520	Hibiscus variegated of height 45-60 cm. with 3-4 branches and healthy variegated foliage in earthen pots of size 15 cm	each	45
HO521	Hibiscus variegated of height 60-75 cm. with 8-10 branches and healthy variegated foliage in cement pot of size 35 cm	each	180
HO522	Hibiscus variegated of height 60-75 cm. with healthy variegated foliage in polybag of size 25 cm	each	55
HO523	Jatropha multifida (red colour) of height 45-60 cm. with 2-3 branches in earthen pots of size 15 cm	each	35
HO524	Jatropha multifida (red colour) of height 60-75 cm. multibranched in polybag of size 20 cm	each	45
HO525	Lagerstroemia indicia of height 90-105 cm. multibranched in polybag of size 25 cm	each	40
HO526	Lagerstroemia indicia of height 45-60 cm. in polybag of size 20 cm	each	30
HO527	Malpighia coccigera of height 30-45 cm., multibranched in polybag of size 20 cm	each	50
HO528	Murraya exotica of height 45-60 cm. in poly bag of size 15 cm	each	15
HO529	Murraya Koenigii spreng (Kadipatta/meetha neem) of ht 45-60 cm well developed in polybag of size 20 cm.	each	25
HO530	Mussaenda erythrophylla (Rosea) of height 60-75 cm. multi branched in polybag of size 25	each	110
HO531	Nerium oleander (Kaner) of height 45-60 cm. with 3-4 branches in poly bag of size 20 cm	each	30
HO532	Nerium oleander (kaner) of height 60-75 cm. with 5-6 branches in poly bag of size 25 cm	each	40
HO533	Nerium oleander (kaner) dwarf of height 30-40 cm. in earthen pot of size 20 cm	each	40
HO534	Nerium oleander variegated of height 45-60 cm. in earthen pot of size 20 cm	each	40
HO535	Nerium oleander variegated of height 60-75 cm., multibranched in polybag of size 25 cm	each	60
HO536	Nyctanthes arbor-tristis(Har singar) of ht. 90-105 cm in polybag of size 20 cm	each	40
HO537	Plumbego capensis well developed with fresh and healthy 30 to 45 cm ht., with bloom in 20 cm polybag	each	60
HO538	Putranjiva roxburghii of ht. 45-60 cm in bag of size 15 cm	each	20
HO539	Putranjiva roxburghii of ht. 60-75 cm in bag of size 20 cm	each	30
HO540	Tabernaemontana coronaria (Chandni single) of height 45-60 cm. in polybag of size 20 cm	each	35
HO541	Tabernaemontana coronaria (Chandni single) of height 75-90 cm. with 5-6 branches in bag of size 25 cm	each	45
HO542	Tabernaemontana coronaria (Chandni single) of height 90-105 cm.,bushy in 35 cm size HDPE bag	each	80
HO543	Tabernaemontana coronaria (chandni variegated) of height 45-60 cm. with 3-4 branches polybag of size 20 cm	each	45
HO544	Tabernaemontana coronaria (Chandni single) variegated of height 60-75 cm., 5-6 branches in polybag of size 25 cm	each	55
HO545	Tabernaemontana coronaria (Chandni single) variegated of height 105-120 cm., multibranched, bushy in 35 cm size HDPE bag	each	110
HO546	Tabernaemontana divaricata (Chandni double) of height 45-60 cm. in polybag of size 20 cm	each	40
HO547	Tabernaemontana divaricata (Chandni double) of height 75-90 cm. with 4-5 branches in bag of size 25 cm	each	40
HO548	Tabernaemontana divaricata (Chandni double) of height 90-105 cm., bushy in 35 cm size HDPE bag	each	90
HO549	Tecoma gaudichaudi of height 45-60 cm. in earthen pot of size 20 cm	each	35
HO550	Tecoma gaudichaudi of height 60-75 cm. with 5-6 branches in p.bag of size 25 cm	each	50
HO551	Tecoma gaudichaudi of height 90-105 cm.,bushy in 35 cm size HDPE bag	each	110
HO552	Tecoma stans of height 45-60 cm. branched in polybag of size 20 cm	each	45
HO553	Tecoma stans of height 60-75 cm. branched in polybag of size 20 cm	each	60
HO554	Tecoma stans of height 90-105 cm. bushy in 35 cm size HDPE bag	each	120
HO555	Thevetia nerifolia of height 30-45 cm. with 3-4 branches in poly bag of size 20 cm	each	35
HO556	Thevetia nerifolia of height 60-75 cm. with 5-6 branches in poly bag of size 25 cm	each	45

HO557	Thuja compacta of height 45-60 cm., well branched in polybag of size 25 cm	each	65
HO558	Thuja compacta of height 75-90 cm., conical shaped, well formed with healthy foliage in polybag of size 30 cm	each	130
	CREEPER PLANTS		
HO559	Allamanda cathartic of height 30 cm to 45 cm. in 20 cm size of polybag	each	45
HO560	Allamanda violacea of height 30 cm to 45 cm. in poly bag of size 20 cm	each	45
HO561	Bignonia venusta (Golden shower) of height 30 cm to 45 cm. in 20 cm size of Earthen pot/Plastic pot	each	40
HO562	Bougainvillea (Variety Butiana, Lady Mary Baring, Mahara,Mohan,Scarlet Queen, Variegated, Glabra Formosa, Peruvian Odissi, Paratha, Subhra,Thimma, Spectabilis L.N Birla, Refulgence) plant of height 30 cm. to 45 cm. with 2-3 branches in 20 cm size of polybag .	each	40
HO563	Clerodendrum splendens of height 30 cm to 45 cm. in 20 cm size of polybag	each	30
HO564	Clerodendrum thomsoniae of height 30 cm.to 45 cm. in 30 cm to 45 cm. in 20 cm size of polybag.	each	45
HO565	Ipomea purpurea (Morning glory) of height 30 cm to 45 cm. in 20 cm size of Earthen pot/Plastic pot	each	35
HO566	Jasmine grandiflorum (chameli) of height 30 cm to 45 cm. in 20 cm size of polybag.	each	30
HO567	Jasmine humile (Yellow) of height 30 cm to 45 cm. in 20 cm size of polybag	each	30
HO568	Passiflora caerulea (Rakhi bel) of height 30 cm to 45 cm. in 20 cm size of polybag	each	50
HO569	Petra volubilis of height 30 cm to 45 cm. in 20 cm size of polybag	each	48
HO570	Quisqualis indicia of height 30 cm to 45 cm. in 20 cm size of polybag	each	25
HO571	Tacoma grandiflora of height 30 cm to 45 cm. in 20 cm size of polybag	each	40
HO572	Vernonia elaegnifolia (curtain creeper) of height 30 cm to 45 cm. in 20 cm size of polybag	each	25
	ANNUAL FLOWER SEEDLINGS/CUTTING		
HO573	Alyssum	per tray	420
HO574	Antirrhinum dwarf	per tray	600
HO575	Aster dwarf	per tray	500
HO576	Brachycome	per tray	500
HO577	Calendula double	per tray	500
HO578	Carnation (double) Dutch	per tray	1000
HO579	Carnation (double) Lilliput	per tray	1200
HO580	Carnation hybrid	per tray	850
HO581	Chrysanthemum double	per tray	400
HO582	Cineraria	per tray	525
HO583	Cineraria dwarf hybrid	per tray	700
HO584	Clarkia hybrid	per tray	700
HO585	Cosmos hybrid	per tray	700
HO586	Dahlia double	per tray	525
HO587	Daisy hybrid	per tray	400
HO588	Dianthus hybrid	per tray	500
HO589	Gazania hybrid	per tray	500
HO590	Gerbera hybrid double	per tray	2200
HO591	Lupine hybrid	per tray	420
HO592	Marigold French Hybrid dwarf	per tray	420
HO593	Marigold Inca hybrid	per tray	500
HO594	Nasturtium	per tray	500
HO595	Nemesia hybrid	per tray	420
HO596	Pansy Hybrid	per tray	650
HO597	Petunia hybrid	per tray	600
HO598	Phlox mix colour hybrid	per tray	500
HO599	Poppy double	per tray	500
HO600	Salvia	per tray	420
HO601	Salvia Hybrid different colour	per tray	500
HO602	Stock double	per tray	500
HO603	Verbena hybrid	per tray	400
HO604	Balsam seedling	per tray	500
HO605	Celosia argentea & Celosia crostata Hybrid	per tray	420
HO606	Cosmos hybrid	per tray	600
HO607	Gaillardia Double	per tray	420
HO608	Gomphrena	per tray	500
HO609	Kochia	per tray	420
HO610	Portulaca hybrid	per tray	420
HO611	Sunflower Dwarf	per tray	500

HO612	Vinca Hybrid	per tray	420
HO613	Zinnia hybrid	per tray	420
HO614	Aglaonema Butterfly plant having ht.30 cm 10 to 12 fresh, healthy and attractive colourfull leaves, well developed in 25 cm size Earthen pot/ Plastic pot	each	180
HO615	Aglaonema Ice plant ht.25 cm having 10 to 12 fresh, healthy and attractive colourfull leaves, well developed in 25 cm size Earthen pot/Plastic pot	each	180
HO616	Aglaonema sam plant,ht.30 cm well developed three in one, having 18 to 20 fresh, healthy and attractive colourfull leaves in 30 cm size Earthen pot/ Chali/tray	each	300
HO617	Araucaria cookie plant, having ht. 75 cm to 90 cm, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot .	each	250
HO618	Brassia hicolour 3 in 1 well developed with fresh, healthy from bottom to top with 30 cm to 45 cm ht. in 25 cm size Plastic pot/Earthen pot	each	125
HO619	Diffenbachia superba, well developed, with 10-12 fresh, healthy and attractive leaves 45 cm to 60 cm ht. in 25 cm size Earthen pot/ Plastic pot	each	160
HO620	Dracaena pendanus, well developed, having 6 to 8 suckers with healthy foliage in 20 cm size Earthen pot/Plastic pot.	each	180
HO621	Rubber plant black variety, well developed, having 45 to 60 cm ht.with fresh, healthy and attractive colourfull leaves in 25 cm size Earthen pot/ Plastic pot	each	90
HO622	Rubber plant varigated, well developed, having 45 to 60 cm ht.with fresh, healthy and attractive colourfull leaves in 20 cm size Earthen pot/Plastic pot	each	150
HO623	Schefflera green 3 in 1 well developed with fresh, healthy and attractive foliage from having 45 cm to 60 cm ht. in 25 cm size Earthen pot/Plastic pot	each	200
HO624	Spathiphyllum (peace lilly), having 15 cm to 25 cm ht. blooming stag with fresh & healthy foliage well developed in 15 cm of Earthen pot/plastic pot	each	90
HO625	Bush Rose in different colour 2 to 3 healthy branch 30 cm and above ht. well developed with 8 or more flowers / flower buds in 20 cm Earthen pot/ Plastic pot	each	50
HO626	Motia of height 25 to 30 cm., 2 to 3 branch in earthen pot of size 20 cm	each	40
HO627	Mogra of height 25 to 30 cm., 2 to 3 branch in earthen pot of size 20 cm	each	45
HO628	Canna dwarf of height 25 to 30 cm., 2 to 3 suckers in earthen pot of size 20 cm	each	35
HO629	Chandni dwarf of height 15-20 cm., well branched in earthen pots of size 15 cm	each	35
HO630	Ficus long Island of height 15 cm to 20 cm, full of branches and foliage in 15 cm size of Earthen Pot / Plastic Pot	each	45
	Multiplication factors for LS rates		
LS001	Multiplication factor for enhancing value of LS of HSR items adopted in the revise version of	factor	6
LS002	Carriage multiplication factor	LS	1
LS003	Carriage and sundries multiplication factor	LS	1
LS004	Sundries multiplication factor	LS	1
	Additional Materials		
B2029	Supply of Vastcrete Colour Hardener (2.5 kg /sqm) = 2.5x10=25 kg	kg	180
B2030	Supply of Mold Release (0.50 kg/sqm) = 0.5x10= 5kg	kg	275
B2031	Supply of PU/Acrylic Sealer (0.30 litre/sqm) =0.3x10=3 litres	litre	1350
B2032	Cost for 1000X2000mm Door (Plain Door in RAL colour shades)	sqm	1900.00
B2033	Cost for 1000X2000mm Door (Embosed Door in RAL colour shades)	sqm	2200.00
B2034	Cost for 1000X2000mm Door (Plain Door in wood finish shade)	sqm	2500.00
B2035	Cost for 1000X2000mm Door (Embossed door in Wood Finish shade)	sqm	2700.00
B2036	Cost for 1000X2000mm Door (Plain Double Leaf Door in RAL finish)	sqm	1950.00
B2037	Cost for 1000X2000mm Door (Plain Double leaf Door Wood Finish Shade)	sqm	2650.00
B2038	Cost for 1000X2000mm (Plain Door Frame in RAL shade)	sqm	700.00
B2039	Cost for 1000X2000mm (Double Door leaf Frame in RAL shade)	sqm	900.00
B2040	Cost for 1000X2000mm (Single door frame in wooden shade)	sqm	900.00
B2041	Cost for 1000X2000mm (Double Leaf Door Frame in wooden shade)	sqm	1100.00
B2042	Henkel Loctite UR 7221 Glue	kg	520.00
B2043	Paper Honeycomb core	sqm	110.00
B2044	Coating Powder	kg	450.00
B2045	Wood finish shade	sqm	45.00

CHAPTER NO. 3

LOADING, UNLOADING AND CARRIAGE OF MATERIALS

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CHAPTER 3.0 - LOADING, UNLOADING AND CARRIAGE OF MATERIALS

Notes:

1.1 The carriage and stacking of materials shall be done as directed by the Engineer-in- Charge. Any tools and plants, required for the work shall be arranged by the Contractor. The carriage of materials includes loading within a lead of 50 metres, unloading and stacking within a lead of 50 metres.

1.2 Loading, carriage, unloading and stacking shall be done carefully to avoid loss or damage to the materials. In case of any loss or damage, recovery shall be effected from the Contractor at twice the prevailing market rates as determined by the Engineer-in-Charge.

1.3 Depending upon the feasibility and economy, the Engineer-in -Charge shall determine the mode of carriage viz. whether by mechanical or animal transport or manual labour.

1.4 All distances shall be measured over the shortest practical route and not necessarily the route actually taken. Route other than shortest practical route may be considered in cases of unavoidable circumstances and as approved by Engineer-in-Charge.

1.5 Carriage by manual labour shall be reckoned in units of 50 metres or part thereof.

1.6 Carriage by animal and mechanical transport shall be reckoned in one km unit. Distances of 0.5 km or more shall be taken as 1 km and distance of less than 0.5 km shall be ignored. However, when the total lead is less than 0.5 km, it will not be ignored but paid for separately in successive stages of 50 metres subject to the condition that the rate worked on this basis does not exceed the rate for initial lead of 1 km by mechanical/ animal transport.Measurement of materials: - While making measurements for supply of materials like boulder, aggregate, etc., suitable deduction for voids shall be made as per PWD Specifications, CPWD Specifications and MORT&H specifications.

1.7 The storage and stacking of various materials shall be governed by BIS Code: 4082.

1.8 Carried material shall be placed close to the site of work so that least effort is required to unload and transport it again.

1.9 For materials unloaded and stored in stacks , Length, breadth and height of stacks shall be measured correct to a cm. The quantity shall be worked out in cubic metre correct to two place of decimal. The volume of stacks shall be reduced by percentages as shown against each for looseness in stacking to arrive at the net quantity for payment . No reduction shall be made in respect of articles or materials for which mode of payment is by length or weight or number.

1.10 The rates of loading, unloading and stacking shall also include the loading, unloading and stacking of containers in which the materials are contained. For instance, if 100 tonnes of bitumen are loaded or unloaded in 160/200 litres drums, the net weight of bitumen will be 100 tonnes and weight of the drum will be over and above this weight. Nothing extra will be paid for the weight of the bitumen drums which are supposed to be carried in addition to the bitumen within the same rate.

1.11 The bricks and tiles shall be properly stacked in vehicles while loading and when unloading, these shall be directly placed in stacks and not dumped on the ground and then stacked. In case of bricks and tiles, nominal sizes have been mentioned in the Schedule of Rates. In PWD specifications certain tolerance limits have been provided for these materials. Variation of sizes within these limits will be ignored for the purpose of loading, unloading and carriage of these materials.

1.12.1 Earth

1.12.1.1 In loose stacks such as cart loads, lorry loads, etc. – 20%

1.12.1.2 In fills consolidated by light mechanical machinery – 10%

1.12.1.3 In fills consolidated by heavy mechanical machinery but not under OMC (Optimum Moisture Content) – 5%

1.12.1.4 In fills consolidated by heavy mechanical machinery at OMC – Nil

1.12.1.5 Consolidated fills in confined situation such as under floors. etc. – Nil

1.13.1 Other Materials

1.13.1.1 Manure or sludge – 8%

1.13.1.2 Moorum, building rubbish Lime and sand – Nil

1.13.1.3 Stone metal, 40 mm nominal size and above – 7.5%

1.13.1.4 Coarse aggregate/ stone metal below 40 mm nominal size – Nil

1.13.1.5 Soling stone/ Boulder 100 mm and above – 15%

1.13.1.6 Excavated rocks – 50%

1.14 The rate for carriage of materials are inclusive of all the operations described above.

1.15 These rates are exclusive of GST, Labour Welfare Cess and Contractor's profit but inclusive of all other taxes.

Chapter 3.0- CARRIAGE OF MATERIALS (Summary)

	Note: 1. These rates are exclusive of GST, contractor's profit and overhead charges. **2. Carriage for 5.0 km lead by Mechanical Transport including loading, Unloading and stacking.**		
Unique Code	**Description**	**Unit**	**Rate**
CA001	Good earth	**cum**	133
CA002	Dump manure or Sludge	cum	115
CA003	Moorum	cum	106
CA004	Surkhi	cum	106
CA005	Red bajri	cum	106
CA006	Steam coal	tonne	121
CA007	Bricks	1000	283
CA008	Stone aggregate below 40 mm nominal size	cum	106
CA009	Coarse sand	cum	106
CA010	Timber	cum	121
CA011	Steel	tonne	94
CA012	Stone aggregate 40 mm nominal size and above	cum	115
CA013	Brick tiles	1000	170
CA014	Lime	cum	106
CA015	Cement	tonne	94
CA016	Tar bitumen	tonne	106
CA017	Soling stone & masonry stone	cum	125
CA018	Stone blocks white & red sand stone & kota stone slab	tonne	94
CA019	S.W. pipes100 mm dia	100	142
CA020	S.W. pipes150 mm dia	100	283
CA021	S.W. pipes200 mm dia	100	472
CA022	S.W. pipes250 mm dia	100	810
CA023	S.W. pipes300 mm dia	100	1012
CA024	Brick aggregate	cum	115
CA025	Fly ash	cum	106
CA026	Rubbish	cum	106
CA027	Stone dust	cum	106
CA028	Marble dust and marble chips	cum	106
CA029	G.I. pipes below 100 mm dia	tonne	94
CA030	Stainless Steel pipe below 100 mm dia	tonne	94
CA031	A.C.sheet and accessories	tonne	94
CA032	R.C.C. pipes 100 mm dia	100	232
CA033	R.C.C. pipes 150 mm dia	100	387
CA034	R.C.C. pipes 250 mm dia	100	895
CA035	R.C.C. pipes 300 mm dia	100	1106
CA036	R.C.C. pipes 450 & 500 mm dia	100	2580
CA037	G.I.sheet and accessories	tonne	94
CA038	R.C.C. pipes 600, 700, 750 & 800 mm dia	100	3871
CA039	R.C.C. pipes 900 mm dia	100	5806
CA040	Plaster of paris	tonne	94
CA041	Cast iron fittings	tonne	94
CA042	Barbed wire	tonne	94
CA043	Spun iron S & S pipes 100 mm dia	100	232
CA044	Spun iron S & S pipes 125 mm dia	100	310
CA045	Spun iron S & S pipes 150 mm dia	100	387
CA046	Spun iron S & S pipes 200 mm dia	100	630
CA047	Spun iron S & S pipes 250 mm dia	100	895

CA048	Spun iron S & S pipes 300 mm dia	100	1106
CA049	Pig lead	tonne	94
CA050	Solvent/ Diesel	quintal	11
CA051	Ductile iron pipes (k7) 100 mm dia	100	232
CA052	Cast iron pipes 150 mm dia	100	387
CA053	Cast iron pipes 200 mm dia	100	630
CA054	Cast iron pipes 250 mm dia	100	895
CA055	Cast iron pipes 300 mm dia	100	1106
CA056	Carriage of Bamboo Mat corrugated sheets and accessories	tonne	11500

Chapter 3.0: Loading, Unloading, and Carriage of Materials
(Schedule A)

Note:- These rates are exclusive of Contractor's profit and over heads as well as GST

3.1 By Mechanical Transport including loading,unloading and stacking

Unique Code	Material	Unit of rates	Rate					Beyond 5 km upto 10 km per km	Beyond 10 km upto 20 km per km	Beyond 20 km per addl. km	Remarks
			1km	2km	3km	4km	5km				
1	2	3	4	5	6	7	8	9	10	11	12
3.1.1	Lime, moorum, building rubbish	cum	69	78	88	97	106	8	7	6	The rates will be applicable to net quantities after deduction of prescribed percentage for voids mentioned in the specification nder subhead "Carriage of Materials"
3.1.2	Earth	cum	86	98	110	122	133	10	8	7	
3.1.3	Manure or sludge	cum	75	85	96	106	115	9	7	6	
3.1.4	Excavated rock	cum	138	157	176	195	213	16	13	11	
3.1.5	Sand, stone aggregate below 40 mm nominal size	cum	69	78	88	97	106	8	7	6	
3.1.6	Stone aggregate 40 mm nominal size and above	cum	75	85	96	106	115	9	7	6	
3.1.7	Soling stone	cum	81	92	104	114	125	9	8	7	
3.1.8	Bricks	1000 Nos.	184	209	235	259	283	22	18	15	
3.1.9	Brick Tiles	1000 Nos.	110	126	141	156	170	13	11	9	
3.1.10	Cement, stone blocks, G.I.. C.I., A.C., & C.C.pipes below 100 mm dia and other heavy materials	tonne	61	70	78	86	94	7	6	5	
3.1.11	Steel	tonne	61	70	78	86	94	7	6	5	
3.1.12	Timber	cum	79	90	101	111	121	9	8	6	
3.1.13	Tar Bitumen	tonne	69	78	88	97	106	8	7	6	
3.1.14	Solvent, diesel	quintal	7	8	9	10	11	1	1	1	
3.1.15	Steam coal	tonne	79	90	101	111	121	9	8	6	
3.1.16	S.W. pipe										
3.1.16.1	100 mm dia	100 metres	92	105	117	130	142	11	9	7	
3.1.16.2	150 mm dia	100 metres	184	209	235	259	283	22	18	15	
3.1.16.3	200 mm dia	100 metres	306	349	391	432	472	36	30	25	
3.1.16.4	250 mm dia	100 metres	524	598	671	741	810	61	51	42	
3.1.16.5	300 mm dia	100 metres	655	747	839	926	1012	77	64	53	
3.1.16.6	350 mm dia	100 metres	918	1046	1174	1297	1417	108	90	74	
3.1.16.7	400 mm dia	100 metres	1311	1495	1677	1853	2024	154	128	106	

Unique Code	Material	Unit of rates	Rate					Beyond 5 km upto 10 km per km	Beyond 10 km upto 20 km per km	Beyond 20 km per addl. km	Remarks
			1km	2km	3km	4km	5km				
1	2	3	4	5	6	7	8	9	10	11	12
3.1.16.8	450 mm dia	100 metres	1668	1903	2135	2358	2576	196	163	135	
3.1.16.9	500 mm dia	100 metres	1835	2093	2348	2594	2833	215	179	149	
3.1.16.10	600 mm dia	100 metres	2294	2616	2935	3242	3542	269	224	186	
3.1.17	R.C.C. pipe, A.C. pipes, steel cylinder, R.C. pipes, S.C.I. pipes, C.I. pipes and unreinforced cement pipes										
3.1.17.1	100 mm dia	100 metres	150	172	192	213	232	18	15	12	
3.1.17.2	125 mm dia	100 metres	201	229	257	284	310	24	20	16	
3.1.17.3	150 mm dia	100 metres	251	286	321	354	387	29	24	20	
3.1.17.4	200 mm dia	100 metres	408	465	522	576	630	48	40	33	
3.1.17.5	250 mm dia	100 metres	580	661	742	819	895	68	57	47	
3.1.17.6	300 mm dia	100 metres	716	817	917	1012	1106	84	70	58	
3.1.17.7	350 mm dia	100 metres	1003	1144	1283	1417	1548	118	98	81	
3.1.17.8	400 mm dia	100 metres	1367	1560	1750	1933	2111	160	134	111	
3.1.17.9	450 mm & 500 mm dia	100 metres	1671	1906	2139	2362	2580	196	163	135	
3.1.17.10	600, 700, 750 & 800 mm dia	100 metres	2507	2859	3208	3544	3871	294	245	203	
3.1.17.11	900 mm dia	100 metres	3760	4289	4812	5316	5806	441	367	305	
3.1.17.12	1000, 1100 & 1200 mm dia	100 metres	5014	5718	6416	7087	7741	588	490	406	

Unique Code	Description	Unit	Rate
3.1.18	Disposal of moorum/building rubbish/ malba/ similar unserviceable, dismantled or waste material by mechanical transport including loading, transporting, unloading to approved municipal dumping ground for lead upto 10 km for all lifts, complete as per directions of Engineer-in-charge.	cum	215.50
	Note - item to be applicable in urban areas having directions for restricted hours for movement/ plying of load carrying motor vehicle of 3.5 cum or more.		

Chapter 3.0: Loading, Unloading, and Carriage of Materials
(Schedule B)

Note:- These rates are inclusive of Contractor's profit and over heads but exclusive of GST

3.2 By Manual Labour including loading, unloading and stacking for lead less than 0.50 KM

Unique Code	Material	Unit	Cost of carriage inclusing loading, unloading & stacking for first 50 metres	Every additional lead of 50m or part thereof beyond1st 50 m upto 9 such additional lead	Remarks
1	2	3	4	5	6
3.2.1	Lime, moorum, building rubbish	cum	78	17	The rates ill be applicable to net quantities after deduction of prescribed percentage for voids mentioned in the specification under subhead "Carriage of Materials"
3.2.2	Earth	cum	98	21	
3.2.3	Manure or sludge	cum	85	19	
3.2.4	Excavated rock	cum	157	34	
3.2.5	Sand, stone aggregate below 40 mm nominal size	cum	98	21	
3.2.6	Stone aggregate 40 mm nominal size and above	cum	106	23	
3.2.7	Soling stone	cum	115	25	
3.2.8	Bricks	1000 Nos.	183	40	
3.2.9	Brick Tiles	1000 Nos.	114	25	
3.2.10	Steam Coal	tonne	92	20	
3.2.11	Stone blocks,G.I.,C.I. Stainless Steel pipes below 100 mm dia and other heavy material	tonne	72	11	
3.2.12	Cement	tonne	57	8	
3.2.13	Steel	tonne	122	18	
3.2.14	Timber	cum	78	12	
3.2.15	Tar, bitumen etc.	tonne	72	11	
3.2.16	S.W. pipe				The length of S.W. pipes will be measured exclusive of the internal depth of sockets.
3.2.16.1	100 mm dia	100 metres	143	21	
3.2.16.2	150 mm dia	100 metres	236	35	
3.2.16.3	200 mm dia	100 metres	330	48	
3.2.16.4	250 mm dia	100 metres	549	81	
3.2.16.5	300 mm dia	100 metres	784	115	
3.2.16.6	350 mm dia	100 metres	1098	161	
3.2.16.7	400 mm dia	100 metres	1372	201	
3.2.16.8	450 mm dia	100 metres	1663	244	
3.2.16.9	500 mm dia	100 metres	2033	298	
3.2.16.10	600 mm dia	100 metres	2495	366	

3.2.17	R.C.C. pipes, Steel cylinder, R.C. pipes, C.I. pipes and unreinforced cement pipes				The length of the flanged or plain ended concrete, R.C.C. pipes, Steel cylinders, R.C. pipes and C.I. pipes shall be measured overall. The length of socketed pipes shall be measured exclusive of internal depth of sockets.
3.2.17.1	100 mm dia	100 metres	194	28	
3.2.17.2	125 mm dia	100 metres	237	35	
3.2.17.3	150 mm dia	100 metres	273	40	
3.2.17.4	200 mm dia	100 metres	409	60	
3.2.17.5	250 mm dia	100 metres	719	106	
3.2.17.6	300 mm dia	100 metres	900	132	
3.2.17.7	350 mm dia	100 metres	1287	189	
3.2.17.8	400 mm dia	100 metres	1497	220	
3.2.17.9	450 mm & 500 mm dia	100 metres	1996	293	
3.2.17.10	600, 700, 750 & 800 mm dia	100 metres	2196	322	

Chapter 3.0: Loading, Unloading, and Carriage of Materials
(Schedule C)

3.2 By Manual Labour including loading, unloading and stacking for lead less than 0.50 KM

Unique Code	Description		Unit	Rate	Remarks
3.3	Loading in or unloading cement from the railway wagons at siding and carrying the same from or into godowns adjacent to the siding, including stacking the same properly in rows upto any height as per direction of Engineer-in-charge, sweeping the wagons and screening the swept cement and filling in bags complete.		tonne	59	
3.4	Loading in or unloading from the railway wagons as per direction of Engineer-in-charge :				
	3.4.1	Steel	tonne	87	The rates will be applicable in all cases whether materials are unloaded or loaded from Railway siding or directly unloaded on or loaded from transport.
	3.4.2	G.I., C.I., R.C.C. or C.C. pipes upto 500 mm dia and similar heavy materials	tonne	51	
	3.4.3	Heavy materials where each piece or bundle, crate or case weighs more than one tonne and R.C.C., C.I. and concrete pipes above 500 mm dia.	tonne	90	No deduction shall be from carriage rates for direct unloading or loading

CHAPTER NO. 4

EARTH WORK
AND
ROCK CUTTING

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CHAPTER 4.0 - EARTH WORK AND ROCK CUTTING

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 1200 (Pt 1)	Method of measurement of earth work
2	IS 1200 (Pt-27)	Method of measurement of earth work (by Mechanical Means)
3	IS 4081	Safety code for Blasting and related drilling operation
4	IS 4988 (Part IV)	Excavators
5	IS 12138	Earth moving Equipments
6	IS 6313 (pt-II)	Anti Termite measures in buildings (pre -constructional)
7	IS 6313(pt.-III)	Anti Termite Measures in Buildings for existing buildings
8	IS 6940	Methods of test for pesticides and their formulations
9	IS 8944	Chlorpyrifos emulsifiable concentrates
10	IS 8963	Chlorpyrifos – Technical specifications
11	IS 632	Gamma – BHC (Lindane) emulsifiable concentrates

CHAPTER 4.0 - EARTH WORK AND ROCK CUTTING

COMMENTS

1. This chapter contains earthwork items pertaining to building works only. Items of earth work related to road work, river works and deep foundations has been incorporated in respective chapters.

2. Items of earth work for soil and rock cutting has been clubbed in this chapter.

3. Items of rock cutting without blasting and with blasting has been included.

4. Item of pre-construction as well as post-construction anti-termite treatment has been included.

5. Initial lead of 50m and lift of ±1.5m is included in the first stage item of the earth work.

NOTES

1. Lead : All distances shall be measured over the shortest practical route and not necessarily the route actually taken. Route other than shortest practical route may be considered in cases of unavoidable circumstances and approved by Engineer-in-charge along with reasons in writing. Carriage by animal and mechanical transport shall be reckoned in one km. unit. Distances of 0.5 km. or more shall be taken as 1 km. and distance of less than 0.5 km. shall be ignored.

2. Lift: The vertical distance for removal with reference to the ground level. The excavation up to 1.5 metre depth below the ground level and depositing the excavated materials up to 1.5 metre above the ground level shall be included in the rate of earth work. Lifts inherent in the lead due to ground slope shall not be paid for.

3. Safety rules: Safety rules as laid down by the statutory authority and as provided in Haryana Building Code (HBC) shall be followed.

4. CLASSIFICATION OF SOILS: The earthwork shall be classified under the following categories and measured separately for each category:

(a) All kind of soils: Generally any strata, such as sand, gravel, loam, clay, mud, black cotton moorum, shingle, river or nallah bed boulders, siding of roads, paths etc. and hard core, macadam surface of any description (water bound, grouted tarmac etc.), lime concrete, mud concrete and their mixtures which for excavation yields to application of picks, showels, jumper, sacrifiers, ripper and other manual digging implements.

(b) Ordinary rock: Generally any rock which can be excavated by splitting with crow bars or picks and does not require blasting, wedging or similar means for excavation such as lime stone, sand stone, hard laterite, hard conglomerate and un-reinforced cement concrete below ground level.

(c) Hard rock: Generally any rock or boulder for the excavation of which blasting is required such as quartzite, granite, basalt, reinforced cement concrete (reinforcement to be cut through but not separated from concrete) below ground level and the like.

(d) Hard rock (blasting prohibited): Hard rock requiring blasting as described under (c) but where the blasting is prohibited for any reason and excavation has to be carried out by chiseling, wedging, use of rock hammers and cutters or any other agreed method.

5. MEASUREMENTS

The length and breadth of excavation or filling shall be measured with a steel tape correct to the nearest cm. The depth of cutting or height of filling shall be measured, correct to 5 mm, by recording levels before the start of the work and after the completion of the work. The cubical contents shall be worked out to the nearest two places of decimal in cubic metres.

In case of open footings up to the depth of 1.5 metres, alround excavation of 30 cm. beyond the outer dimension of footing shall be measured for payment to make allowances for centering and shuttering.

In case of open footings/Rafts at a depth of more than 1.5 metre, alround excavation of 75 cm shall be measured for payment to make allowance for centering and shuttering.

6. RATES

Rates for Earthwork shall include the following:

(a) Excavation and depositing excavated material as specified.

(b) Handing of antiquities and useful material.

(c) Protection as specified.

(d) Site clearance as specified

(e) Setting out and making profiles as specified

(f) Forming (or leaving) dead – men or 'Tell Tales' in borrow pits and their removal after measurements.

(g) Bailing out or pumping of rain water from excavations.

(h) Initial lead of 50 m and lift of 1.5 m.

(i) Blasting operations for hard rock

No deduction shall be made from the rate if in the opinion of the Engineer- in- charge, operations specified above are not required to be carried out on any account whatsoever.

7. SURFACE EXCAVATION - Excavations exceeding 1.5 m in width and 10 sqm. on plan but not exceeding 30 cm. in depth in all types of soils and rocks shall be described as surface excavation.

8. Measurements

The length and breadth shall be measured with a steel tape correct to the nearest cm. and the area worked out to the nearest two places of decimal in square metres.

9. ROUGH EXCAVATION AND FILLING - Excavation for earth from borrow pits, cutting hill side slopes etc. shall be described as rough excavation.

Wherever filling is to be done, the earth from excavation shall be directly used for filling and no payment for double handling of earth shall be admissible. In case of hill side cutting, where the excavated materials is thrown down the hill slopes, payment for filling excavated earth shall not be admissible.

10. EXCAVATION OVER AREA (ALL KINDS OF SOIL, ORDINARY/ HARD ROCK)

This shall comprise**:**

(a) Excavation exceeding 1.5 m in width and 10 sqm on plan and exceeding 30 cm in depth.

(b) Excavation for basements, water tanks etc.

(c) Excavation in trenches exceeding 1.5 m in width and 10 sqm on plan.

11. EXCAVATION IN TRENCHES FOR FOUNDATIONS AND DRAINS (ALL KINDS OF SOIL, ORDINARY/ HARD ROCK)

This shall comprise excavation not exceeding 1.5 m in width or 10 sqm on plan and to any depth in trenches (excluding trenches for pipes, cables, conduits etc.)

12. EXCAVATION IN TRENCHES FOR PIPES, CABLES ETC. AND REFILLING

This shall comprise excavation not exceeding 1.5 mts in width or 10 sqm in plan and to any depth trenches for pipes. Cables etc. and returning the excavated material to fill the trenches after pipes, cables etc. are laid and their joints tested and passed and disposal of surplus excavated material upto 50 m lead.

13. Width of Trench

13.1 Upto one metre depth the authorized width of trench for excavation shall be arrived at by adding 25 cm to the external diameter of pipe (not socket/collar) cable, conduit etc.

13.2 For depths exceeding one metre, an allowance of 5 cm per metre of depth for each side of the trench shall be added to the authorized width (that is external diameter of pipe plus 25 cm) for excavation. This allowance shall apply to the entire depth of the trench. In firm soils the sides of the trenches shall be kept vertical upto depth of 2 metres from the bottom. For depths greater than 2 metres, the excavation profiles shall be widened by allowing steps of 50 cm on either side after every two metres from bottom.

13.3 Where more than one pipe, cable, conduit etc, are laid, the diameter shall be reckoned as the horizontal distance from outside to outside of the outermost pipes, cable, conduit etc.

13.4 Where the soil is soft, loose or slushy, width of trench shall be suitably increased or side sloped or the soil shored up as directed by the Engineer-in-Charge.

14. Measurements

Trenches for pipes, cables, conduits etc. shall be measured in running meter correct to the nearest cm in stages of 1.5 m depth and described separately as under:

(a) Pipes, cables, conduits, etc. not exceeding 80 mm dia.

(b) Pipes, cables, conduits etc. exceeding 80 mm dia but not exceeding 300mm dia.

(c) Pipes, cables, conduits etc. exceeding 300 mm dia.

15. PLANKING AND STRUTTING

When the depth of trench in soft/loose soil exceeds 2 metres, stepping, sloping and/ or planking and strutting of sides shall be done. In case of loose and slushy soils, the depths at which these precautions are to be taken, shall be determined by the Engineer-in-Charge according to the nature of soil. Planking and strutting shall be ‘close’ or ‘open’ depending on the nature of soil and the depth of trench.

16. Works shall be grouped according to the following:

a. Depth not exceeding 1.5 m.

b. Depth exceeding 1.5m in stages of 1.5 m.

17. EXCAVATION IN WATER, MUD OR FOUL POSITION

All water that may accumulate in excavations during the progress of the work from springs, tidal or river seepage, broken water mains or drains (not due to the negligence of the contractor) and seepage from subsoil aquifer shall be bailed, pumped out or otherwise removed. The contractor shall take adequate measures for bailing and/or pumping out water from excavations and/or pumping out water from excavations.

The earth work for various classification of soil shall be categorised as under:

a) Work in or under water and/or liquid mud: Excavation, where water is met with from any of the sources specified above shall fall in this category.

b) Work in or under foul position: Excavation, where sewage, sewage gases or foul conditions are met with from any source, shall fall in this category.

18. FILLING IN TRENCHES, PLINTH, UNDER FLOOR ETC.

Earth : Normally excavated earth from same area shall be used for filling. Earth used for filling shall be free from shrubs, rank, vegetation, grass, brushwood, stone shingle and boulders (larger than 75mm in any direction), organic or any other foreign matter. Earth containing deleterious materials, salt peter earth etc. shall not be used for filling. All clods and lumps of earth exceeding 8 cm in any direction shall be broken or removed before the earth is used for filling**.**

Filling : The space around the foundations and drains in trenches shall be cleared of all debris, brick bats etc. The filling shall be done in layers not exceeding 20 cm in depth. Each layer shall be watered, rammed and consolidated. Ramming shall be done with iron rammers where possible and with blunt end of crow bars where rammers cannot be used.

19. Measurements

Filling Side of Foundations: The cubical contents of bed concrete levelling course and masonry/ concrete in foundations up to the ground level shall be worked out and the same deducted from the cubical contents of earthwork in excavation for foundations already measured under the respective item of earth work to arrive at the quantity for filling sides of foundation.

Filling in Plinth and under Floors: Depth of filling shall be the consolidated depth. The dimensions of filling shall be on the basis of pre-measurement correct to the nearest cm.

20. SAND FILLING IN PLINTH

Sand : Sand shall be clean and free from dust organic and foreign matter and its grading shall be within the limits of grading zone IV or V.

Filling : Sand filling shall be done in a manner similar to earth filling in plinth except that consolidation shall be done by flooding with water.

21. SURFACE DRESSING

Surface dressing shall include cutting and filling upto a depth of 15 cm and clearing of shrubs, rank vegetation, grass, brushwood, trees and saplings of girth upto 30 cm measured at a height of one metre above the ground level and removal of rubbish and other excavated material upto a distance of 50 metres outside the periphery of the area under surface dressing.

22. Measurements

Length and breadth of the dressed ground shall be measured correct to the nearest cm and the area worked out in square metres correct to two places of decimal.

23. JUNGLE CLEARANCE

Jungle clearance shall comprise uprooting of rank vegetation, grass, brushwood, shrubs, stumps, trees and saplings of girth upto 30 cm measured at a height of one metre above the ground level. Where only clearance of grass is involved it shall be measured and paid for separately**.**

Clearance of Grass : Clearing and grubbing operation for clearance of grass shall include removal of rubbish upto a distance of 50 m outside the periphery of the area under clearance.

24. FELLING TREES

Felling : While clearing jungle, growth trees above 30 cm girth (measured at a height of one metre above ground level) to be cut, shall be approved by the Engineer-in-Charge and then marked at site. Felling trees shall include taking out roots up to 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower. All excavation below general ground level arising out of the removal of trees, stumps etc. shall be filled with suitable material in 20 cm layers and compacted thoroughly so that the surfaces at these points conform to the surrounding area. The trunks and branches of trees shall be cleared of limbs and tops and cut into suitable pieces as directed by the Engineer-in-Charge.

Measurements : Cutting of trees above 30 cm in girth (measured at a height of one metre above level) shall be measured in numbers according to the sizes given below:

(a) Beyond 30 cm girth, upto and including 60cm girth.

(b) Beyond 60 cm girth, upto and including 120 cm girth.

(c) Beyond 120 cm girth, upto and including 240 cm girth.

(d) Above 240 cm girth.

25. ANTI-TERMITE TREATMENT

Termite control in existing as well as new building structures is very important as the damage likely to be caused by the termites to wooden members of building and other household article like furniture, clothing, stationery etc. is considerable. Anti-termite treatment can be either during the time of construction i.e. pre-constructional chemical treatment or after the building has been constructed i.e. treatment for existing building. Prevention of the termite from reaching the super-structure of the building and its contents can be achieved by creating a chemical barrier between the ground, from where the termites come and other contents of the building which may form food for the termites. This is achieved by treating the soil beneath the building and around the foundation with a suitable insecticide.

Materials

Chemicals: Any one of the following chemicals in water emulsion to achieve the percentage concentration specified against each chemical shall be used:

(i) Chlorphriphos emulsifiable concentrate of 20%

(ii) Lindane emulsifiable concentrate of 20%

To achieve the specified percentage of concentration, Chemical should be diluted with water in required quantity before it is used. For example, to dilute chemical of 20% concentration. 19 parts of water shall be added to one part of chemical for achieving 1% concentration.

Measurements : All dimensions shall be measured correct to a cm. The measurements shall be made of the surface actually provided with anti termite treatment. Measurements shall be done separately for treatment of foundations, soils under floors, voids in masonry and wood work:

(i) **Treatment along outside of foundations :** The measurements shall be made in running metres taking length along the plinth of the building.

(ii) **Treatment of soil under floors :** The measurements shall be made in square metres, inside clear dimensions of rooms, verandah etc. shall be taken.

(iii) **Treatment of voids in masonry :** The measurements shall be made in running metres along the plinth of the building.

(iv) Treatment of wood work : The measurements shall be made in running metres for chowkhats, joints, purlins, beams etc.

26. These rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

Item No.	Description	Unit	Labour Rate	Machinery Rate	Material Rate	Through Rate
	CHAPTER 4.0 - EARTH WORK AND ROCK CUTTING					
4.1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	sqm	6	0	0	6
4.2	Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.	sqm	3	0	0	3
4.3	Felling trees of the girth (measured at a height of 1 m above ground level), including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material.					
	4.3.1 Beyond 30 cm girth upto and including 60 cm girth	each	170	0	0	170
	4.3.2 Beyond 60 cm girth upto and including 120 cm girth	each	773	0	0	773
	4.3.3 Beyond 120 cm girth upto and including 240 cm girth	each	3583	0	0	3583
	4.3.4 Above 240 cm girth	each	7175	0	0	7175
4.4	Surface dressing of the ground including removing vegetation and in-equalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m.					
	4.4.1 All kinds of soil	sqm	11	0	0	11
4.5	Ploughing the existing ground to a depth of 15 cm to 25 cm and watering the same.					
	4.5.1 All kinds of soil	sqm	13	0	0	13
4.6	Extra for levelling & neatly dressing of disposed soil completely as directed by Engineer-in-charge.	cum	20	0	0	20
4.7	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth and lift upto 1.5 m, as directed by Engineer-in- Charge:					
	4.7.1 All kinds of soil					
	4.7.1.1 50m lead	sqm	51	0	0	51
	4.7.1.2 15 m lead	sqm	36	0	0	36
4.8	Earth work in rough excavation, banking excavated earth in layers not exceeding 20cm in depth, breaking clods, watering, rolling each layer with ½ tonne roller or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up in embankments for roads, flood banks, marginal banks and guide banks or filling up ground depressions, lead upto 50 m and lift upto 1.5 m :					
	4.8.1 All kinds of soil	cum	334	0	0	334
4.9	Banking excavated earth in layers not exceeding 20 cm in depth, breaking clods, watering, rolling each layer with ½ tonne roller, or wooden or steel rammers, and rolling every 3rd and top-most layer with power roller of minimum 8 tonnes and dressing up, in embankments for roads, flood banks, marginal banks, and guide banks etc., lead upto 50 m and lift upto 1.5 m :					
	4.9.1 All kinds of soil	cum	183	0	0	183
4.10	Deduct for not rolling with power roller of minimum 8 tonnes for banking excavated earth in layers not exceeding 20 cm in depth.	cum	3	0	0	3
4.11	Deduct for not watering the excavated earth for banking	cum	16	0	0	16
4.12	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.					
	4.12.1 All kinds of soil	cum	38	56	0	94
4.13	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.					
	4.13.1 Ordinary rock	cum	32	171	0	203
	4.13.2 Hard rock (requiring blasting)	cum	56	319	0	375
	4.13.3 Hard rock (blasting prohibited)	cum	103	470	0	573
4.14	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
	4.14.1 All kinds of soil.	cum	57	57	0	114
4.15	Excavation work by mechanical means (Hydraulic excavator)/ manual means in foundation trenches or drains (not exceeding 1.5m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50 m.					
	4.15.1 Ordinary rock	cum	178	62	0	240
	4.15.2 Hard rock (requiring blasting)	cum	306	124	0	431
	4.15.3 Hard rock (blasting prohibited)	cum	474	124	0	598
4.16	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :					
	4.16.1 All kinds of soil					
	4.16.1.1 Pipes, cables etc, not exceeding 80 mm dia.	metre	59	27	0	86
	4.16.1.2 Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	metre	96	44	0	140
	4.16.1.3 Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	metre	150	68	0	218
4.17	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5 m, but not exceeding 3 m. (Rate is over corresponding basic item for depth upto 1.5 metre).	metre	0	0	0	1
4.18	Extra for excavating trenches for pipes, cables, etc, in all kinds of soil for depth exceeding 3 m in depth, but not exceeding 4.5 m. (Rate is over corresponding basic item for depth upto 1.5 metre.)	metre	0	0	0	3
4.19	Excavating trenches of required width for pipes, cables, etc, including excavation for sockets, depth upto 1.5 m, including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layers by ramming, watering etc., stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50 m :					
	4.19.1 Ordinary rock :					
	4.19.1.1 Pipes, cables etc. not exceeding 80 mm dia	metre	169	29	0	198
	4.19.1.2 Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	293	73	0	365
	4.19.1.3 Pipes, cables exceeding 300 mm dia but not exceeding 600 mm dia	metre	337	84	0	420
	4.19.2 Hard rock (requiring blasting)					
	4.19.2.1 Pipes, cables etc. not exceeding 80 mm dia	metre	179	59	0	238

		4.19.2.2	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	445	145	0	590
		4.19.2.3	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm dia	metre	512	167	0	679
	4.19.3	Hard rock (blasting prohibited)						
		4.19.3.1	Pipes, cables etc. not exceeding 80 mm dia	metre	259	59	0	317
		4.19.3.2	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	640	145	0	786
		4.19.3.3	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm dia	metre	737	167	0	904
4.20	Extra for excavating trenches for pipes, cables, etc. in ordinary/hard rock exceeding 1.5 m in depth but not exceeding 3 m. (Rate is over corresponding basic item for depth upto 1.5 metre)			metre	0	0	0	1
4.21	Extra for excavating trenches for pipes, cables, etc. in ordinary/hard rock exceeding 3m in depth but not exceeding 4.5 m. (Rate is over correspondingbasic item for depth upto 1.5 metre)			metre	0	0	0	3
4.22	Close timbering in trenches including strutting, shoring and packing cavities (wherever required) complete. (Measurements to be taken of the face area timbered).							
	4.22.1	Depth not exceeding 1.5 m		sqm	7	0	99	106
	4.22.2	Depth exceeding 1.5 m but not exceeding 3 m		sqm	13	0	99	112
	4.22.3	Depth exceeding 3 m but not exceeding 4.5 m		sqm	26	0	99	125
4.23	Close timbering in case of shafts, wells, cesspits, manholes and the like including strutting, shoring and packing cavities (wherever required) etc. complete. (Measurements to be taken of the face area timbered).							
	4.23.1	Depth not exceeding 1.5 m		sqm	11	0	99	110
	4.23.2	Depth exceeding 1.5 m but not exceeding 3 m		sqm	24	0	99	122
	4.23.3	Depth exceeding 3 m but not exceeding 4.5 m		sqm	36	0	99	135
4.24	Close timbering over areas including strutting, shoring and packing cavities (wherever required) etc. complete. (Measurements to be taken of the face area timbered):							
	4.24.1	Depth not exceeding 1.5 m		sqm	7	0	86	94
	4.24.2	Depth exceeding 1.5 m but not exceeding 3 m		sqm	14	0	86	100
	4.24.3	Depth exceeding 3 m but not exceeding 4.5 m		sqm	21	0	86	107
4.25	Extra for planking, strutting and packing materials for cavities (in close timbering) if required to be left permanently in position. (Face area of timber permanently left to be measured).			sqm	0	0	1360	1360
4.26	Open timbering in trenches including strutting and shoring complete (measurements to be taken of the face area timbered):							
	4.26.1	Depth not exceeding 1.5 m		sqm	4	0	51	55
	4.26.2	Depth exceeding 1.5 m but not exceeding 3 m		sqm	7	0	51	58
	4.26.3	Depth exceeding 3 m but not exceeding 4.5 m		sqm	13	0	51	64
4.27	Open timbering in case of shafts, wells, cesspits, manholes and the like including strutting and shoring complete (Measurements to be taken of the face area timbered):							
	4.27.1	Depth not exceeding 1.5 m		sqm	6	0	42	47
	4.27.2	Depth exceeding 1.5 m but not exceeding 3 m		sqm	11	0	42	53
	4.27.3	Depth exceeding 3 m but not exceeding 4.5 m		sqm	19	0	42	61
4.28	Open timbering over areas including strutting, shoring etc. complete. (Measurements to be taken of the face area timbered):							
	4.28.1	Depth not exceeding 1.5 m		sqm	4	0	28	32
	4.28.2	Depth exceeding 1.5 m but not exceeding 3 m		sqm	7	0	28	36
	4.28.3	Depth exceeding 3 m but not exceeding 4.5 m		sqm	13	0	28	42
4.29	Extra for planking and strutting in open timbering if required to be left permanently in position. (Face area of the timber permanently left to be measured).			sqm	0	0	700	700
4.30	Extra rates for quantities of works, executed:							
	4.30.1	In or under water and/or liquid mud, including pumping out water as required		%				20%
	4.30.2	In or under foul position, including pumping out water as required		%				25%
	Note for item no. 4.30:- The extra percentage rate is applicable in respect of each item but limited to quantities of work executed in these difficult conditions. The unit, namely, metre depth, to be considered for payment, shall be the depth measured from the sub soil water level up to the centre of gravity of the qty executed in difficult conditions. The depth shall be reckoned correct to 0.10 m, 0.05 m or more shall be taken as 0.10 m and less than 0.05 m ignored.							
4.31	Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.							
	4.31.1	All kinds of soil		cum	49	0	0	49
	4.31.2	Ordinary or hard rock		cum	88	0	0	88
4.32	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.			cum	67	0	0	67
4.33	Excavating, supplying and filling of local earth (including royalty) by mechanical transport upto a lead of 1 km also including ramming and watering of the earth in layers not exceeding 20 cm in trenches, plinth, sides of foundation etc. complete.			cum	70	56	32	158
4.34	Excavating holes more than 0.10 cum & upto 0.5 cum including getting out the excavated soil, then returning the soil as required in layers not exceeding 20cm in depth, including consolidating each deposited layer by ramming, watering etc, disposing of surplus excavated soil, as directed within a lead of 50 m and lift upto 1.5 m.							
	4.34.1	All kinds of soil		each	18	17	0	35
	4.34.2	Ordinary rock		each	54	19	0	73
	4.34.3	Hard rock (requiring blasting)		each	93	37	0	130
	4.34.4	Hard rock (blasting prohibited)		each	143	37	0	180
4.35	Earthwork over roofs of one storey building with good earth,free of any admixture of foreign matter, including breaking of clods, ramming, watering, dressing and horizontal lead upto 50 metres.			cum	188	0	0	188
	4.35.1	Extra for every additional store		cum	12	0	0	12
4.36	Supply and stacking of Fly ash conforming to IRC- 58 at site, including carriage, loading , unloading & stacking up to any lead (measured stacks will be reduced by 20% for payment).			cum	0	0	133	133
4.37	Filling with available fly ash and earth (excluding rock) in trenches or embankment in layers (each layer should not exceed 15 cm), with intermediate layer of compacted earth (Soil density of 98%) after every four layers of compacted depth of fly ash, sides & top layer of filling shall be done with earth having total minimum compacted thickness 30 cm or as decided by Engineer -in-charge, including compacting each layer by rolling/ ramming and watering, all complete as per drawing and direction of Engineer -in - charge.			cum	67	0	0	67
4.38	Supplying chemical emulsion in sealed containers including delivery as specified.							

	4.38.1	Chlorpyriphos/ Lindane emulsifiable concentrate of 20%		per litre	0	0	194	194
4.39	Providing and injection chemical emulsion for PRE-CONSTRUCTIONAL antitermite treatment (excluding the cost of chemical emulsion) and creating a chemical barrier under and around the column pits, wall trenches, basement excavation, top surface of plinth filing junction of wall and floor, alongwith the external perimetre of building, expansion joints surrounding of pipes and conduite etc, complete (plinth area of the building at ground floor only shall be measured) using Chlorpyriphos/ Lindane emulsifiable concentrate of 20%			sqm	81	0	200	281
4.40	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :							
	4.40.1	Along external wall where the apron is not provided using chemical emulsion @ 7.5 litres / sqm of the vertical surface of the substructure to a depth of 300mm including excavation channel along the wall & rodding etc.						
		4.40.1.1	With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration	metre	14	0	0	14
	4.40.2	Along the external wall below concrete or masonry apron using chemical emulsion @ 4.32 litres per linear metre including drilling and plugging holes etc.:						
		4.40.2.1	With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration	metre	19	0	0	19
	4.40.3	Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor:						
		4.40.3.1	With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	sqm	120	0	0	120
	4.40.4	Treatment of existing masonry using chemical emulsion @ one litre per hole at 300 mm interval including drilling holes at 45 degree and plugging them with cement mortar 1:2 (1 cement : 2 coarse sand) to the full depth of the hole						
		4.40.4.1	With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	metre	16	0	0	16
	4.40.5	Treatment at points of contact of wood work by chemical emulsion Chlorpyriphos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre		metre	18	0	184	202

CHAPTER NO. 5

DISMANTLING
AND
DEMOLITION

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CHAPTER 5: DISMANTLING AND DEMOLITION

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 1200(Part-XVIII)	Method of measurement of Building and Civil Engineering Works (Part-XVIII) - Demolition and Dismantling
2	IS 4130	Demolition of Buildings - Code of safety

CHAPTER 5.0 - DISMANTLING AND DEMOLITION

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 5.0 - DISMANTLING AND DEMOLISHING							
5.1	Dismantling dressed stone work ashlar face stone work, marble work or precast concrete work manually/ by mechanical means including stacking of serviceable and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge :							
	5.1.1	In lime mortar		cum	286	0	0	286
	5.1.2	In cement mortar		cum	562	0	0	562
5.2	Demolishing stone rubble masonry manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge :							
	5.2.1	In lime mortar		cum	226	0	0	226
	5.2.2	In cement mortar		cum	481	0	0	481
5.3	Dismantling Stone Pitching							
	5.3.1	Dry Conditions						
		5.3.1.1	Stone pitching dry	cum	146	0	0	146
		5.3.1.2	Stone pitching laid dry, but grouted with natural silt and clay	cum	273	0	0	273
		5.3.1.3	stone pitching laid dry, and grouted with dry ballast	cum	204	0	0	204
		5.3.1.4	stone pitching grouted with dry blast and with natural silt and clay	cum	292	0	0	292
	5.3.2	Dismantling Stone Pitching (under water)						
		5.3.2.1	Stone pitching dry	cum	234	0	0	234
		5.3.2.2	Stone pitching laid dry, but grouted with natural silt and clay	cum	436	0	0	436
		5.3.2.3	stone pitching laid dry, and grouted with dry ballast	cum	327	0	0	327
		5.3.3.4	stone pitching grouted with dry blast and with natural silt and clay	cum	467	0	0	467
5.4	Dismantling Stone Spalls or Brickbats Filling							
	5.4.1	In dry		cum	136	0	0	136
	5.4.2	Grouted with natural silt and clay		cum	192	0	0	192
	5.4.3	in-wire crates including opening of crates and stacking crate material		cum	240	0	0	240
	5.4.4	In dry (under water)		cum	218	0	0	218
	5.4.5	Grouted with natural silt and clay (under water)		cum	308	0	0	308
	5.4.6	in-wire crates including opening of crates and stacking crate material (under water)		cum	385	0	0	385
5.5	Removing mortar from and cleaning stones and concrete articles (net quantity of stacks of cleaned materials will be measured):							
	5.5.1	In lime mortar		cum	106	0	0	106
	5.5.2	In cement mortar		cum	147	0	0	147
5.6	Demolishing dry brick pitching in floors, drains etc. including stacking of serviceable material and disposal of unserviceable material within 50 metres lead :			cum	258	0	0	258
5.7	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.							
	5.7.1	In mud mortar		cum	138	0	0	138
	5.7.2	In lime mortar with old mughal bricks		cum	349	0	0	349
	5.7.3	In lime mortar		cum	167	0	0	167
	5.7.4	In cement mortar		cum	403	0	0	403
5.8	Removing mortar from bricks and cleaning bricks including stacking within a lead of 50 m (stacks of cleaned bricks shall be measured):							
	5.8.1	From brick work in mud mortar		1000 Nos.	1008	0	0	1008
	5.8.2	From brick work in lime mortar		1000 Nos.	1244	0	0	1244
	5.8.3	From brick work in cement mortar		1000 Nos.	1615	0	0	1615
5.9	Demolishing thatch roofing including mats, bamboo, jaffari etc. complete including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.			sqm	11	0	0	11
5.10	Dismantling jack arch roofing and floors including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.			sqm	50	0	0	50
5.11	Demolishing mud phaska in terracing and disposal of material within 50 metres lead.			cum	179	0	0	179
5.12	Dismantling stone slab roofing over wooden karries or R.C.C. battens (dismantling karries and battens to be paid for separately), including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.			cum	524	0	0	524
5.13	Dismantling tiled roofing with battens, boarding etc. complete including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.			sqm	41	0	0	41
5.14	Demolishing brick tile covering in terracing including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.			sqm	34	0	0	34
5.15	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of:							
	5.15.1	G.S. Sheet		sqm	41	0	0	41
	5.15.2	Asbestos Cement sheet		sqm	19	0	0	19
5.16	Extra for dismantling trusses, rafters, purlins etc. of wood work for every additional span of one metre or part thereof beyond 10 metres :							
	5.16.1	Of sectional area 40 square centimetres and above		cum per	153	0	0	153
	5.16.2	Of sectional area below 40 square centimetres		cum per	0	0	0	0
5.17	Extra for dismantling trusses, rafters, purlins etc. of wood work for every additional height of one metre or part thereof beyond 5 metres :							
	5.17.1	Of sectional area 40 square centimetres and above		cum per	215	0	0	215
	5.17.2	Of sectional area below 40 square centimetres		cum per	1	0	0	1
5.18	Extra for dismantling trusses, rafters, purlins etc. of steel work for every additional span of one metre or part thereof beyond 10 metres			kg per metre	0	0	0	0
5.19	Extra for dismantling trusses, rafters, purlins etc. of steel work for every additional height of one metre or part thereof beyond 5 metres.			kg per metre	0	0	0	0
5.20	Demolishing lime concrete manually/ by mechanical means and disposal of material within 50 metres lead as per direction of Engineer- in-charge.			cum	167	0	0	167
5.21	Demolishing R.B. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in- charge.			cum	621	0	0	621

5.22	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.						
	5.22.1	Nominal concrete 1:1.5:3 or richer mix (i/c equivalent design mix)	cum	478	0	0	478
	5.22.2	Nominal concrete 1:2:4 or leaner mix (i/c equivalent design mix)	cum	293	0	0	293
5.23	Dismantling of cement concrete platform along with curtain walls and base concrete etc. including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead :						
	5.23.1	120 x 120 cm (outside to outside)	each	216	0	0	216
	5.23.2	210 x 120 cm (outside to outside)	each	332	0	0	332
	5.23.3	320 x 120 cm (outside to outside)	each	469	0	0	469
5.24	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.		cum	693	0	0	693
5.25	Demolishing R.C.C. work by mechanical means and stockpiling at designated locations and disposal of dismantled materials up to a lead of 1 kilometre, stacking serviceable and unserviceable material separately including cutting reinforcement bars.		cum	625	420	0	1045
5.26	Extra for cutting reinforcement bars manually/ by mechanical means in R.C.C. or R.B. work (Payment shall be made on the cross sectional area of R.C.C. or R.B. work) as per direction of Engineer-in-charge.		cum	317	0	0	317
5.27	Extra for scrapping, cleaning and straightening reinforcement from R.C.C. or R.B. work.		kg	2	0	0	2
5.28	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead :						
	5.28.1	Of area 3 sq. metres and below	each	106	0	0	106
	5.28.2	Of area beyond 3 sq. metres	each	144	0	0	144
5.29	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead :						
	5.29.1	Of area 3 sq. metres and below	each	37	0	0	37
	5.29.2	Of area beyond 3 sq. metres	each	50	0	0	50
5.30	Dismantling wood work in frames, trusses, purlins and rafters up to 10 metres span and 5 metres height including stacking the material within 50 metres lead :						
	5.30.1	Of sectional area 40 square centimetres and above	cum	1237	0	0	1237
	5.30.2	Of sectional area below 40 square centimetres	metre	5	0	0	5
5.31	Dismantling expanded metal or I.R.C. fabrics with necessary battens and beading including stacking the serviceable material within 50 metres lead.		sqm	17	0	0	17
5.32	Dismantling steel work in single sections including dismembering and stacking within 50 metres lead in:						
	5.32.1	R.S. Joists	kg	1	0	0	1
	5.32.2	Channels, angles, tees and flats	kg	1	0	0	1
5.33	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50 metres lead.		kg	2	0	0	2
5.34	Dismantling steel work manually/ by mechanical means in built up sections without dismembering and stacking within 50 metres lead as per direction of Engineer-in-charge.		kg	1	0	0	1
5.35	Extra for marking of structural steel work required to be re-erected.		kg	1	0	0	1
5.36	Dismantling and stacking within 50 metres lead, fencing posts or struts including all earth work and dismantling of concrete etc. in base of:						
	5.36.1	T' or 'L' iron or pipe	each	47	0	0	47
	5.36.2	R.C.C.	each	52	0	0	52
5.37	Dismantling barbed wire or flexible wire rope in fencing including making rolls and stacking within 50 metres lead.		kg	7	0	0	7
5.38	Dismantling wooden ballies in posts and struts including stacking within 50metres lead.		metre	4	0	0	4
5.39	Cutting ballies or wooden posts of fencing at the point of projection above the concrete or ground and stacking the same within 50 metres lead.		each	3	0	0	3
5.40	Dismantling wooden trellis work excluding frames but including stacking the serviceable material within 50 metres lead.		sqm	15	0	0	15
5.41	Removing rolling shutters including top cover,brackets and side guides etc.complete.		sqm	29	0	0	29
5.42	Dismantling cement conglomerate / terrazzo floors 25 mm to 50 mm manually/ by mechanical means and disposal of material within standard lead as per direction of Engineer- in-charge.		sqm	94	0	0	94
5.43	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.						
	5.43.1	For thickness of tiles 10 mm to 25 mm	sqm	22	0	0	22
	5.43.2	For thickness of tiles above 25 mm and up to 40 mm	sqm	37	0	0	37
5.44	Dismantling stone slab flooring laid in cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.		sqm	52	0	0	52
5.45	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.		sqm	11	0	0	11
5.46	Dismantling wooden boardings in lining of walls and partitions, excluding supporting members but including stacking within 50 metres lead :						
	5.46.1	Up to 10 mm thick	sqm	15	0	0	15
	5.46.2	Thickness above 10 mm up to 25 mm	sqm	19	0	0	19
	5.46.3	Thickness above 25 mm up to 40 mm	sqm	21	0	0	21
5.47	Dismantling precast concrete or stone slabs in walls, partition walls etc. including stacking within 50 metres lead :						
	5.47.1	Thickness up to 40 mm	sqm	62	0	0	62
	5.47.2	Thickness above 40 mm up to 75 mm	sqm	92	0	0	92
5.48	Dismantling cement asbestos or other hard board ceiling or partition walls including stacking of serviceable materials and disposal of unserviceable materials within 50 metres lead.		sqm	15	0	0	15
5.49	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable material and stacking of serviceable material with in 50 meters lead as directed by Engineer-in-charge.		sqm	15	0	0	15
5.50	Removal of old broken glass panes (any thickness or size, quality or description from wooden frames, glazed with putty or fixed with beads		sqm	46	0	0	46
5.51	Removing old broken/serviceable glass of any thickness or size or description except polished plate glass from old wood or metal frames etc.(any thickness or size) hacing out old putty etc. including making good breakages in talking out and handling complete		sqm	59	0	0	59
5.52	Dismantling stone-ware drains and of concrete		metre	17	0	0	17
5.53	Removing hume pipes-NP 2 & 3 including excavation and taking out the pipes manually/ by mechanical means and stacking the pipes within standard lead as per direction of Engineer-in-charge						

	5.53.1	up to 600 mm dia	metre	82	0	0	82
	5.53.2	above 600 mm dia	metre	168	0	0	168
5.54	Dismantling C.I. or asbestos rain water pipe with fittings and clamps including stacking the material within 50 metres lead :						
	5.54.1	75 to 80 mm dia pipe	metre	15	0	0	15
	5.54.2	100 mm dia pipe	metre	15	0	0	15
	5.54.3	150 mm dia pipe	metre	16	0	0	16
5.55	Dismantling G.I. pipes (external work) including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means including stacking of pipes within 50 metres lead as per direction of Engineer-in-charge :						
	5.55.1	15 mm to 40 mm nominal bore	metre	30	0	0	30
	5.55.2	Above 40 mm nominal bore	metre	32	0	0	32
5.56	Dismantling C.I. pipes including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means breaking lead caulked joints, melting of lead and making into blocks including stacking of pipes & lead at site within 50 metre lead as per direction of Engineer-in-charge:						
	5.56.1	Up to 150 mm diameter	metre	102	0	8	110
	5.56.2	Above 150 mm dia up to 300 mm dia	metre	129	0	18	147
	5.56.3	Above 300 mm diameter	metre	164	0	26	190
5.57	Dismantling steel cylinder R.C. pipes including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means breaking lead caulked joints, melting of lead and making into blocks including stacking of pipes & lead at site within 50 metres lead as per direction of Engineer-in-charge :						
	5.57.1	Up to 600 mm diameter	metre	138	0	26	163
	5.57.2	Above 600 mm diameter	metre	371	0	54	425
5.58	Dismantling asbestos cement pressure pipes including excavation and refilling trenches after taking out the pipes manually/ by mechanical means and stacking the pipes within 50 metres lead as per direction of Engineer-in-charge :						
	5.58.1	Up to 150 mm diameter	metre	66	0	0	66
	5.58.2	Above 150 mm diameter	metre	80	0	0	80
5.59	Taking out C.I. cover with frame from R.C.C. top slab of manholes of various sizes including demolishing of R.C.C. work manually/ by mechanical means and stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead as per direction of Engineer-in-charge.		each	138	0	0	138
5.60	Taking out C.I. cover with frame from R.C.C. top slab of inspection chambers of various sizes including demolishing of R.C.C. work manually/ by mechanical means and stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead as per direction of Engineer-in-charge.		each	80	0	0	80
5.61	Dismantling of R.C.C. spun vent shaft including excavating the cement concrete pit completely, taking out the shaft, refilling the excavated gap, stacking the useful materials near the site and disposal of unserviceable materials within 50 metres lead.		each	1289	0	0	1289
5.62	Dismantling of road gully chamber of various sizes including C.I. grating with frame including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead including refilling the excavated gap.		each	189	0	0	189
5.63	Dismantling of flushing cistern of all types (C.I./PVC/Vitrious China) including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead.		each	223	0	0	223
5.64	Dismantling of C.I. sluice valve including stacking of useful materials within a lead of 50 metres						
	5.64.1	Up to 150 mm diameter	each	82	0	0	82
	5.64.2	Above 150 mm diameter	each	304	0	0	304
5.65	Dismantling of spindle fire hydrant including stacking of useful materials within 50 metres lead.		each	187	0	0	187
5.66	Dismantling old C.I. pipes including excavation and refilling trenches after taking out the pipes, breaking lead caulked joints, melting of lead and making into blocks, including stacking of pipes at site lead up to 50 metre:						
	5.66.1	80 mm diameter C.I. pipe	metre	100	0	6	106
	5.66.2	100 mm diameter C.I. pipe	metre	103	0	7	110
	5.66.3	125 mm diameter C.I. pipe	metre	106	0	9	115
	5.66.4	150 mm diameter C.I. pipe	metre	109	0	10	119
	5.66.5	200 mm diameter C.I. pipe	metre	120	0	13	133
	5.66.6	250 mm diameter C.I. pipe	metre	130	0	16	147
	5.66.7	300 mm diameter C.I. pipe	metre	140	0	18	158
5.67	Dismantling of old S.W. pipes including breaking of joints and bed concrete stacking of useful materials near the site within 50 m lead and disposal of unserviceable materials into municipal dumps :						
	5.67.1	100 mm diameter	metre	17	0	0	17
	5.67.2	150 mm diameter	metre	19	0	0	19
	5.67.3	200 mm diameter	metre	20	0	0	20
	5.67.4	250 mm diameter	metre	22	0	0	22
	5.67.5	300 mm diameter	metre	23	0	0	23
	5.67.6	350 mm diameter	metre	26	0	0	26
	5.67.7	400 mm diameter	metre	29	0	0	29
	5.67.8	450 mm diameter	metre	30	0	0	30
5.68	Dismantling of manhole including R.C.C. top slab, C.I. cover with frame, including stacking of useful materials near the site and disposal of unserviceable materials within 50 m lead as per direction of Engineer-in-charge:						
	5.68.1	Rectangular manhole 90x80 cm and 45 cm deep	each	498	0	0	498
	5.68.2	Rectangular manhole 120x90 cm and 90 cm deep	each	876	0	0	876
	5.68.3	Rectangular arch type manhole 140x90 cm and 2.45 m deep	each	1657	0	0	1657
	5.68.4	Circular manhole 122 cm diameter and 1.68 m deep	each	1270	0	0	1270
5.69	Extra for depth of manholes dismantled :						
	5.69.1	Rectangular manhole 90x80 cm and beyond 45 cm depth	metre	400	0	0	400
	5.69.2	Rectangular manhole 120x90 cm and beyond 90 cm depth	metre	477	0	0	477
	5.69.3	Rectangular arch type manhole 140x90 cm and beyond 2.45 m depth (up to 4.25 m depth)	metre	387	0	0	387
	5.69.4	Circular manhole 122 cm diameter and beyond 1.68 m depth (up to 2.29 m depth)	metre	436	0	0	436
5.70	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.		cum	121	0	0	121

CHAPTER NO. 6

CONCRETE
AND
RCC WORK

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CHAPTER 6.0 - CONCRETE AND RCC WORK

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 226	Structural Steel
2	IS 383	Specification for coarse and fine aggregate from natural sources for concrete.
3	IS 432 (Part I)	Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement part-I mild steel and medium tensile steel bars.
4	IS 432 (Part II)	Specification for mild steel and medium tensile steel bars and hard drawn steel wire for concrete reinforcement – Part-II hard drawn steel wire.
5	IS 456	Plain and reinforced concrete - Code of practice
6	IS 1200 (Part II)	Method of measurement of building and civil engineering work (concrete work)
7	IS 1200 (Part V)	Method of measurement of building and civil engineering work – concrete work (Part 5- Form work)
8	IS 1322	Specification for bitumen felt for water proofing and damp proofing.
9	IS 1791	General requirements for batch type conrete mixers
10	IS 2505	General requirements for concrete vibrators - immersion type.
11	IS 2506	General requirements for concrete vibrators - screed board concrete vibrators
12	IS 2645	Specification for integral water proofing compounds for cement mortar and concrete
13	IS 3068	Specification for broken brick (burnt clay) coarse aggregate for use in concrete.
14	IS 3812	Specification for flyash for use as pozzolana and admixture in cement mortar and concrete.
15	IS 4656	Specification for form vibrators for concrete.
16	IS 7861 (Part-I)	Code of practice for extreme weather concreting (Part-I) recommended practice for hot weather concreting.
17	IS 7861 (Part–II)	Code of practice for extreme weather concreting (Part-II) recommended.
18	IS 9103	Specification for concrete admixtures
19	IS 2751	Recommended practice for welding of mild steel plain and deformed bars for reinforced construction.
20	IS 4925	Batch plants specification for concrete batching and mixing plant
21	IS 2502	Code of Practice for bending for fixing of bars for concrete reinforcement
22	IS 4926	Ready – Mixed Concrete
23	IS 6523	Specification for precast reinforced concrete door, window frames
24	IS 10262	Recommended guidelines for concrete mix design
25	IS 1566	Specification for hard drawn steel wire fabric for concrete requirement.
26	IS 1343	Code of Practice for Prestressed Concrete
27	IS 1608	Method for tensile testing of steel products
28	IS 1786	Specification for high strength deformed steel and wires for concrete reinforcement.
29	IS 1791	Specification for batch type concrete mixes

CHAPTER 6.0 - CONCRETE AND RCC WORK

NOTES:

1. This chapter includes items of Concrete work, RCC work and Form work.
2. Fly Ash based concrete mixes have been introduced.
3. Water charges for water to be arranged by contractor are included in the rates mentioned.
4. Rates above plinth level shall be same up to floor four level (3 storey height) for each storey height up to 3.50m or less. Rate shall be extra for floor five and above. Extra payment shall be made if storey height is more than 3.5m.
5. No extra payment shall be paid for mezzanine floor.
6. Items of CC/RCC in the basement above basement floor level shall be considered as CC/RCC in superstructure.
7. CC/RCC items in foundation and plinth shall be between plinth level to -1.50 m below NGL.
8. Plinth level shall be considered as floor one level. Floor level of first slab above plinth shall be designated as floor two level and so on.
9. Unless specified particularly rates shall include handling of material up to 50m.
10. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 6.0 - CONCRETE AND RCC WORK						
	A. CEMENT CONCRETE (CAST IN SITU)						
6.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :						
	6.1.1	1:1½:3 (1 Cement: 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size)	cum	1104	0	3668	4771
	6.1.2	1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	cum	1104	0	3272	4376
	6.1.3	1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 40 mm nominal size)	cum	1104	0	3236	4340
	6.1.4	1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size)	cum	1104	0	2778	3881
	6.1.5	1:3:6 (1 Cement : 3 coarse sand (zone-III): 6 graded stone aggregate 40 mm nominal size)	cum	1104	0	2733	3836
	6.1.6	1:4:8 (1 Cement : 4 coarse sand (zone-III) : 8 graded stone aggregate 40 mm nominal size)	cum	1104	0	2445	3549
	6.1.7	1:5:10 (1 cement : 5 coarse sand (zone-III): 10 graded stone aggregate 40 mm nominal size)	cum	1104	0	2215	3319
	6.1.8	1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size)	cum	1100	0	2215	3316
	6.1.9	1:2:3½:9 (1 ordinary portland cement : 2 Fly ash : 3½ coarse sand (zone-III) : 9 graded stone aggregate 40 mm nominal size)	cum	1105	0	2358	3463
	6.1.10	1:2½:4:11 (1 ordinary portland cement : 2½ fly ash : 4 coarse sand(zone-III) : 11 graded stone aggregate 40 mm nominal size)	cum	1105	0	2094	3199
	6.1.11	Plum cement concrete 1:3:6 with stone aggregate 40 mm nominal size using 20 percent plum in foundation and plinth.	cum	693	0	2467	3161
6.2	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., up to floor four level, excluding the cost of centering, shuttering and finishing:						
	6.2.1	1:1½:3 (1 cement : 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).	cum	1223	0	3668	4891
	6.2.2	1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	cum	1064	0	3272	4336
	6.2.3	1:3:6 (1 cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size)	cum	1070	0	2778	3847
	6.2.4	1:5:10 (1 cement : 5 coarse sand (zone-III) : 10 graded stone aggregate 40 mm nominal size).	cum	1062	0	2215	3277
6.3	Providing and laying cement concrete in kerbs, steps and the like at or near ground level excluding the cost of centering, shuttering and finishing.						
	6.3.1	1:1½:3 (1 Cement: 1½ coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size)	cum	1104	0	3668	4771
6.4	Extra for concrete work in superstructure above floor IV level for each four floors or part thereof.		cum	307	0	0	307
	Note:- The quantity will be calculated by multiplying the depth measured from the sub-soil water level up to centre of gravity of concrete under sub-soil water level with quantity of concrete in cum executed under sub-soil water. The depth of centre of gravity shall be reckoned correct to 0.1m. 0.05m or more shall be taken as 0.1m and less than 0.05m ignored.						
6.5	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification.		50 kg	0	0	43	43
6.6	Extra for addition of synthetic Polyester triangular fibre of length 12mm, effective diameter 10-40 microns and specific gravity of 1.34 to 1.40 in cement concrete/RCC/Flooring/water retaining structures by using 125gms of synthetic Polyester triangular fibre for 50 kg cement used as per directions of Engineer-in-Charge.		50 kg	0	0	52	52
6.7	Supplying and applying pre tested and approved water based concrete curing compound to concrete/ masonry surface, all as per manufacturer's specification and direction of Engineer-in-charge.						
	6.7.1	Non pigmented wet curing compound	sqm	21	0	9	30
	B. DAMP-PROOF COURSE						
6.8	Providing and laying damp-proof course with cement concrete 1:2:4 (1 cement : 2 coarse sand (zone-III): 4 graded stone aggregate 12.5mm nominal size)						
	6.8.1	50 mm thick	sqm	95	0	165	260
	6.8.2	40mm thick	sqm	84	0	132	216
	6.8.3	25 mm thick	sqm	67	0	83	150
6.9	Providing and laying damp-proof course with cement concrete 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III): 3 graded stone aggregate 20mm nominal size)						
	6.9.1	50 mm thick	sqm	95	0	184	279
	6.9.2	40 mm thick	sqm	84	0	148	232
	6.9.3	25 mm thick	sqm	67	0	93	160
6.10	Providing & applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with apiece of cloth lightly soaked in kerosene oil.		sqm	17	0	71	89
6.11	12 mm thick cement plaster damp-proof course 1:3 with 2 coats of bitumen at 1.65 kg. per sqm, laid hot and sanded:						
	6.11.1	Vertical	sqm	92	0	119	211
	6.11.2	Horizontal	sqm	67	0	119	186
6.12	20 mm thick cement plaster damp-proof course 1:3 with 2 coats of bitumen at 1.65 kg. per sqm, laid hot and sanded:						
	6.12.1	Vertical	sqm	96	0	157	253
	6.12.2	Horizontal	sqm	71	0	157	228
	C. PLINTH PROTECTION						
6.13	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.		sqm	146	0	211	357
	D. REINFORCED CEMENT CONCRETE						
6.14	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :						
	6.14.1	1:1.5:3 (1 cement : 1.5 coarse sand (zone-III): 3 graded stone aggregate 20 mm nominal size)	cum	1370	0	3668	5038
	6.14.2	1:2:4 (1 cement : 2 coarse sand **(zone-III)** : 4 graded stone aggregate 20 mm nominal size)	cum	1370	0	3272	4642
6.15	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor four level, excluding cost of centering, shuttering, finishing and reinforcement :						
	6.15.1	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size)	cum	1276	0	3668	4944
6.16	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor four level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).		cum	1723	0	3668	5391
6.17	Providing and laying up to floor four level reinforced cement concrete in kerbs, steps and the like excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).		cum	1283	0	3668	4950

6.18	Reinforced cement concrete work in arches, archribs, domes, vaults, shells, folded plate and roofs having slope more than 15° up to floor four level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	1968	0	3667	5636
6.19	Reinforced cement concrete work in chimneys, shafts, up to floor four level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	1329	0	3668	4997
6.20	Reinforced cement concrete work in well-steining, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	1120	0	3668	4788
6.21	Reinforced cement concrete work in vertical and horizontal fins individually or forming box louvers, facias and eaves boards above plinth level up to floor four level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1½:3 (1 cement : 1½ coarse sand(zone-III) : 3 graded stone aggregate 20mm nominal size).			cum	1557	0	3668	5225
	E. READY MIX CEMENT CONCRETE							
6.22	Providing and laying in position ready mixed plain cement concrete, with cement content as per approved design mix and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying and curing, excluding the cost of centering, shuttering and finishing, including cost of curing, admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer-in-charge.							
	(Note :- Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used							
	6.22.1	All works upto plinth level :						
		6.22.1.1	M-20 grade plain cement concrete (cement content considered @ 300 kg/cum)	cum	1305	639	3254	5199
		6.22.1.2	M-15 grade plain cement concrete (cement content considered @ 240 kg/cum)	cum	1305	639	2897	4841
		6.22.1.3	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	cum	1305	639	2778	4722
	6.22.2	All works above plinth and upto floor IV level :						
		6.22.2.1	M-20 grade plain cement concrete. (cement content considered @ 300 kg/cum)	cum	1305	400	3254	4959
		6.22.2.2	M-15 grade plain cement concrete. (cement content considered @ 240 kg/cum)	cum	1305	400	2897	4602
		6.22.2.3	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	cum	1305	400	2778	4482
	F. READY MIX CEMENT CONCRETE WITH FLYASH							
6.23	Providing and laying in position ready mixed plain cement concrete, using fly ash and cement content as per approved design mix and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying and curing, excluding the cost of centering, shuttering and finishing, including cost of curing, admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer-in-charge.							
	Note : Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS : 456. Uniform blending with cement is to be ensured in accordance with clauses 5.2 and 5.2.1 of IS: 456 -2000 in the items of BMC and RMC.							
	6.23.1	All works upto plinth level:						
		6.23.1.1	M-15 grade plain cement concrete (cement content considered @ 240 kg/cum)	cum	1305	639	2810	4754
		6.23.1.2	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	cum	1305	639	2691	4635
	6.23.2	All works above plinth and upto floor IV level:						
		6.23.2.1	M-15 grade plain cement concrete (cement content considered @ 240 kg/cum)	cum	1305	400	2810	4515
		6.23.2.2	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	cum	1305	400	2691	4395
6.24	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying , excluding the cost of centering, shuttering finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer-in-charge.							
	(Note :- Cement content considered in this item is @ 330 kg/cum. Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix).							
	6.24.1	All works upto plinth level		cum	1305	982	3333	5620
	6.24.2	All works above plinth level upto floor IV level		cum	1305	982	3333	5620
	G. DESIGN MIX CONCRETE							
6.25	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.							
	(Note :- Cement content considered in this item is @ 330 kg/cum. Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix).							
	6.25.1	All works upto plinth level		cum	1305	639	3333	5277
	6.25.2	All works above plinth level upto floor IV level		cum	1346	639	3333	5318
6.26	Extra for providing richer mixes up to plinth and at all floor levels.							
	(Note :- Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix).							
	6.26.1	Providing M-30 grade concrete instead of M-25 grade BMC/ RMC. (Note:- Cement content considered in M-30 is @		cum	0	0	60	60
	6.26.2	Providing M-35 grade concrete instead of M-25 grade BMC/ RMC. (Note : Cement content considered in M-35 is @		cum	0	0	119	119
	6.26.3	Providing M-40 grade concrete instead of M-25 grade BMC/ RMC.(Note : Cement content considered in M-40 is @		cum	0	0	179	179
6.27	Extra for R.C.C./ B.M.C/ R.M.C. work above floor IV level for each three floors or part thereof.			cum	0	0	240	240
	H. DESIGN MIX CONCRETE WITH FLYASH							
6.28	Providing and laying in position ready mixed M-25 grade concrete for reinforced cement concrete work, using fly ash and cement content as per approved design mix, and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, excluding the cost of centering, shuttering, finishing and reinforcement, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate / retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge.							
	NOTE- (1) Cement content considered in this item is @ 330 kg/cum. Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix. (2) Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS : 456. Uniform blending with cement to be ensured in accordance with clauses 5.2 and 5.2.1 of IS:456 -2000 in the items of BMC and RMC.							
	6.28.1	All works up to Plinth level.		cum	1305	982	3346	5633
	6.28.2	All works above plinth & up to floor IV level.		cum	1306	982	3346	5634
	I. CENTRING AND SHUTTERING (FORM WORK)							

6.29	Centering and shuttering including strutting, propping etc. and removal of form work for :							
	6.29.1	Foundations, footings, bases for columns		sqm	92	0	65	158
	6.29.2	Retaining walls, return walls, walls (any thickness) including attached pilasters, buttresses, plinth and string courses fillets, kerbs and steps etc.		sqm	257	0	62	319
	6.29.3	Columns, piers, abutments, pillars, posts and struts		sqm	288	0	96	384
6.30	Centering and shuttering including strutting, propping etc. and removal of form for							
	6.30.1	Foundations, footings, bases of columns, etc. for mass concrete		sqm	92	0	69	161
	6.30.2	Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.		sqm	257	0	62	319
	6.30.3	Suspended floors, roofs, landings, balconies and access platform		sqm	291	0	73	364
	6.30.4	Shelves (Cast in situ)		sqm	291	0	73	364
	6.30.5	Lintels, beams, plinth beams, girders, bressumers and cantilevers		sqm	214	0	83	297
	6.30.6	Columns, Pillars, Piers, Abutments, Posts and Struts		sqm	288	0	96	384
	6.30.7	Stairs, (excluding landings) except spiral-staircases		sqm	196	0	180	377
	6.30.8	Spiral staircases (including landing)		sqm	231	0	98	329
	6.30.9	Arches, domes, vaults up to 6 m span		sqm	582	0	449	1032
	6.30.10	Extra for arches, domes, vaults exceeding 6 m span		sqm	59	0	374	433
	6.30.11	Chimneys and shafts		sqm	257	0	62	319
	6.30.12	Well steining		sqm	30	0	180	210
	6.30.13	Vertical and horizontal fins individually or forming box louvers band, facias and eaves boards		sqm	379	0	68	446
	6.30.14	Extra for shuttering in circular work (20% of respective centering and shuttering items)						(20% of
	6.30.15	Small lintels not exceeding 1.5 m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like		sqm	92	0	66	158
	6.30.16	Edges of slabs and breaks in floors and walls						
		6.30.16.1	Under 20 cm wide	metre	46	0	66	112
		6.30.16.2	Above 20 cm wide	sqm	180	0	312	492
	6.30.17	Cornices and mouldings		sqm	130	0	406	536
	6.30.18	Small surfaces such as cantilever ends, brackets and ends of steps, caps and bases to pilasters and columns and		sqm	261	0	206	467
	6.30.19	Weather shade, Chajjas, corbels etc., including edges		sqm	239	0	231	471
	6.30.20	Suspended floors, roofs, landings, balconies and access platform with water proof ply 12 mm thick		sqm	296	0	138	434
	6.30.21	Lintels, beams, plinth beams, girders, bressumers and cantilevers with water proof ply 12 mm thick		sqm	224	0	143	367
6.31	Providing and fixing tie bolt, spring coil and plastic cone in wall shuttering complete as per the direction of Engineer-in-charge.							
	6.31.1	12 mm dia. & 100 mm length		each Set	1	0	117	118
	6.31.2	12 mm dia. & 150 mm length		each Set	1	0	128	129
	6.31.3	20 mm dia. & 150 mm length		each Set	1	0	139	139
	6.31.4	20 mm dia.& 225 mm length		each Set	1	0	150	151
6.32	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to							
	6.32.1	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)		sqm	133	0	11	144
	J. STEEL REINFORCEMENT							
6.33	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.							
	6.33.1	Mild steel and Medium Tensile steel bars		kg	9	0	59	68
	6.33.2	Hard drawn steel wire		kg	9	0	66	75
	6.33.3	Cold twisted bars		kg	9	0	60	69
	6.33.4	Hot rolled deformed bars		kg	9	0	60	69
	6.33.5	Hard drawn steel wire fabric		kg	7	0	67	74
	6.33.6	Thermo-Mechanically Treated bars of grade Fe-500D or more.		kg	9	0	60	69
6.34	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.							
	6.34.1	Mild steel and Medium Tensile steel bars		kg	9	0	59	68
	6.34.2	Hard drawn steel wire		kg	9	0	66	75
	6.34.3	Cold twisted bars		kg	9	0	60	69
	6.34.4	Hot rolled deformed bars		kg	9	0	60	69
	6.34.5	Hard drawn steel wire fabric		kg	7	0	67	74
	6.34.6	Thermo-Mechanically Treated bars of grade Fe-500D or more.		kg	9	0	60	69
6.35	Steel reinforcement for R.C.C. work ready to use "cut and bend" rebars of approved make from factory/workshop to construction site including placing in position and binding all complete upto plinth level.							
	6.35.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.		kg	5	0	57	63
6.36	Steel reinforcement for R.C.C. work ready to use "cut and bend" rebars of approved make from factory/workshop to construction site including placing in position and binding all complete above plinth level.							
	6.36.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.		kg	7	0	57	64
6.37	Providing and fixing parallel threaded couplers conforming to IS on “Reinforcement Couplers for Mechanical Splices of Bars for Concrete Reinforcement - Specification”, to reinforcement bars including threading, enlargement at connection by forging, protecting the prepared reinforcement bars and related operations as required to complete the works per direction of Engineer-in-Charge.							
	6.37.1	Coupler for 16 mm diameter reinforcement bar		each	17	0	34	51
	6.37.2	Coupler for 20 mm diameter reinforcement bar		each	23	0	45	67
	6.37.3	Coupler for 25 mm diameter reinforcement bar		each	30	0	79	109
	6.37.4	Coupler for 28 mm diameter reinforcement bar		each	34	0	91	126
	6.37.5	Coupler for 32 mm diameter reinforcement bar		each	37	0	126	162
	K. CEMENT CONCRETE PRECAST							
6.38	Providing and fixing up to floor four level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete.							
	6.38.1	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20mm nominal size)		cum	1369	0	3902	5271
6.39	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), including the cost of required centering, shuttering complete.							
	6.39.1	1:1½:3 (1 Cement: 1½ coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).		cum	1131	0	3827	4958
6.40	Providing and fixing up to floor four level precast cement concrete solid block, including hoisting and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering complete :							
	6.40.1	1:1½:3 (1 Cement: 1½ coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).		cum	4370	0	4143	8513

6.41	Providing and fixing up to floor four level precast cement concrete hollow block, including hoisting and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering complete.							
	6.41.1	1:1½:3 (1 Cement: 1½ coarse sand (zone-III): 3 graded stone aggregate 20 mm nominal size) .		cum	3498	0	2298	5796
6.42	Precasting and placing in position 125 mm dia Bollards 600 mm high of required shape including providing M.S. Pipe Sleeve 50 mm dia 300 mm long in the Bollard and M.S. Pipes 40 mm dia and 450mm long with 150x150x6mm M.S. plate welded at bottom and embedded 150mm in cement concrete 1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size), including necessary excavation of size 250x250x450mm deep for the same in bitumen/concrete pavement at specified spacing.			each	128	0	361	490
	L. PRE-CAST RCC							
6.43	Providing, hoisting and fixing above plinth level up to floor four level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like, including the cost of required centering, shuttering but , excluding cost of reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	1548	0	3902	5450
6.44	Providing, hoisting and fixing up to floor four level precast reinforced cement concrete in small lintels not exceeding 1.5m clear span up to floor four level, including the cost of required centering, shuttering but , excluding the cost of reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	2413	0	4393	6807
6.45	Providing, hoisting and fixing above plinth level up to floor four level precast reinforced cement concrete in mouldings as in cornices, windows sills etc, including setting in cement mortar 1:3 (1 cement : 3 coarse sand) cost of required centering, shuttering but, excluding the cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	3605	0	5029	8634
6.46	Providing, hoisting and fixing above plinth level up to floor four level precast reinforced cement concrete in lintels, beams and bressumers, including setting in cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering and shuttering but , excluding the cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size)			cum	2202	0	4123	6325
6.47	Providing, hoisting and fixing above plinth level up to floor four level precast reinforced cement concrete in shelves, including setting in cement mortar 1:3 (1cement : 3 coarse sand), cost of required centering, shuttering and finishing with neat cement punning on exposed surfaces but , excluding the cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	4027	0	4767	8794
6.48	Providing, hoisting and fixing above plinth level up to floor four level precast reinforced cement concrete in vertical & horizontal fins, individually or forming box louvers, setting in cement mortar 1:2 (1 cement : 2 coarse sand), including the cost of required centering, shuttering but , excluding the cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).			cum	1765	0	3921	5686
6.49	Providing precast cement concrete Jali 1:2:4 (1 cement : 2 coarse sand(zone-III) : 4 graded stone aggregate 6mm nominal size), reinforced with 1.6 mm dia mild steel wire, including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete, excluding plastering of the jambs, sills and soffits.							
	6.49.1	50 mm thick		sqm	494	0	463	957
	6.49.2	40 mm thick		sqm	450	0	406	856
	6.49.3	25 mm thick		sqm	432	0	320	752
6.50	Providing and fixing in position factory made precast RCC M-40 fixing with hold fast embedded in 1:3:6 concrete block for doors and windows frames having excellent smooth finish as per IS: 6523 with reinforcement of 3 Nos., 6 mm dia main bars tied with 3 mm M.S stirrups placed @ 200 mm C/C and 6 numbers high strength polymer blocks of required size for fixing hinges including providing 6 no specially designed M.S. galvanised sleeves for accomodating 6 mm dia fully threaded bolts for fixing hold fast on vertical members, providing suitable arrangement for recieving sliding door bolts and tower bolt etc. all complete, as per the direction of Engineer-in-charge. The frame shall be measured in running metre correct to two places of decimal.							
	6.50.1	Door frame 125 mmx 60 mm		metre	177	6	242	424
	6.50.2	Door frame 100 mmx 60 mm		metre	166	5	213	383
	6.50.3	Door frame 85 mmx60 mm		metre	160	4	198	362
6.51	Providing and placing in position precast reinforced cement concrete waffle units, square or rectangular, as per design and shape for floors and roofs in 1:1½:3 (1 Cement : 1½ coarse sand (zone-III) : 3 graded stone aggregate 10 mm nominal size), including flush or deep ruled pointing at joints in Cement mortar 1:2 (1 Cement : 2 Fine sand), making necessary holes of required sizes for carrying through service lines etc., providing steel hooks for lifting etc, form work in precasting, handling, hoisting, centering and erection complete for all floor levels but, excluding the cost of reinforcement.			cum	7322	0	6386	13708
	M. ENCASING ROLLED STEEL SECTION							
6.52	Encasing rolled steel sections, in beams and columns, with cement concrete 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size) including centering and shuttering complete but , excluding cost of reinforcement.			cum	3389	0	4467	7856
6.53	Encasing rolled steel section in grillages with cement concrete 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III): 3 graded stone aggregate 20 mm nominal size) including centering and shuttering but, excluding cost of expanded metal and hangers.			cum	1527	0	3762	5290
6.54	Extra for providing and fixing expanded metal mesh of size 20x60 mm and strands 3.25 mm wide 1.6 mm thick weighing 3.64 kg per sqm for encasing of rolled steel sections in beams, columns and grillages, excluding cost of hangers.			sqm	21	0	338	359
	N. EXPANSION JOINTS							
6.55	Providing and fixing in position copper plate as per design for expansion joints.			kg	10	0	602	612
6.56	Providing and filling in position, blown bitumen in expansion joints.			cum	5243	0	42178	47422
6.57	Providing and filling in position bitumen mix filler of proportion 80 kg. of hot bitumen, 1 kg. of cement and 0.25 cubic metre of coarse sand for expansion joints.			cum	5243	0	11090	16334
6.58	Providing and fixing in position 12mm thick bitumen impregnated fiber board conforming to IS: 1838, including cost of primer, sealing compound Grade-A in expansion joints.			per cm depth per	24	0	430	455
6.59	Providing and fixing sheet covering over expansion joints with iron screws as per design.							
	6.59.1	Non-asbestos fibre cement board 6 mm thick as per IS: 14862.						
		6.59.1.1	150mm wide	metre	55	0	48	102
		6.59.1.2	200mm wide	metre	74	0	64	138
	6.59.2	Aluminium fluted strips 3.15 mm thick.						
		6.59.2.1	150 mm wide	metre	56	0	321	377
		6.59.2.2	200 mm wide	metre	75	0	426	501
	6.59.3	Cement bonded wood particle board 6mm thick as per IS : 14276						
		6.59.3.1	150 mm wide	metre	55	0	45	99
		6.59.3.2	200 mm wide	metre	74	0	60	134
6.60	Providing and fixing in position Stainless steel Grade 304 plate-1.0 mm thick as per design for expansion joints.							
	6.60.1	200 mm wide.		metre	56	0	506	562
	6.60.2	300 mm wide.		metre	56	0	757	814

6.61	Providing and fixing of expansion joint system related with floor location as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical localtion in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with a universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self - centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in-Charge. (Material shall confirm to ASTM 6063).						
	6.61.1	Floor Joint of 100 mm gap	metre	135	0	4364	4499
	6.61.2	Floor Joint of 150 mm gap	metre	135	0	5434	5570
	6.61.3	Floor Joint of 200 mm gap	metre	135	0	7076	7211
6.62	Providing and fixing of expansion joint system related with wall joint (internal/external) location as per drawings and direction of Engineer-In- Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221- 02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063).						
	6.62.1	Wall Joint of 100 mm gap	metre	135	0	3565	3700
	6.62.2	Wall Joint of 150 mm gap	metre	135	0	4064	4199
	6.62.3	Wall Joint of 200 mm gap	metre	135	0	4792	4927
6.63	Providing and fixing of expansion joint system of approved make and manufactures for various roof locations as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering arragement support plates asper ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resists damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement. (Material shall confirm to ASTM 6063).						
	6.63.1	Roof Joint of 100 mm gap	metre	135	0	4021	4156
	6.63.2	Roof Joint of 150 mm gap	metre	135	0	4521	4656
	6.63.3	Roof Joint of 200 mm gap	metre	135	0	5477	5612
	O. MISCELLANEOUS						
6.64	Extra for laying concrete in or under water and/or liquid mud including cost of pumping or bailing out water and removing slush		cum per	461	0	0	461
6.65	Extra for laying concrete in or under foul positions.		cum	153	0	0	153
6.66	Extra for laying reinforced cement concrete in or under water and/ or liquid mud, including cost of pumping or bailing out water and removing slush etc., complete.		cum	461	0	0	461
	Note:- The quantity will be calculated by multiplying the depth measured from the subsoil water level up to the centre of gravity of the R.C.C. under subsoil water with the quantity of R.C.C. in cubic metre executed under subsoil water. The depth of centre of gravity shall be reckoned correct to 0.1 m. 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored. No extra payment shall be made for placing reinforcement or centering & shuttering under sub - soil water conditions.						
6.67	Extra for laying reinforced cement concrete in or under foul positions.		cum	183	0	0	183
6.68	Constructing cast-in situ RCC diaphragm wall by providing and laying machine batched, machine mixed, self compacting, ready mix reinforced cement concrete, tramie controlled, of M 30 grade using minimum 400 kg cement per cum of concrete including providing and mixing required admixtures in recommended proportions as per IS : 9103, as approved by the Engineer-in-charge, for achieving 150- 200mm slump, for diaphragm wall having thickness as per approved structural design not exceeding 600 mm, in pannels of required depth and lengths as per approved drawing, including constructing necessary guide walls as required and as specified including boring in all kinds of soils and rocks, including working in or under water and / or liquid mud, in foul conditions and pumping or bailing out of water and removing slush, including disposal of earth/ rock / slush etc. for all leads and all lifts, including preparing, providing and re-circulating bentonite slurry in the trench as and when required for all depths, including agitating bentonite slurry during trenching etc., providing and fixing stop ends or form tubes, upto the required depth of diaphragm wall including extracting the same after casting, including chipping off the bentonite adulterated concrete or unsound concrete up to the cut off level for obtaining the sound concrete, dressing undulations on the exposed face of diaphragm wall after excavation by chipping / chiseling etc. including filling the depression/ cavities with sound concrete etc. complete and as directed by the Engineer-in-charge, including providing recess for bearing plates and fixing insert boxes for inclined rock anchors etc. complete as per the specifications and approved design and as directed by the Engineer-in-charge, but excluding the cost of reinforcement and inserts. (rates include cost of all inputs of labour, material and T & P, cost of handling, lifting & placing in position the reinforcement cage in the trench, including the additional cost of welding the reinforcement bars etc. involved in the work and all other incidental expenditure for completing the work as directed by the Engineer-in-charge), However, the actual area of the diaphragm wall, correct to two places of decimal, from design bottom level to the design cut off level (including portion anchored in the rock upto the design bottom level) only shall be measured for payment.		cum	2140	3284	6215	11639
	Note: Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix and for under water concreting.						

CHAPTER NO. 7

BRICK WORK
AND
STONE MASONRY

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CHAPTER 7.0 - BRICK WORK AND STONE MASONRY

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1.	IS 269	Specification for 33 grade ordinary Portland cement
2.	IS 383	Specification for coarse and fine aggregate from natural source for concrete.
3.	IS 650	Specification for standard sand for testing of cement
4.	IS 1269	Specification for 53 grade ordinary Portland cement
5.	IS 1344	Specification for calcined clay Pozzolana.
6.	IS 1489	Specification for Portland pozzolana cement
7.	IS 1542	Specification for sand for plaster
8.	IS 2116	Specification for sand for masonry mortar.
9.	IS 2250	Code of practice for preparation and use of masonry Mortar.
10.	IS 3812 (Part I)	Specification for fly ash for use as pozzolana in cement mortar and concrete
11.	IS 3812 (Part II)	Specification for fly ash for use as admixture in cement mortar and concrete
12.	IS 8041	Rapid hardening Portland cement.
13.	IS 8042	Specification for white cement
14.	IS 8112	Specification for 43 grade ordinary Portland cement
15.	IS 1077	Common burnt clay building bricks.
16.	IS 1200 (Part 3)	Method of measurements of brick works
17.	IS 2212	Code of practice for brick work. (1st Revision)
18.	IS 2222	Specification for burnt clay perforated building bricks.
19.	IS 3495	Method of test for burnt clay building bricks.
20.	IS 3812	Specification for fly ash for use as pozzolana and admixture.
21.	IS 4885	Specification for sewer brick
22.	IS 5454	Methods of sampling of clay building bricks.
23.	IS 12894	Pulverized fuel ash lime bricks specification.
24.	IS 13757	Specification of burnt clay fly ash bricks.
25.	IS 1121 - (Pt. I)	Methods of determination of properties and strengths of natural building stones (Part-I compressive strength).
26.	IS 1122	Methods for determination of specific gravity of natural building stone.
27.	IS 1123	Methods of identification of natural building stones.
28.	IS 1128	Specification for Lime stone (Slab & Tiles).
29.	IS 1129	Recommendations for dressing of natural building stones.
30.	IS 1200 (Pt. IV)	Methods of measurements of building and Civil engineering works stone Masonry.
31.	IS 1197 (Pt. I)	Code of practice for construction of rubble stone masonry.
32.	IS 1597 (Pt. II)	Code of practice for construction of ashlar stone masonry.
33.	IS 1805	Glossary of terms relating to stones, quarrying and dressing.
34.	IS 3620	Specification for latrite stone block for masonry.
35.	IS 3622	Sand stone (Slab & Tiles).

CHAPTER 7.0 - BRICK WORK AND STONE MASONRY

NOTES:

1. Items of masonry have been included with CM 1:4 and CM 1:6. Rates of mortars for other proportions have been mentioned vide item no. 3.1 to 3.19. For masonry items with mortars other than CM 1:4 and CM 1:6, difference in rate of mortars can be added or subtracted to arrive at the rate of masonry.

2. Rates above plinth level shall be same up to floor four level (3 storey height) for each storey height up to 3.50m or less. Rate shall be extra for floor five and above. Extra payment shall be made if storey height is more than 3.5m.

3. No extra payment shall be paid for mezzanine floor

4. Items of masonry in the basement above floor level shall be considered as masonry in superstructure.

5. Masonry items in foundation and plinth shall be between plinth level to -1.20 m below NGL.

6. Masonry in free standing wall up to a height of 0.90m above plinth level shall be measured under masonry in foundation and plinth.

6. Plinth level shall be considered as floor one level. Floor level of first slab above plinth shall be designated as floor two level and so on.

7. Unless specified particularly rates shall include handling of material up to 50m.

8. All type of masonry in sub-structure or superstructure shall be paid on the basis of actual quantities measured.

9. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

10. MORTARS

Desirable properties of mortars for use in masonry are: Workability, Water retentivity, Rate of stiffing, Strength, Resistance to rain penetration and Durability

MATERIALS

Water : Water used for mixing and curing shall be clean and free from injurious quantities of alkalies, acids, oils, salts, sugar, organic materials, vegetable growth or other substance that may be deleterious to bricks, stone, concrete or steel. potable water is generally considered satisfactory for mixing.

Cement: The cement used shall be any of the grade and the type selected should be appropriate for the intended use. Different types of cement shall not be mixed together.

Fine Aggregate: Aggregate most of which passes through 4.75 mm IS sieve is known as fine aggregate. Fine aggregate shall consist of natural sand, crushed stone sand, crushed gravel sand stone dust or marble dust, fly ash and broken brick (Burnt clay). The maximum quantity of silt in sand shall not exceed 8%.

(a) Coarse sand shall be either river sand or pit sand or a combination of the two. Badarpur sand available in Delhi generally falls in category of pit sand. Grading of sand shall conform to IS 2116 for use in Masonry work.

(b) Fine sand shall be either river sand or pit sand or a combination of the two. Grading of sand shall conform to IS 1542 for use in plaster work.

(c) Stone dust shall be obtained by crushing hard stones or gravel.

(d) Marble dust shall be obtained by crushing marble.

(e) Sand for Masonry Mortar and for Plaster shall consist of natural sand, crushed stone sand or crushed gravel sand or a combination of any of these

Broken Brick (Burnt Clay) Fine Aggregate: Broken Brick (Burnt Clay) Fine Aggregate, also known as Surkhi, shall be made by grinding well burnt (but not under or over burnt) broken bricks as specified in IS 3068-1986.

Fly Ash: Fly ash is finely divided residue resulting from the combustion of pulverized coal in boilers. The ash collected from the bottom of boilers is termed as bottom ash. The chemical properties of fly ash shall be as per IS 3812 (part 1 & 2) depending on the usage.

Grade of Masonry Mortar: The grade of masonry mortar will be defined by its compressive strength in N/mm^2 at the age of 28 days as determined by the standard procedure detailed in IS 2250.

Cement Mortar: This shall be prepared by mixing cement and sand with or without the addition of pozzolana in specified proportions. Proportioning on weight basis shall be preferred taking into account specific gravity of Fly Ash, sand and moisture content.

12. BRICK WORK

The arrangement of the bricks in successive courses to tie the brick work together both longitudinally and transversely. The arrangement is usually designed to ensure that no vertical joint of one course is exactly over the one in the next course above or below it, and there is greatest possible amount of lap.

Bricks used in the masonry may be of the following type.

The Common Burnt Clay Bricks shall conform to IS:1077 and *s*hall be hand moulded or machine moulded. They have a frog 100 mm in length 40 mm in width and 10 mm to 20 mm deep on one of its flat sides.

Fly Ash Lime Bricks (FALG Bricks)*:* The Fly Ash Lime Bricks (FALG Bricks) shall conform to IS 12894. The bricks shall be solid and with or without frog on one of its flat side. Fly ash shall conform to IS 3812. (This item will be operated only for load bearing structure up to 2 storey and for non-load bearing walls 23 cm thick for multi-storied buildings).

Clay Fly Ash Bricks: The clay fly ash bricks shall conform to IS 13757. The bricks shall have frog of 100 mm in length 40 mm width and 10 to 20 mm deep on one of its flat sides. Fly Ash shall conform to grade I or grade II of IS 3812.

Calcium Silicate Bricks: The bricks shall conform to IS 4139. The bricks shall be made of finely grounded sand siliceous rock and lime. In addition limited quantity of fly ash conforming to IS 3812 may be used in the mix.

Tile Brick: The bricks of 4 cm height shall be moulded without frogs.

Mechanized Autoclave Fly Ash Lime Brick: These bricks shall be machine moulded and prepared in plant by appropriate proportion of fly ash and lime. The brick shall have smooth rectangular faces with sharp corners and shall be uniform in shape and colour.

Dimensions: The brick may be modular or non-modular. Sizes for both types of bricks/tiles shall be as per Table-I. While use of modular bricks/tiles is recommended, non-modular (FPS) bricks/tiles can also be used where so specified. Non-modular bricks/tiles of sizes other than the sizes mentioned in Table-I below may also be used where specified.

TABLE-I

Type of Bricks/ Tiles	Nominal Size mm	Actual Size mm
Modular Bricks	200 × 100 × 100 mm	190 × 90 × 90 mm
Modular tile bricks	200 × 100 × 40 mm	190 × 90 × 40 mm
Non-modular tile bricks	229 × 114 × 44 mm	225 × 111 × 44 mm
Non-modular bricks	229 × 114 × 70 mm	225 × 111 × 70 mm

Classification: Bricks/Brick tiles shall be classified on the basis of their minimum compressive strength as given below:

TABLE-II

Class Designation	Average compressive strength			
	Not less than		Less than	
	N/mm2	(kgf/cm2)	N/mm2	(Kgf/cm2)
12.5 (125)	12.5	-125	15	150
10 (100)	10	-100	12.5	125
7.5 (75)	7.5	-75	10	100
5 (50)	5	-50	7.5	75
3.5 (35)	3.5	-35	5	50

Water Absorption: The average water absorption of bricks shall not be more than 20% by weight.

Sewer Bricks : Sewer bricks are intended for the lining of walls, roofs and floors of sewers used for ordinary sanitary (domestic) sewage. Sewer bricks shall conform to IS 4885.

Burnt Clay Perforated Building Bricks : The bricks shall be made of suitable clay and shall be thoroughly burnt. They shall have rectangular face with sharp straight edge at right angle, shall be of uniform colour and texture. These bricks generally should conform to IS 2222. The area of perforation shall be between 30% and 45% of the total area of the corresponding face of the bricks. These shall have a minimum average compressive strength of 7 N/ mm^2 on net area.

Classification: The brick work shall be classified according to the class designation of bricks used.

Laying: Bricks shall be laid in English Bond unless otherwise specified. For brick work in half brick wall, bricks shall be laid in stretcher bond. Half or cut bricks shall not be used except as closer where necessary to complete the bond. Header bond shall be used preferably in all courses in curved plan for ensuring better alignment. For half brick partition to be keyed into main walls, indents shall be left in the main walls. Top courses of all plinths, parapets, steps and top of walls below floor and roof slabs shall be laid with brick on edge.

Measurements: Brick work shall be measured in cubic metres unless otherwise specified and measured separately in the following stages:

(a) From foundation to floor one level (Plinth level)

(b) Plinth (floor one) level to floor two level

(c) Between two specified floor levels above floor two level

Note: (i) Brick work in parapet walls, mumty, lift machine room and water tanks constructed on the roof up to 1.2 m height above roof shall be measured together with the corresponding work of the floor next below..

HALF BRICK WORK: For Brick work in half brick walls the bricks shall be laid in stretcher bond. When the half brick work is to be reinforced, 2 Nos. M.S. bars of 6 mm dia., shall be embedded in every third course as given in the item (the dia of bars shall not exceed 8 mm). These shall be securely anchored at their end where the partitions end.

BRICK TILE WORK: The work shall be done in the same manner as as for brick masonry except that brick tile shall be used instead of bricks.

HONEY COMB BRICK WORK: The honeycomb brick work shall be done with specified class of brick, laid in specified mortar. All joints and edges shall be struck flush to give an even surface.

MOULDING, CORNICES AND CORBELLING: Mouldings and cornices shall be made with bricks as which shall be cut and dressed to the required shape as shown in the architectural drawings. Corbelling shall be brought roughly to shape by plastering with the specified mortar.

EXPOSED BRICK WORK:

Facing Bricks: These shall be thoroughly burnt and shall have plane rectangular faces with parallel sides and sharp straight right angled edges, shall have uniform colour and even texture. Unless otherwise specified, facing bricks shall be machine moulded only. As far as possible, total requirement of facing bricks for a work shall be arranged from the same kiln. Bricks with chipped edges and broken corners shall not be used. Facing bricks shall be of class designation 75 unless otherwise specified. Average compressive strength shall not be less than 7.5 N/mm^2

BRICK EDGING: The edging shall be of bricks of class specified in the item.

14. STONE MASONRY

Ashlar Masonry: Stone masonry using dressed square stone blocks of given dimensions having faces perpendicular to each other and laid in courses.

Block Masonry

Hollow (Open and Closed Cavity) Block: A concrete masonry unit with any one of the external dimension greater than the corresponding dimension of a brick and having one or more large holes or cavities which either pass through the block (open cavity) or do effectively pass through the block (closed cavity) and having the solid material between 50% and 75% of the total volume of the block calculated from the overall dimensions.

Solid Block: A concrete masonry unit with external dimensions greater than corresponding dimension of a brick and having solid material not less than 75% of the total volume of the block calculated from over all dimension.

Bond Stone (through Stone): Selected long stone used to hold a wall together transversely

Random: Random or irregular size and shapes.

Rubble Masonry: Masonry built of stones either irregular in shapes as quarried or squared and only hammer dressed and having comparatively thick joints. As far as possible, stones for rubble masonry shall be angular.

Hammer Dressed Surface: A hammer dressed stone shall have no sharp and irregular corners and shall have a comparatively even surface so as to fit well in masonry. The bushing from the general wall face shall not be more than 40 mm on exposed face and 10 mm on faces to be plastered.

RANDOM RUBBLE STONE MASONRY

Material

Stone: The stone shall be of the type specified such as granite, trap, limestone, sand stone, quartzite, etc. and shall be obtained from the quarries Stone shall be hard, sound, durable and free from weathering decay and defects like cavities, cracks, flaws, sand holes, injurious veins, patches of loose or soft materials and other similar defects that may adversely affect its strength and appearance. As far as possible stones shall be of uniform colour, quality or texture. Stones with round surface shall not be used.

The compressive strength of common types of stones shall be as per **Table-III**

TABLE-III

Type of stone	Maximum Water Absorption Percentage by weight	Minimum Compressive Strength kg./sq.cm.
Granite	0.5	1000
Basalt	0.5	400
Lime stone (Slab & Tiles)	0.15	200
Sand stone (Slab & Tiles)	2.5	300
Marble	0.4	500
Quartzite	0.4	800
Laterite (Block)	12	35

Size of Stones: Unless otherwise indicated, the length of stones for stone masonry shall not exceed three times the height and the breadth on base shall not be greater than three-fourth of the thickness of wall, or not less than 150 mm. The height of stone for rubble masonry may be up to 300 mm.

Uncoursed random rubble masonry shall be constructed with stones of sizes and shapes picked up at random from the stones brought from the approved quarry. Stones having sharp corners or round surfaces shall, however, not be used.

Random rubble masonry brought to the course is similar to uncoursed random rubble masonry except that the courses are roughly levelled at intervals varying from 300 mm to 900 mm in height according to the size of stones used.

Dressing: Each stone shall be hammer dressed on the face, the sides and the beds. Hammer dressing shall enable the stones to be laid close to neighbouring stones such that the bushing in the face shall not project more than 40 mm on the exposed face.

Thickness of Joints: The joint thickness shall not exceed 30 mm at any point on the face.

Laying: The masonry work in wall shall be carried up true to plumb or to specified batter.

Raking out joints: All the joints on the faces to be pointed or plastered shall be racked out with racking tool to a depth of 20mm while the mortar is still green.

Bond Stones: Though bond stones shall be provided in walls upto 600 mm thickness, a set of two or more bond stones overlapping each other by at least 150 mm shall be provided in a line from face to back. At least one bond stone or a set of bond stones shall be provided at 1.5 m to 1.8 m apart clear in every course.

Joints: Stones shall be so laid that all joints are fully packed with mortar and chips. Face joints shall not be more than 20 mm thick.

Square or Rectangular Pillars: These shall be measured as walls, but extra payment shall be allowed for stone work in square or rectangular pillars over the rate for stone work in walls.

Circular Pillars (Columns): These shall be measured as per actual dimensions, but extra payment shall be allowed for stone work in circular pillars over the rate for stone work in walls.

Curved Masonry: Stone masonry curved on plan to a mean radius exceeding 6 metres shall be measured and included with general stone work. Stone work circular on plan to a mean radius not exceeding 6 metres shall be measured separately and shall include all cuttings and waste and templates. It shall be measured as the mean length of the wall.

COURSED RUBBLE MASONRY

Dressing: Face stones shall be hammer dressed on all beds, and joints so as to give them approximately rectangular block shape. These shall be squared on all joints and beds. The bed joint shall be rough chisel dressed for at least 80 mm back from the face, and side joints for at least 40 mm such that no portion of the dressed surface is more than 6 mm from a straight edge placed on it. The remaining unexposed portion of the stone shall not project beyond the surface of bed and side joint. The bushing on the face shall not project more than 40 mm as an exposed face and 10 mm on a face to be plastered. The hammer dressed stone shall also have a rough tooling for minimum width of 25 mm along the four edges of the face of the stone, when stone work is exposed.

Laying: All courses shall be laid truly horizontal and all vertical joints shall be truly vertical. The height of each course shall not be less than 15 cm nor more than 30 cm.

Joints: All bed joints shall be horizontal and all side joints vertical. All joints shall be fully packed with mortar, face joints shall not be more than one cm thick.

PLAIN ASHLAR MASONRY

Stone shall be of the type specified. It shall be hard, sound, durable and tough, free from cracks, decay and weathering and defects like cavities, cracks, flaws, sand holes, veins, patches of soft or loose materials etc. before starting the work, the contractor shall get the stones approved by Engineer-in-Charge.

Red Sand Stone & White Sand Stone Ashlar Masonry

The stone shall be red or white as specified in the description of item. The stone shall be hard, sound, tough, free from cracks, decay & weathering. In case of red sand stone, white patches or streaks shall not be allowed. Before starting the work the contractor shall get samples of stone approved.

STONE CHAJJA: Stone slabs shall be hard, sound and durable. These shall be chisel dressed on all faces which are exposed to view and rough dressed at other surface. Angles shall be true and edge lines straight. The length of stone slabs in chajja shall not be less than 60 cm unless otherwise specified.

SHELVES, COPING, PLAIN, CORNICES, STRING COURSES ETC.

Stone shall be of uniform colour and texture and of the kind as stipulated. The exposed faces and sides of shelves shall be chisel dressed such that the dressed surface shall not be more than 3 mm from a straight edge placed on it. All visible angles and edges shall be free from chippings. The surfaces to be burried in the masonry shall be rough dressed.

STONE JALI

Dressing and Fixing: The stone shall be cut into slabs of required thickness so as to make jali of the specified thickness. The jali shall be cut as per pattern shown on the drawings. All exposed faces shall be fine tooled to a uniform and smooth finish. Fixing shall be done with the adjoining work in grooves, rebates etc., to adjoining Stone work/Brick work/RCC as shown in the drawing.

	CHAPTER 7.0 - BRICKWORK AND STONE MASONRY						
	A. MORTARS						
7.1	Cement mortar 1:1 (1 cement : 1 fine sand)		cum	321	0	5852	6173
7.2	Cement mortar 1:2 (1 cement : 2 fine sand).		cum	321	0	4379	4700
7.3	Cement mortar 1:3 (1 cement : 3 fine sand).		cum	321	0	3644	3965
7.4	Cement mortar 1:4 (1 cement : 4 fine sand).		cum	321	0	2990	3310
7.5	Cement mortar 1:5 (1 cement : 5 fine sand).		cum	321	0	2637	2958
7.6	Cement mortar 1:6 (1 cement : 6 fine sand).		cum	321	0	2335	2656
7.7	Cement mortar 1:2 (1 cement : 2 coarse sand).		cum	321	0	4379	4700
7.8	Cement mortar 1:3 (1 cement : 3 coarse sand).		cum	321	0	3644	3965
7.9	Cement mortar 1:4 (1 cement : 4 coarse sand).		cum	321	0	2990	3310
7.10	Cement mortar 1:5 (1 cement : 5 coarse sand).		cum	321	0	2637	2958
7.11	Cement mortar 1:6 (1 cement : 6 coarse sand).		cum	321	0	2335	2656
7.12	Cement mortar 1:2 (1 cement : 2 stone dust).		cum	321	0	4474	4795
7.13	Cement mortar 1:2 (1 cement : 2 marble dust).		cum	321	0	4598	4918
7.14	Cement mortar 1:5 (1 cement : 5 marble dust).		cum	321	0	2883	3204
7.15	White cement mortar 1:2 (1 white cement : 2 marble dust).		cum	321	0	8855	9175
7.16	White cement mortar 1:3 (1 white cement : 3 marble dust).		cum	321	0	7083	7404
7.17	White cement mortar 1:5 (1 white cement : 5 marble dust).		cum	321	0	4824	5145
7.18	Mud mortar		cum	342	0	178	521
7.19	Mortar in lime, surkhi (50% red and 50% light yellow) and marble dust 1:1.5:0.5		cum	494	0	2113	2607
	B. BRICK WORK						
7.20	Brick work with common burnt clay modular bricks of class designation 7.5 in foundation and plinth in:						
	7.20.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	688	0	4581	5269
	7.20.2	Cement Mortar 1:6 (1 cement : 6 coarse sand).	cum	688	0	4417	5104
7.21	Brick work with common burnt clay non-modular bricks of class designation 7.5 in foundation and plinth in:						
	7.21.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	810	0	4739	5549
	7.21.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	810	0	4552	5362
7.22	Brick work with common burnt clay non-modular bricks of class designation 7.5 in superstructure above plinth level up to floor IV level in all shapes and sizes in :						
	7.22.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	888	0	4739	5627
	7.22.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1027	0	4552	5579
7.23	Brick work with common burnt clay machine moulded perforated bricks of class designation 12.5 conforming to IS: 2222 in superstructure above plinth level up to floor four level in cement mortar 1:6 (1 cement : 6 coarse sand) :						
	7.23.1	With non-modular bricks	cum	1027	0	4552	5579
	7.23.2	With Modular bricks	cum	899	0	4417	5315
7.24	Extra for forming cavity 5 cm to 11.5 cm wide in cavity walls with necessary weep and vent holes including use of cores and cost of providing and fixing bitumastic coated M .S. ties 300 mm long of 25x3 mm section at not less than 3 ties per sqm as per approved design.		sqm	75	0	31	106
7.25	Providing half brick masonry with common burnt clay non-modular bricks of class designation 7.5 in cement mortar 1:3 (1 Cement : 3 coarse sand) in superstructure for closing cavity 5 to 7.5 cm wide in cavity wall complete with 10cm / 11.4 cm wide bitumen felt type 3 grade 1.		metre	46	0	161	207
7.26	Brick work 7 cm thick with common burnt clay non-modular brick of class designation 7.5 in cement mortar 1:3 (1 cement : 3 coarse sand) in superstructure above plinth level and upto floor four level.		sqm	130	0	372	501
	HALF BRICK MASONRY						
7.27	Half brick masonry with common burnt clay non-modular bricks of class designation 7.5 in foundations and plinth in :						
	7.27.1	Cement mortar 1:3 (1 cement : 3 coarse sand)	sqm	116	0	562	677
	7.27.2	cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	116	0	541	657
7.28	Half brick masonry with common burnt clay non-modular bricks of class designation 7.5 in superstructure above plinth level up to floor IV level.						
	7.28.1	Cement mortar 1:3 (1 cement :3 coarse sand)	sqm	166	0	562	728
	7.28.2	Cement mortar 1:4 (1 cement :4 coarse sand)	sqm	156	0	541	697
7.29	Extra for half brick masonry in superstructure, above floor IV level for every three floors or part thereof by mechanical means.		sqm	18	0	0	18
7.30	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry.		sqm	0	0	74	74
7.31	Half brick masonry with non modular fly ash bricks of class designation 10, conformingio IS :12894, in super structure above plinth and upto floor IV level.						
	7.31.1	Cement mortar 1 : 3 (1 cement : 3 coarse sand)	sqm	140	0	444	584
	7.31.2	Cement mortar 1 : 4 (1 cement : 4 coarse sand)	sqm	140	0	424	563
	BRICK TILE WORK						
7.32	Tile brick masonry with common burnt clay non-modular tile bricks of class designation 10 in foundation and plinth in:						
	7.32.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1241	0	7376	8617
	7.32.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1241	0	7077	8318
7.33	Tile brick masonry with common burnt clay machine moulded tile bricks of class designation 12.5 conforming to IS : 2690 (Part I) in foundation and plinth in cement mortar 1:6 (1 cement : 6 coarse sand).		cum	1241	0	7077	8318
7.34	Tile brick masonry with common burnt clay non-modular tile bricks of class designation 10 in superstructure above plinth level up to floor IV level in cement mortar 1:6 (1 cement : 6 coarse sand).		cum	1747	0	7077	8824
7.35	Tile brick masonry work 5 cm thick with common burnt clay non-modular tile bricks of class designation 10 in cement mortar 1:3 (1 cement : 3 coarse sand) in superstructure above plinth and upto floor four level.		sqm	149	0	354	504
7.36	Tile brick masonry with common burnt clay non-modular tile bricks of class designation 10 in plain arch work in superstructure above plinth and upto floor four level in cement mortar 1:4 (1 cement : 4 coarse sand) including centering and shuttering complete.		cum	2962	0	8231	11193
7.37	Tile brick masonry with common burnt clay non-modular tile bricks of class designation 10 in gauged arch work in superstructure above plinth and upto floor four level in cement mortar 1:4 (1 cement : 4 coarse sand) including centering and shuttering complete.		cum	4099	0	8339	12438
	HONEY COMB WORK						
7.38	Honey-comb brick work 10 / 11.4 cm thick with common burnt clay bricks of class designation 7.5 in super structure above plinth level upto floor IV level with cement mortar 1:4 (1 cement : 4 coarse sand).		sqm	61	0	343	404
	EXPOSED BRICK WALL						
7.39	Brick work with common burnt clay selected non-modular bricks of class designation 7.5 in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand)						
	7.39.1	From ground level upto plinth level	cum	947	0	4561	5508
	7.39.2	Above plinth level upto floor IV level	cum	1180	0	4561	5742

7.40	Brick work with common burnt clay machine moulded non-modular bricks of class designation 12.5 in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).						
	7.40.1	From ground level upto plinth level	cum	810	0	4561	5371
	7.40.2	Above plinth level upto floor IV level	cum	997	0	4561	5558
7.41	Brick work with common burnt clay modular bricks of class designation 7.5 in exposed brick work including making horizontal and vertical grooves 10mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).						
	7.41.1	From ground level upto plinth level	cum	688	0	4427	5115
	7.41.2	Above plinth level upto floor IV level	cum	887	0	4427	5314
7.42	Brick work with common burnt clay machine moulded modular bricks of class designation 12.5 in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).						
	7.42.1	From ground level upto plinth level	cum	688	0	4426	5114
	7.42.2	Above plinth level upto floor IV level	cum	904	0	4426	5330
7.43	Brick work with common burnt clay machine moulded perforated non-modular bricks of class designation 12.5 conforming IS : 2222 in exposed brick work including making horizontal and vertical grooves 10mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).						
	7.43.1	From ground level upto plinth level	cum	810	0	4561	5371
	7.43.2	Above plinth level upto floor IV level	cum	1027	0	4561	5588
7.44	Brick work with common burnt clay machine moulded perforated modular bricks of class designation 12.5 conforming to IS : 2222 in exposed brick work including making horizontal and vertical grooves 10 mm wide 12mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).						
	7.44.1	From ground level upto plinth level	cum	688	0	4426	5114
	7.44.2	Above plinth level upto floor IV level	cum	904	0	4426	5330
7.45	Brick work with modular calcium silicate bricks machine moulded conforming to IS:4139, class designation 10 average compressive strength in super structure above plinth level up to floor IV level in :						
	7.45.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1016	0	3914	4930
	7.45.2	Cement mortar 1:6 (1 cement : 6 Coarse sand)	cum	948	0	3750	4698
7.46	Brick work with clay flyash non-modular brick of class designation 7.5 in superstructure above plinth level up to floor four level in						
	7.46.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1017	0	3836	4853
	7.46.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1017	0	3649	4666
7.47	Brick work with non modular fly ash bricks conforming to IS:12894, class designation 10 average compressive strength in super structure above plinth level up to floor IV level in :						
	7.47.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1016	0	3571	4587
	7.47.2	Cement mortar 1:6 (1 cement : 6 Coarse sand)	cum	1016	0	3407	4423
7.48	Brick work with modular extruded brunt fly ash clay sewer bricks (Conforming to IS: 4885) in cement mortar 1:4 (1 cement : 4 coarse sand) in foundation and plinth :						
	7.48.1	Cement Mortar 1:4 (1 cement : 4 coarse sand)	cum	688	0	3914	4602
7.49	Brick work with modular extruded brunt fly ash clay sewer bricks (conforming to IS : 4885) in arches in foundation and plinth in cement mortar 1:3 (1 cement : 3 fine sand).		cum	2191	0	5214	7405
7.50	Providing and laying autoclaved aerated cement blocks masonry with 100 mm thick AAC blocks in super structure above plinth level up to floor IV level in cement mortar 1:4 (1 cement : 4 coarse sand). The rate includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at every third course of masonry work.		cum	887	0	4270	5157
7.51	Providing and laying autoclaved aerated cement blocks masonry with 150mm/230mm/300 mm thick AAC blocks in super structure above plinth level up to floor IV level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge. (The payment of RCC band and reinforcement shall be made for seperately).		cum	637	0	3371	4008
7.52	Brick work in plain arches in superstructure above plinth level and upto floor four level including centering and shuttering complete for span up to 6 metres with common burnt clay non-modular bricks of class designation 7.5 in cement mortar 1:3 (1		cum	2482	0	5950	8433
7.53	Brick work in gauged arches in superstructure above plinth level and upto floor four level in cement mortar 1:3 (1 cement : 3 coarse sand) including centering and shuttering complete, for span up to 6 meters with common burnt clay non-modular bricks of class designation 7.5.		cum	3514	0	6296	9810
7.54	Extra for additional cost of centering for arches exceeding 6m span including all shuttering, bolting, wedging and removal (Area of the soffit to be measured).		sqm	59	0	374	433
	MISCELLANEOUS BRICKWORK ITEMS						
7.55	Brick edging 7cm wide 11.4 cm deep to plinth protection with common burnt clay non-modular bricks of class designation 7.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand).		metre	11	0	37	48
7.56	Dressed or moulded three brick cornice laid in cement sand mortar 1:4 including 12 mm thick cement plaster 1:4 or pointing, as required.		metre	217	0	175	392
7.57	Dressed or moulded two brick cornice laid in cement sand mortar 1:4 including 12 mm thick cement plaster 1:4 or pointing, as required.		metre	134	0	110	244
7.58	Dressed or moulded one brick cornice laid in cement sand mortar 1:4 including 12 mm thick cement plaster 1:4 or pointing, as required.		metre	65	0	37	102
7.59	Extra for making tapered surface of brick masonry.		sqm	207	0	142	349
7.60	Dressing, Chamfering of bricks to required shape in masonry work		100 No.	969	0	0	969
7.61	Maroo-corners making from first class bricks, and fixing in position, with cement mortar 1:4		each	125	0	55	180
7.62	Replacing Kallar eaten bricks		each	14	0	15	29
7.63	Labour for brick-work laid dry in walls		cum	362	0	0	362
7.64	Extra for specially moulded radiated work in arches of egg-shaped sewer, circular barrels and similar drainage works excluding cost of centring moulds		cum	379	0	0	379
7.65	Extra for specially moulded brick work in circular work such as wells, shafts, circular sumps, pumps chambers, etc. in which specially moulded or cut-bricks have to be used; but for which no centring or supports are required upto 4.5 metres internal diameter.		cum	257	0	0	257
7.66	Chiselling sides of head regulators and other brick works to increase gullet width		sqm	237	0	0	237
7.67	Fire brick work in lining of fire places flues, etc. (excepting chimney shafts)		cum	2011	0	2705	4716
7.68	Providing 75mm first class brick drip course at junction of roof and walls laid in cement sand mortar 1:4 including dressing of bricks.		metre	50	0	82	132
7.69	Providing first class brick-on-edge drip course at the junction of roof and walls, laid in cement sand mortar 1: 4 including dressing of bricks.		metre	75	0	123	199
7.70	Extra for bailing / pumping out standing water of pond caused by springs, sub soil water, canal or river seepage and broken water mains or drains except rain water collected in the trenches or foundations before laying brick work.		kilolitre	0	26	0	26
7.71	Extra for laying brick work in or under water and/or liquid mud including cost of pumping or bailing out water and removing slush etc. complete.		cum per metre	461	0	0	461

	NOTE :- The quantity will be calculated by multiplying the depth measured from sub - soil water level up to the centre of gravity of brick work under sub - soil water with the quantity of brick work in cum executed under the sub - soil water. The depth of centre of gravity shall be reckoned correct to 0.1 m, 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored.							
7.72	Extra for laying brick work in or under foul position.				cum	153	0	0	153
	C. STONE MASONRY								
	ASHLAR MASONRY								
7.73	Stone work in plain ashlar in super structure upto floor four level in cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade :								
	7.73.1	One face dressed							
		7.73.1.1	Red sand stone		cum	14782	0	12931	27713
	7.73.2	Both face dressed							
		7.73.2.1	Red sand stone		cum	23649	0	12931	36580
7.74	Stone work plain ashlar in arches in super structure upto floor IV level in cement mortar 1:3 (1 cement : 3 coarse sand) including centering, shuttering and pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.								
	7.74.1	One face dressed							
		7.74.1.1	Red sand stone		cum	14782	0	14529	29311
	7.74.2	Both face dressed							
		7.74.2.1	Red sand stone		cum	23649	0	14529	38179
7.75	Stone work plain ashlar in domes , in super structure upto floor IV level in cement mortar 1:3 (1 cement : 3 coarse sand) including centering, shuttering and pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.								
	7.75.1	One face dressed							
		7.75.1.1	Red sand stone		cum	28157	0	16014	44171
	7.75.2	Both face dressed							
		7.75.2.1	Red sand stone		cum	50400	0	16014	66413
7.76	Stone work ashlar punched (ordinary) in superstructure upto floor four level in cement mortar 1:6 (1 white cement : 6 coarse sand) including pointing with cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.								
	7.76.1	One face dressed							
		7.76.1.1	Red sand stone		cum	13408	0	12931	26338
	7.76.2	Both faced punched							
		7.76.2.1	Red sand stone		cum	20901	0	12931	33831
7.77	Extra for plain ashlar or ashlar punched in :								
	7.77.1	Square or rectangular pillars			cum	685	0	0	685
7.78	Extra for stone work; plain ashlar or ashlar punched curved on plan with a mean radius not exceeding 6 m.				cum	457	0	0	457
7.79	Extra for additional cost of centering for arches exceeding 6m span including all strutting, bolting, wedging etc. and removal (area of soffit to be measured).				sqm	59	0	374	433
	SUNK, MOULDED, CARVED ASHLAR MASONRY								
7.80	Stone work ashlar sunk or moulded or sunk and moulded upto floor four level in cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade :								
	7.80.1	Red sand stone			cum	24486	0	13502	37987
7.81	Extra for stone work ashlar sunk or moulded or sunk and moulded or carved in :								
	7.81.1	Triangular or Square or rectangular pillars			cum	914	0	0	914
	7.81.2	Circular or polygonal pillars			cum	2512	0	0	2512
7.82	Extra for stone work ashlar sunk or moulded in cornices.				per metre	121	0	0	121
	RANDOM RUBBLE MASONRY								
7.83	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.83.1	Cement mortar 1:6 (1 cement : 6 coarse sand)			cum	1283	0	2701	3984
7.84	Random rubble masonry with hard stone in superstructure above plinth level and upto floor four level, including leveling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) at window sills, ceiling level and the like.								
	7.84.1	Cement mortar 1:6 (1 cement : 6 coarse sand)			cum	1581	0	2701	4282
7.85	Extra for random rubble masonry with hard stone in :								
	7.85.1	Square or rectangular pillars			cum	332	0	0	332
	7.85.2	Circular pillars			cum	747	0	406	1152
7.86	Extra for random rubble masonry with hard stone curved on plan for a mean radius not exceeding 6 m.				cum	234	0	140	374
	COURSED RUBBLE MASONRY								
7.87	Coursed rubble masonry (first sort) with hard stone in foundation and plinth with :								
	7.87.1	Cement mortar 1:6 (1 cement : 6 coarse sand)			cum	1702	0	3265	4967
7.88	Coursed rubble masonry (second sort) with hard stone in foundation & plinth with :								
	7.88.1	Cement mortar 1:6 (1 cement : 6 coarse sand)			cum	1531	0	3111	4642
7.89	Coursed rubble masonry with hard stone (first or second sort) in superstructure above plinth level and upto floor four level.								
	7.89.1	Masonry work (first sort), in cement mortar 1:6 (1 cement : 6 coarse sand)			cum	1986	0	3265	5251
	7.89.2	Masonry work (second sort), in cement mortar 1:6 (1 cement: 6 coarse sand)			cum	1816	0	3111	4927
7.90	Extra for coursed rubble masonry with hard stone (first or second sort) in:								
	7.90.1	Square or rectangular pillars			cum	400	0	0	400
	7.90.2	Circular pillars			cum	865	0	448	1313
7.91	Extra for coursed rubble masonry with hard stone (first or second sort) curved on plan for a mean radius not exceeding 6 m.				cum	263	0	154	417
	PRECAST STONE BLOCK MASONRY								
7.92	Stone block masonry (including quoin-blocks,jamb blocks, closer etc.) with precast solid concrete blocks of approved size laid in cement sand mortar 1:6 (1 cement : 6 fine sand) in foundation and plinth								
	7.92.1	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement, concrete 1:4:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.			cum	1798	0	1799	3597
	7.92.2.	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:5:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.			cum	1798	0	1801	3599
	7.92.3	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:5:10 (with stone aggregate of 20 mm and down gauge) 65% in volume.			cum	1798	0	1734	3532
7.93	Stone block masonry 15 cm thick (including quoin-blocks, jamb blocks, closer etc.) with precast solid concrete blocks of approved size laid in cement sand mortar 1 : 6 (1 cement : 6 finesand) in foundation and plinth.								
	7.93.1	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1 :4 :8 (with stone aggregate of 20 mm and down gauge) 65% in volume.			sqm	298	0	2519	2817

	7.93.2	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1 :5:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.		sqm	298	0	2478	2776
	7.93.3	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:5:10 (with stone aggregate of 20 mm and down gauge) 65% in volume.		sqm	298	0	2407	2705
7.94	Stone block masonry 10 cm thick (including quoin-blocks, jamb blocks, closer etc.) with precast solid concrete blocks of approved size laid in cement sand mortar 1 : 6 (1 cement: 6 finesand) in foundation and plinth.							
	7.94.1	precast cement concrete block made from medium size stone 15 to 20 cm, 35% by volume at the face and cement concrete 1:4:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.		sqm	201	0	179	380
	7.94.2	precast cement concrete block made from medium size stone 15 to 20 cm, 35% by volume at the face and cement concrete 1:5:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.		sqm	201	0	175	376
	7.94.3	Precast cement concrete block made from medium size stone 15 to 20 cm, 35% by volume at the face and cement concrete 1:5:10 (with stone aggregate of 20 mm and down gauge) 65% in volume.		sqm	201	0	306	507
	MISCELLANEOUS STONE WORK							
7.95	Providing and fixing sloping chajja of stone 40 mm thick and upto 80 cm wide beyond the wall as measured along the slope in cement mortar 1:4 (1 cement : 4 coarse sand) with 12 mm diameter anchoring steel bar, 45 cm long, fixed in each stone and supported on and including with bricks cove in cement mortar 1:4 (1 cement : 4 coarse sand), including pointing in cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade :							
	7.95.1	Red sand stone :						
		7.95.1.1	With common burnt clay non-modular bricks of class designation 7.5	sqm	759	0	446	1205
7.96	Providing and fixing horizontal chajja of stone 40 mm thick and upto 80 cm projection in cement mortar 1:4 (1 cement : 4 coarse sand), including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade :							
	7.96.1	Red sand stone		sqm	445	0	322	768
7.97	30 mm red sand stone sun-shade (chisel-dressed) supported on red sand stone brackets, fixed in walls with cement mortar 1:4 (1 cement : 4 coarse sand), including finishing complete.			sqm	546	0	430	977
7.98	Providing and fixing red sand stone brackets 55x22.5x45 cm sunk and moulded including providing and fixing with 4 Nos. gun metal cramp 25x6 mm 30 cm long			each	1965	0	970	2936
7.99	Stone work, plain in copings, cornices, string courses and plinth courses, upto 75 mm thick in Cement mortar 1:6 (1 cement : 6 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.							
	7.99.1	Red sand stone		cum	23936	0	13607	37543
7.100	Providing and fixing stone jali 40 mm thick throughout in cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment, matching the stone shade, jali slab without any chamfers etc.							
	7.100.1	Red sand stone		sqm	5684	0	324	6008
7.101	Extra for laying stone work in or under water and/or liquid mud including cost of pumping or bailing out water and removing slush etc. complete.			cum per metre	461	0	0	461
	NOTE :- The quantity will be calculated by multiplying the depth measured from sub-soil water level up to the centre of gravity of stone work under sub - water with the quantity of stone work in cum executed under the sub-soil water. The depth of centre of gravity shall be reckoned correct to 0.1 m, 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored.							
7.102	Extra for laying stone work in or under foul position.			cum	153	0	0	153
7.103	Stone tile work for wall lining upto 10 m height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.							
	7.103.1	8mm thick (mirror polished and machine cut edge)						
		7.103.1.1	Granite stone of any colour and shade	sqm	723	0	934	1656
		7.103.1.2	Raj Nagar plain white marble/ Udaipur green marble/ Zebra black marble	sqm	723	0	700	1422
7.104	Dry stone masonry for work of purely temporary nature (excluding dressing)			cum	539	0	0	539

CHAPTER NO. 8

CLADDING WORK

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CHAPTER 8.0 - CLADDING WORK

LIST OF BUREAU OF INDIAN STANDARDS CODES

Sr. No.	B.I.S. No.	Subject
1.	IS 1122	Method of test for determination of true specific gravity of natural building stones.
2.	IS 1124	Method of test for determination of water absorption, apparent specific gravity and porosity of natural building stones.
3.	IS 1130	Marble (blocks, slabs and tiles).
4.	IS 4101 (Part 1)	Code of practice for external facing and veneers: Stone facing.
5.	IS 3316	Specifications for structural granite
6.	IS 14223 (Part 1)	Polished Building Stones (Part-1) Granite

CHAPTER 8.0 - CLADDING WORK

NOTES:

A. STONE CLADDING AND VENEERING WORK (WET)

1.1 Stone lining upto 8 cm shall be treated as veneering work.The stone shall be gang saw cut into slabs of required thickness along the planes parallel to the natural bed of stone. Dressing at the back of the slab shall not be done, so as to ensure better grip with the backing. The dressed slabs shall be of the thickness as specified, with permissible tolerance of ± 2 mm.The stone shall be wetted before laying. They shall then be fixed with mortar in position without the use of chips or underpinning of any sort. Where so desired, the adjoining stones shall be secured to each other by means of copper pins 75 mm long and 6 mm diameter or as specified.

1.2 The stones shall be secured to the backing by means of cramps. The material for cramps shall have high resistance to corrosion under conditions of dampness and against the chemical action of mortar or concrete in which cramps are usually embedded. Minimum one cramp/stone dowel shall be used to secure one slab to the backing. The actual number of cramps and their sections, however, shall be as per requirements of design to carry the loads.The cramps shall be of copper alloyed with zinc or nickel or of stainless steel of grade 304.The pins, cramps and dowels shall be laid in cement mortar 1:2 (1 cement : 2 fine sand).

1.3 The walls shall be carried up truly plumb. All courses shall be laid truly horizontal and all vertical joints truly vertical. The stone shall break joints on the face for at least half the height of the course, unless otherwise shown in the drawings. The stone shall be laid in regular courses not less than 20 cm height and all the stones shall be of the same height unless otherwise specified. No stone shall be less in length than one and a half times its height unless otherwise specified.

1.4 The joints shall be done with cement mortar 1: 3 (1 cement : 3 coarse sand). The thickness of joints shall be as small as possible, not exceeding 5 mm.

1.5 The length and breadth of the finished work shall be measured in metre correct to cm. The area should be calculated in sq. metre correct to two places of decimal.

B. DRY STONE CLADDING

1.6 Stone shall be hard, sound durable and tough free from cracks, decay and weathering and defects like cavities cracks, flaws, holes, veins, patches of soft or loose materials etc. Stone shall be cut with the gang saw to the required size and shape on all beds and joints so as to free from any waviness and to give truly vertical horizontal surface as required. The dressed stone shall be of the thickness specified with permissible tolerance of $\pm$ 2 mm.

1.7 The cramps shall have inbuilt adjustment for vertical and horizontal alignment. The cramps used to hold support and transfer the load of stone unit to the supporting structured steel shall be designed by the manufacturer and approval of the same shall be obtained from the Engineer-in-Charge. The minimum number of clamps required shall be as per requirement of design to carry the load of individual stone slabs. Adequate cutting in stone shall be made with precision instrument to hold the cramps pins at the joints.

1.8 Joints horizontal and vertical shall be filled with weather sealant of approved make.

1.9 The properly designed structural frame for withstanding the weight of stone slab are fixed/supported on wall surface with the help of M.S. brackets/lugs of angle iron/flat etc. The frame can also be supported on RCC surface with the help of hold fastener by drilling the holes in RCC surface.

1.10 The rate shall include the cost of materials and labour involved in all the operations described above, except for the cost of providing and fixing pins, dowels and metal cramps, which shall be paid for separately unless otherwise stipulated in the item of work.

1.11 The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 8.0 - CLADDING WORK							
	STONE WORK DRY CLADDING							
8.1	Providing and fixing dry cladding upto 10 metre heights with 30mm thick gang saw cut stone with (machine cut edges) of uniform colour and size upto 1mx1m, fixed to structural steel frame work and/ or with the help of cramps, pins etc. and sealing the joints with approved weather sealant as per Architectural drawing and direction of Engineer-in-charge. (The steel frame work, stainless steel cramps and pins etc. shall be paid for separately).							
	8.1.1	Red sand stone - 30mm thick gang saw cut stone		sqm	739	0	487	1226
8.2	Providing and fixing structural steel frame (for dry cladding with 30 mm thick gang saw cut with machine cut edges sand stone) on walls at all heights using M.S. square/ rectangular tube in the required pattern as per architectural drawing, including cost of cutting, bending, welding etc. The frame work shall be fixed to the wall with the help of M.S. brackets/ lugs of angle iron/ flats etc. which shall be welded to the frame and embedded in brick wall with cement concrete block 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) of size 300x230x300 mm, including cost of necessary centring and shuttering and with approved expansion hold fasteners on CC/RCC surface, including drilling necessary holes. Approved cramps/ pins etc. shall be welded to the frame work to support stone cladding, the steel work will be given a priming coat of Zinc primer as approved by Engineer-in-charge and painted with two or more coats of epoxy paint (Shop drawings shall be submitted by the contractor to the Engineer-in-charge for approval before execution). The frame work shall be fixed in true horizontal & vertical lines/planes. (Only structural steel frame work shall be measured for the purpose of payment, stainless steel cramps shall be paid for separately and nothing extra shall be paid).			kg	63	0	85	148
8.3	Providing and fixing adjustable stainless steel cramps of approved quality, required shape and size, adjustable with stainless steel nuts, bolts and washer (total weight not less than 260 gms), for dry stone cladding fixed on frame work at suitable location, including making necessary recesses in stone slab, drilling required holes etc complete as per direction of the Engineer-in-charge.			each	100	0	114	214
	STONE WORK WET CLADDING							
8.4	Marble work gang saw cut (polished and machine cut) of thickness 18 mm for wall lining (veneer work), backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the marble shade (To be secured to the backing by means of cramps, which shall be paid for separately).							
	8.4.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble.						
		8.4.1.1	Area of slab upto 0.50 sqm	sqm	1638	0	885	2523
		8.4.1.2	Area of slab over 0.50 sqm	sqm	1648	0	914	2562
8.5	Extra for fixing marble /granite stone, over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive, including cleaning etc. complete.			metre	178	0	11	189
8.6	Providing and fixing cramps of required size & shape in RCC/ CC / Brick masonry backing with cement mortar 1:2 (1 cement :2 coarse sand), including drilling necessary hole in stones and embedding the cramp in the hole (fastener to be paid separately).							
	8.6.1	Gunmetal cramps		kg	50	0	385	435
	8.6.2	Stainless steel cramps		kg	55	0	356	412
8.7	Providing and fixing expansion hold fasteners on C.C. /R.C.C./Brick masonry surface backing including drilling necessary holes and the cost of bolt etc complete.							
	8.7.1	Wedge expansion type						
		8.7.1.1	Fastener with threaded dia 6 mm	each	8	0	13	21
		8.7.1.2	Fastener with threaded dia 10 mm	each	8	0	14	21
		8.7.1.3	Fastener with threaded dia 12 mm	each	8	0	32	40
	STONE WORK FOR WALL LINING							
8.8	Stone tile (polished) work for wall lining over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry @ 3.3 kg/sqm including pointing in white cement complete.							
	8.8.1	8mm thick						
		8.8.1.1	Raj nagar plain white marble/ Udaipur green marble/ Zebra black marble	sqm	948	0	568	1517
		8.8.1.2	Granite of any colour and shade	sqm	948	0	920	1868
8.9	Stone work (machine cut edges) for wall lining etc. (veneer work) upto 10 metre height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : (To be secured to the backing and the sides by means of cramps and pins which shall be paid for separately) :							
	8.9.1	Red sand stone - exposed face fine dressed with rough backing.						
		8.9.1.1	70 mm thick	sqm	1671	0	961	2631
		8.9.1.2	60 mm thick	sqm	1677	0	837	2514
		8.9.1.3	50 mm thick	sqm	1671	0	714	2384
		8.9.1.4	40 mm thick	sqm	1671	0	515	2186
		8.9.1.5	30 mm thick	sqm	1671	0	466	2137
	8.9.2	Red sand stone - Exposed face machine cut and table rubbed with rough backing.						
		8.9.2.1	70 mm thick	sqm	2550	0	961	3511
		8.9.2.2	60 mm thick	sqm	2550	0	837	3387
		8.9.2.3	50 mm thick	sqm	2550	0	714	3264
		8.9.2.4	40 mm thick	sqm	2550	0	515	3065
		8.9.2.5	30 mm thick	sqm	2550	0	466	3016
	8.9.3	Gang saw cut stone						
		8.9.3.2	30mm thick Red sand stone	sqm	791	0	583	1374
8.10	Providing and fixing stainless steel cramps of required size and shape for anchoring stone wall lining to the backing or securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand), including making the necessary chases in stone and holes in walls wherever required.			kg	54	0	356	410
8.11	Providing and fixing copper pins 7.5 cm long 6 mm diameter for securing adjacent stones in stone wall lining in cement mortar 1:2 (1 cement : 2 coarse sand), including making the necessary chases.			each	4	0	19	24
8.12	Wall lining butch work upto 10m height with Dholpur stone 40 mm thick rough facing on the exposed surface with stone strips of minimum length 300 mm and required width, including embedding every tenth layer and bottom most layer in masonry or concrete after making necessary chases of size 75x75 mm and by providing layer of 75 mm thick strips i/c 12 mm thick bed of cement mortar 1:3 (1 Cement : 3 coarse sand) i/c ruled pointing in cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment to match the shade of stone complete as per direction of Engineer-in-charge.			sqm	647	0	773	1420
8.13	Stone work (machine cut edges Veneer work) for wall lining upto 10 m height, backing filled with a grout of 12 mm thick cement mortar 1:3 (1 Cement : 3 coarse sand) and jointed with Cement mortar 1:2 (1 cement : 2 stone dust), including rubbing and polishing complete. (To be secured to the backing and the sides by means of cramps and pins which shall be paid for separately).							
	8.13.1	Kota stone slabs exposed face dressed and rubbed.						
		8.13.1.1	25 mm thick	sqm	1117	0	412	1529
8.14	Extra for stone work for wall lining on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part there of.			sqm	53	0	0	53

8.15	Providing and fixing machine cut, mirror/ eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.							
	8.15.1	18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.		sqm	1644	0	4550	6193
8.16	Providing and fixing of reconstituted stone tile work (IS 3622-2017-Reaffirmed) for wall Cladding upto 10 m height with special adhesive (IS 15477-2019) over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.			sqm	814	0	1026	1840
8.17	Pdg. & fixing manufactured jali of reinforced cement concrete consisting of cement , coarse sand and 10mm & down gauge bajri in ratio of 1:1:2 with 8mm dia tor steel. Outer frame of the jail will be 50mm wide & 25mm thick & inner frame of jali will be 25mm wide and 25mm thick with smooth finish as per design approved by the Engineer-in-Charge including fixing in position upto any height with cement sand mortar 1:4 complete in all respect.			sqm	233	0	530	763
	VENEERING WORK							
8.18	Providing and fixing specified wood frame work consisting of battens 50x25mm fixed with rawl plug and drilling necessary holes for rawl plug etc. including priming coat complete.							
	8.18.1	Kiln seasoned and chemically treated hollock wood		cum	71207	0	47082	118289
8.19	Providing and fixing plywood 4 mm thick, one side decorative veneer conforming to IS: 1328 (type-1), for plain lining / cladding with necessary screws, including priming coat on unexposed surface with :							
	8.19.1	Decorative veneer facings of approved manufacture		sqm	452	0	517	969
8.20	Providing and fixing 4mm thick coir veneer board, ISI marked IS : 14842, plain lining with necessary screws, priming coat on unexposed surface etc., complete.			sqm	452	0	476	927
8.21	Providing and fixing skirting with Pre-laminated (one side decorative and other side balancing lamination) flat pressed 3 layer or graded particle board (medium density) Grade I, Type II, IS :12823 marked, with necessary fixing arrangements and screws, including drilling necessary holes for rawl plugs etc. and priming coat on unexposed surface complete :							
	8.21.1	18 mm thick		sqm	152	0	1312	1464
	8.21.2	25 mm thick		sqm	135	0	1643	1778
8.22	Providing 50x50x50 mm 2nd class teak wood plugs including cutting brick work and fixing in cement mortar 1:3 (1 cement : 3 fine sand) and making good the walls etc.			each	10	0	13	22
8.23	Providing and fixing expandable fasteners of specified size with necessary plastic sleeves and galvanised M.S. screws including drilling holes in masonry work /CC/ R.C.C. and making good etc. complete.							
	8.23.1	25 mm long		each	2	0	11	13
	8.23.2	32 mm long		each	2	0	11	13
	8.23.3	40 mm long		each	2	0	15	17
	8.23.4	50 mm long		each	2	0	16	18
8.24	Providing and fixing 2nd class teak wood plain lining tongued and grooved, including wooden plugs complete with necessary screws and priming coat on unexposed surface.							
	8.24.1	40 mm thick		sqm	233	0	4812	5045
	8.24.2	25 mm thick		sqm	233	0	3037	3270
	8.24.3	20 mm thick		sqm	198	0	2445	2643
	8.24.4	12 mm thick		sqm	207	0	1489	1696
8.25	Providing and fixing in wall lining flat pressed three layer (medium density) particle board or graded wood Pre-laminated one side decorative lamination and other side balancing lamination Grade I, Type II, IS : 12823 marked, including priming coat on unexposed arrangement and screws etc. complete :							
	8.25.1	12 mm thick		sqm	285	0	691	976
	8.25.2	18 mm thick		sqm	285	0	829	1114
	8.25.3	25 mm thick		sqm	285	0	1143	1428
	KITCHEN PLATEFORMS/ WINDOW SILLS/ URINAL PARTITIONS							
8.26	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.							
	8.26.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble						
		8.26.1.1	Area of slab upto 0.50 sqm	sqm	838	0	771	1610
		8.26.1.2	Area of slab over 0.50 sqm	sqm	653	0	801	1454
	8.26.2	Granite of any colour and shade						
		8.26.2.1	Area of slab upto 0.50 sqm	sqm	838	0	1880	2719
		8.26.2.2	Area of slab over 0.50 sqm	sqm	625	0	2120	2745
8.27	Providing edge moulding to 18 mm thick marble stone counters, Vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.							
	8.27.1	Marble work		metre	131	0	0	131
	8.27.2	Granite work		metre	223	0	0	223
8.28	Extra for providing opening of required size & shape for wash basin/ kitchen sink in kitchen platform, vanity counter and similar location in marble/ Granite/ stone work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of			each	384	0	0	384
8.29	Mirror polishing on marble work/Granite work/stone work where ever required to give high gloss finish complete.			sqm	203	0	0	203
8.30	Providing and fixing stone slab with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.							
	8.30.1	White Agaria Marble Stone		sqm	128	0	2263	2390
	8.30.2	Granite Stone of approved shade		sqm	128	0	2263	2390
	ALUMINIUM COMPOSITE PANELS							
8.31	Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building , for all heights and all levels etc. including:							
	(a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design.							
	(b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metalic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc.							

	(c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation. Base frame work for ACP cladding is payable under the relevant aluminium item.s The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete , as per the Architectural drawings, as per item , as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge. However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm up to two decimal places.	sqm	556	0	1882	2438

CHAPTER NO. 9

HOISTING
AND
ROOFING

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CHAPTER 9.0: HOISTING AND ROOFING

LIST OF BUREAU OF INDIAN STANDARDS CODES

Sr. No.	B.I.S. No.	Subject
1	IS 277	Galvanised steel sheets (plain and corrugated)
2	IS 651	Glazed stoneware pipes and fittings
3	IS 1200 (PT.IX)	Method of measurements of building and civil engineering works: Part – 9 Roof covering (including cladding)
4	IS 1200 (PTX)	Method of measurements of building and civil engineering works:
5		Part -10 ceiling and lining
6	IS 1230	Cast iron rain water pipes and fitting
7	IS 2095 (PT-1)	Gypsum plaster boards (Pt.1) plain Gypsum plaster boards
8	IS 2115	Code of practice for flat roof finish: mud phuska
9	IS 2633	Method of testing uniformity of coating on zinc coated articles
10	IS 3087	Particle boards of wood and other lignocellulogic materials (medium density) for general purposes – specifications
11	IS 5382	Specification for rubber sealing rings for gas mains, water mains and sewers
12	IS 13592	Unplasticised polyvinyl chloride (UPVC) pipes for soil and Waste discharge system for inside and outside building
13	IS 14753	Specifications for polymethyl Methacrylate (PMMA) (Arylic) sheets
14	IS 14862	Fibre cement flat sheets – specifications
15	IS 14871	Specifications for products in fibre reinforced cement – Long corrugated or Asymmetrical section sheets and fittings for roofing and cladding.

CHAPTER 9.0: HOISTING AND ROOFING

Notes:

1.0 Unless specified to the contrary, the labour rates for various items of construction include handling of materials within 100 metres. Through rate include all rehandling of materials at the site of work.

1.1 The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

2.0 CORRUGATED GALVANISED STEEL SHEET ROOFING

2.1 C.G.S. Sheets: These sheets shall conform to IS 277. The sheets shall be of 275 grade of coating unless otherwise specified in the description of item. The sheets shall be free from cracks, split edges, twists, surface flaws etc. They shall be clean, bright and smooth. The galvanising shall be non-injured and in perfect condition. The sheets shall not show signs of rust or white powdry deposits on the surface. The corrugations shall be uniform in depth and pitch and parallel with the side.

2.2 Purlins: Purlins of the specified material or M.S. rolled sections of requisite size shall be fixed over the principal rafters. The top surfaces of the purlins shall be uniform and plane. They shall be painted before fixing on top. Embedded portions of wooden purlins shall be coal tarred with two coats.

2.3 Slope: Roof shall not be pitched at a flatter slope than 1 vertical to 5 horizontal. The normal pitch adopted shall usually be 1 vertical to 3 horizontal.

2.4 The sheets shall be laid with a minimum lap of 15 cm at the ends and 2 ridges of corrugations at each side. The laying operation shall include all scaffolding work involved. Sheets shall be fixed to the Purlins or other roof members such as hip or valley rafters etc. with galvanised J or L hook bolts and nuts, 8 mm diameter, with bitumen and G.I. limpet washers or with a limpet washer filled with white lead. The galvanised coating should conform to IS 1367 (Pt. XIII)

2.5 Wind Tie: Wind ties shall be of 40 x 6 mm flat iron section or of other size as specified. These shall be fixed at the eaves of the sheets. The fixing shall be done with the same hook bolts which secure the sheets to the purlins.

3.0 Non-Asbestos High Impact Poly Propylene Reinforcement Cement Corrugated Sheets

The sheets shall be of the approved quality and shall conform to IS 14871. The sheets shall be free from cracks, chipped edges or corners and other damages. The product shall be composed essentially of an inorganic hydraulic binder or a calcium silicate binder formed by the chemical reaction of a silicate binder formed by the chemical reaction of a siliceous and calcareous material reinforced by organic fibres and/or inorganic synthetic fibres. Pozzolanic materials process aids, fillers and pigments which are compatible with the fibre reinforced cement may be added. The inorganic hydraulic binder shall be either 33 grade ordinary Portland cement or 43 grade ordinary Portland cement or 53 grade ordinary Portland cement or Portland pozzolana (fly ash based) cement or Portland pozzolana cement (calcined clay based) or rapid hardening cement Portland slag cement.

4.0 Non Asbestos High Impact Poly Propylene Reinforced Cement Semi Corrugated Sheets

These shall be of the specified thickness and of approved quality and shall conform to IS 14871 and shall be free from cracks, chipped edge corners or other damages.

5.0 MUD PHUSKA TERRACING WITH BRICK TILE PAVING

5.1 For mud phuska, selected soil which should be a good quality earth suitable for making bricks not containing excessive clay or sand, free from stones, kankar, vegetable matter and other foreign matter, shall be collected and stacked at site. Before laying on the roof, the soil shall be made damp by adding water about 12 hours earlier. Quantity of water to be added to the soil shall be carefully regulated so that the soil shall have optimum moisture content at the time of laying and compaction on the roof. The soil shall be laid on the roof to requisite thickness and slope, well compacted with wooden rammers and thappies, to obtain an even surface to correct slope. Average thickness of soil after compaction shall be as specified for the item.

5.2 Mud Plaster: After laying the mud phuska, the surface shall be given a coat of mud plaster 25 mm thick and the plaster shall be allowed to dry and crack. The mud plaster shall be prepared from the same soil as for mud phuska.

5.3 Gobri Leaping: After the mud plaster has dried, the surface should be given a coat of gobri leaping so as to completely fill any crack that may have formed in the mud plaster. Five percent of cut back bitumen by mass of dry clay may be added to improve upon the water proofing qualities.

5.4 Laying of Bricks Tile: After the gobri leaping has dried, brick tiles shall be laid using the minimum amount of plain mud mortar (without bhusa) as bedding so as to obtain correct slope and even surface of tile floors. After the tiles are well set and bedding mortar has dried, joints of the tiles shall be grouted with cement mortar of mix 1:3 (1 cement : 3 fine sand)

6.0 CEMENT CONCRETE GOLA

A chase of 75 mm wide and 75 mm deep shall be cut in the parapet wall just above the junction of mud phuska or lime concrete with parapet wall and it shall be filled with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge) the external face finish with a slope of 1 : 0.75 and the exposed surface of the gola shall be plastered with cement mortar 1 : 3 (1 cement : 3 fine sand). Expansion joint at every 3.5 to 4.5 metres shall be provided and filled with bitumen filler.

7.0 KHURRAS

The khurras shall be constructed before the brick masonry work in parapet wall is taken up and it shall be of size 45 cm x 45 cm and shall be made of cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) or other mix as stipulated in the description of the item. PVC sheet of size 1 m x 1 m x 400 micron (alternatively, aluminium foil of 32 SWG) shall be laid under the khurra and then cement concrete shall be laid over it to average thickness of 50 mm with its top surface lower than the level of adjoining roof surface by not less than 50 mm.

8.0 WOODEN CEILING

8.1 Boards: Boards shall be of the class of timber and of finished thickness as specified in the description of the item. The width of boards selected for use shall not be less than 100 mm nor more than 150 mm. The longitudinal joints of the boards shall be tongued and grooved, while the heading joints shall be of the square butt type.

8.2

The insulating building boards shall be of approved quality as per IS code 3348 and shall have square edges.

8.3 PARTICLE BOARD /MULTIPURPOSE CEMENT BOARD CEILING

8.3.1 Particle Board: Particle board flat pressed 3 layers medium density shall be graded particle board grade-1 conforming to IS 3087 of specified thickness.

8.3.2 Multipurpose Cement Board (High Pressure Steam cured): This shall be conforming to IS 14862 and of thickness specified in the item.

8.3.3 PLAIN/SEMI PERFORATED PARTICLE BOARD TILES CEILING

Ceiling tiles shall be of 12 mm plain/semi perforated or with design BWP type Phenol Formaldehyde synthetic resin bonded particle board conforming to IS 3087 of required size.

9.0 RAIN WATER SPOUTS

The sectional area of rain water spouts provided shall be generally at the rate of 1 square cm per 70 to 80 square decimetre of roof area drained. No spout shall be less than 80 mm in diameter.

9.1 Stone Ware Spouts: The spouts shall be 100 mm in diameters and 60 cm long.

10.0 CAST IRON RAIN WATER PIPES

10.1 Cast Iron Pipes shall conform to IS 1230 and shall be perfectly, smooth and cylindrical, their inner and outer surfaces being as nearly as practicable concentric. These shall be sound and of uniform castings, free from laps, pin holes or other imperfections and shall be neatly finished and carefully fitted both inside and outside. The ends of pipes shall be reasonably square to their axes. The pipes supplied shall be factory painted (with a tar base composition) both inside and outside which shall be smooth and tenacious.

Pipes shall be either fixed on face of wall or embedded in masonry, as required in the description of the item. Plain pipes (without ears) shall be secured to the walls at all joints with M.S. holder bat clamps. Where pipes are to be embedded in masonry, these shall be fixed in masonry work as proceeds.

10.2 CAST IRON ACCESSORIES FOR RAIN WATER PIPES

CI accessories such as bends of various degrees, heads, and offsets of different projections, branches and shoes shall conform to IS 1230.

11.0 UNPLASTICISED POLYVINYL CHLORIDE PIPES AND FITTINGS

UPVC Pipes shall conform to Type A pipes of IS 13592. The internal and external surfaces of the pipes shall be smooth and clean and free from groovings and other defects. The end shall be clearly cut and shall be square with the axis of the pipe. The end may be chamfered on the plain sides. Slight shallow longitudinal grooves or irregularities in the wall thickness shall be permissible provided the wall thickness remains within the permissible limit. Surface colour of the pipes shall be dark shade of grey or as specified. Mean outside diameter, outside diameter at any point and wall thickness shall be as given in IS 13592. UPVC rain water pipes shall be of the dia, specified and shall be in nominal lengths of 2,3,4 or 6 metres either plain or with sliding/grooved socket. unless shorter lengths are required at junctions with fittings. Tolerances on specified length shall be + 10 mm and – 0 mm. Pipes shall be either fixed on face of wall or embedded in masonry as required in the description of the item.

	CHAPTER 9.0 - HOISTING AND ROOFING						
	A. HOISTING						
9.1	Hoisting R.C.C. lintels and placing in position upto floor IV level		cum	1565	0	0	1565
9.2	Hoisting R.C.C. battens and placing in position upto floor IV level		cum	1749	0	0	1749
9.3	Hoisting R.C.C. shelves and placing in position upto floor IV level.		cum	1092	0	0	1092
9.4	Hoisting R.C.C. bedplates and placing in position upto floor IV level.		cum	1703	0	0	1703
9.5	Hoisting wooden battens and placing lintels and placing in position upto floor IV level.		cum	1160	0	0	1160
9.6	Hoisting wooden beams and placing in position upto floor IV level.		cum	941	0	0	941
9.7	Hoisting wooden trusses and placing in position upto floor IV level.		cum	3460	0	0	3460
9.8	Hoisting R.S.Joists and placing in position upto floor IV level.		kg	3	0	0	3
9.9	Hoisting steel roof trusses, plate girders of any span for buildings upto floor IV level and plate and trussed girders of any span for bridges.		kg	6	0	0	6
	B. ROOFING						
9.10	Painting top of roofs with bitumen of approved quality @ 17kg per 10 sqm impregnated with a coat of coarse sand at 60 cudm per 10 sqm, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete :						
	9.10.1	With residual type petroleum bitumen of grade VG -10	sqm	15	0	78	93
9.11	10 cm thick (average) mud phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25 mm thick mud mortar mixed with bhusa @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cow dung) and covered with flat tile bricks, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement and finished neat:						
	9.11.1	With common burnt clay non-modular brick tile of class designation 10	sqm	196	0	356	551
9.12	10cm thick (average) mud phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25 mm thick mud mortar with bhusha @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cow-dung) and covered with machine moulded tile bricks, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement and finished neat.						
	9.12.1	With machine moulded common burnt clay non-modular brick tiles of class designation 12.5, conforming to IS 2690	sqm	196	0	356	551
9.13	Extra for every additional 1 cm thickness of mud phaska.		sqm	5	0	2	8
9.14	Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat:						
	9.14.1	With common burnt clay non-modular brick tiles of class designation 10	sqm	78	0	368	446
9.15	Providing and laying pressed clay tiles (as per approved pattern 20 mm nominal thickness of approved size) on roofs jointed with cement mortar 1:4 (1 cement : 4 coarse sand) mixed with 2% integral water proofing compound, laid over a bed of 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and finished neat complete.		sqm	95	0	249	344
9.16	Providing and fixing pressed clay tile (Manglore tiles) of size 200mm x 125mm x 10mm on slopping roof top/ window projections with 12mm thick cement, coarse sand mortar 1:3 including cost of ridge wherever required as per approved design complete in all respect up to 4 storey or 15 Meter Height.		sqm	399	0	329	728
9.17	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :						
	9.17.1	In 75x75 mm deep chase	metre	74	0	41	115
9.18	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.		each	69	0	82	151
9.19	Providing sand stone slab for roofing and laying them in cement mortar 1 : 4 (1 cement : 4 coarse sand) over wooden karries or R.C.C. battens or structural steel sections (Karries or battens or structural steel sections to be paid separately), including pointing the ceiling joints with cement mortar 1:3 (1 cement : 3 fine sand) complete :						
	9.19.1	Red sand stone slab					
		9.19.1.1 40 to 50 mm thick	sqm	208	0	303	510
9.20	Providing & fixing on roof pressed clay tile (Mangalore tile) of 20 mm nominal thickness and of approved size and as per approved pattern on steel frame work complete (steel frame work to be paid separately).		sqm	49	0	149	198
9.21	Providing & laying on roof pressed clay tile ridge (Mangalore tile) of 20mm thickness and of approved pattern on steel frame work complete (steel frame work to be paid separately).		metre	11	0	31	42
	SHEET ROOFING						
9.22	Providing corrugated G.S. sheet roofing including vertical / curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.						
	9.22.1	1.00 mm thick with zinc coating not less than 275 gm/m²	sqm	72	0	894	966
	9.22.2	0.80 mm thick with zinc coating not less than 275 gm/m²	sqm	72	0	747	819
	9.22.3	0.63 mm thick with zinc coating not less than 275 gm/ m²	sqm	72	0	622	694
9.23	Extra for straight cutting in C.G.S. sheet roofing for making opening of area exceeding 40 sq. decimeter for chimney stacks, sky light etc.:						
	9.23.1	1.00 mm thick	metre	32	0	0	32
	9.23.2	0.80 mm thick	metre	25	0	0	25
	9.23.3	0.63 mm thick	metre	25	0	0	25
9.24	Extra for circular cutting in C.G.S. sheet roofing for making opening of area exceeding 40 sq. decimeter:						
	9.24.1	1.00 mm thick	metre	167	0	0	167
	9.24.2	0.80 mm thick	metre	133	0	0	133
	9.24.3	0.63 mm thick	metre	133	0	0	133
9.25	Providing ridges or hips of width 60 cm overall width plain G.S. sheet fixed with polymer coated J or L hooks, bolts and nuts 8 mm dia G.I. limpet and bitumen washers complete.						
	9.25.1	0.80 mm thick with zinc coating not less than 275 gm/m²	metre	145	0	359	504
	9.25.2	0.63 mm thick with zinc coating not less than 275 gm/m²	metre	145	0	292	437
9.26	Providing valleys of 90 cm wide overall in plain G.S. sheet fixed with polymer coated J, or L hooks, bolts and nuts 8 mm dia G.I. limpet and bitumen washers complete :						
	9.26.1	1.60 mm thick with zinc coating not less than 350 gm/m²	metre	161	0	828	989
9.27	Providing and fixing of 40 cm overall width plain G.S. sheet fixed with polymer coated J or L hooks, bolts and nuts, G.I. limpet and bitumen washer complete, bent to shape and fixed in wall with cement mortar 1:3 (1 cement : 3 coarse sand).						
	9.27.1	1.00 mm thick with zinc coating not less than 275 gm/m²	metre	154	0	220	374
9.28	Providing and fixing 15 cm wide, 45 cm overall semi-circular plain G.S. sheet gutter with iron brackets 40x3mm size, bolts, nuts and washers etc., including making necessary connections with rain water pipes complete.						
	9.28.1	0.80 mm thick with zinc coating not less than 275 gm/m²	metre	155	0	314	470
	9.28.2	0.63 mm thick with zinc coating not less than 275 gm/m²	metre	155	0	259	414

9.29	Providing flat iron brackets 50x3 mm size with necessary bolts, nuts and washers etc. for fixing G.S. sheets gutters with purlins.				metre	12	0	35	47
9.30	Supply, fabrication and installation of self-supported arch shaped galvalume/ Zincalume steel sheet roofing 1.00 MM thick (BMT) (only ± 0.2mm tolerance allowed) and 1.075 MM thick (total thickness)(only ± 0.2mm tolerance allowed) tensile strength 350 MPa coating mass 150 gm per SqM etc. of approved make . The manufacturer shall follow the IS codes 15961, type III with Super Durable Polyester paint, IS code 513, IS code 16163 and all other relevant Indian codes as per approved specification, design & drawings of the corporation.				SqM	171	0	1085	1256
9.31	Providing and fixing Hi, Rib profiled sheets 0.60mm TT (Total Thickness) (only ± 0.2mm tolerance allowed) Hi Tensile galvalume/Zincalume steel sheet of the approved make having a hot dip metallic Zinc-Aluminum alloy (AZ-150) coating of minimum (150 gms/SqM) with 550 Mpa yield strength of approved blue colour (RAL-5012) the colour coating shall be as per IS 15965 of SMP or Super Durable Polyester Paint XRW fixed with hex head self-drilling screw sloping roof without curvature as per approved specification, drawing and design of the Corporation				sqm	34	0	477	512
9.32	Providing & fixing UV stabilised fiberglass reinforced plastic sheet roofing up to any pitch, including fixing with polymer coated 'J' or 'L' hooks, bolts & nuts 8mm dia. G.I plain/bitumen washers complete but excluding the cost of purlins, rafters, trusses etc. The sheets shall be manufactured out of 2400 TEX panel rovigs incorporating minimum 0.3% ultra-violet stabiliser in resin system under approximately 2400 psi and hot cured. They shall be of uniform pigmentation and thickness without air pockets and shall conform to IS 10192 and IS 12866.The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified.								
	9.32.1	2 mm thick corrugated (2.5" or 4.2" or 6") or step-down (2" or 3" or 6") as specified			sqm	55	0	809	863
	9.32.2	2 mm thick flat			sqm	55	0	727	781
9.33	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.				sqm	31	0	464	496
9.34	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete :								
	9.34.1	Ridges plain (500 - 600mm)			metre	31	0	275	306
	9.34.2	Flashings/ Aprons.(Upto 600 mm)			metre	15	0	275	290
	9.34.3	North light curves			metre	18	0	330	348
	9.34.4	Barge board (Upto 300 mm)			metre	15	0	263	278
	9.34.5	Crimp curve			sqm	17	0	303	321
	9.34.6	Gutter (600 mm over all girth)			metre	140	0	565	705
9.35	Providing reinforced by organic fibres and/or inorganic synthetic fibres cement 6 mm thick corrugated sheets (as per IS: 14871) roofing up to any pitch and fixing with polymer coated J, or L hooks, bolts and nuts 8 mm dia. G.I. plain and bitumen washers or with self drilling fastener and EPDM washers etc. complete (excluding the cost of purlins, rafters and trusses), including cutting sheets to size and shape wherever required.				sqm	31	0	316	348
9.36	Extra for straight cutting in reinforced by organic fibres and/or inorganic synthetic fibres cement corrugated, semi corrugated 6 mm thick sheet roofing for making openings of area exceeding 40 square decimeter for chimney stacks, skylights etc.				metre	25	0	0	25
9.37	Extra for circular cutting in reinforced by organic fibres and/or inorganic synthetic fibres cement corrugated/ semi corrugated 6 mm thick sheet roofing for making openings of area exceeding 40 square decimeter.				metre	70	0	0	70
9.38	Providing and fixing ridges and hips in fibre cement reinforced by organic fibres and/or inorganic synthetic fibres roofing with suitable fixing accessories or self drilling fastener and EPDM washer etc. complete.								
	9.38.1	Corrugated serrated adjustable ridges			metre	31	0	290	320
	9.38.2	Plain wing adjustable ridges			metre	31	0	290	320
	9.38.3	Close fitting adjustable ridges			metre	31	0	335	366
	9.38.4	Unserrated adjustable hips			metre	31	0	289	320
9.39	Providing and fixing fibre cement reinforced by organic fibres and/or inorganic synthetic fibres roofing accessories in all colours with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers or with self drilling fastener and EPDM washer etc. complete:								
	9.39.1	Corrugated apron pieces			metre	15	0	266	282
	9.39.2	Eave's filler pieces			metre	15	0	208	223
	9.39.3	North light curves			metre	18	0	367	385
	9.39.4	Ventilator curves			metre	18	0	403	421
	9.39.5	Barge boards			metre	13	0	497	509
	9.39.6	Ridge finials			pair	9	0	198	207
	9.39.7	Special north light curves			each	18	0	695	713
	9.39.8	S type louvers			metre	78	0	203	282
9.40	Extra for providing and fixing wind ties of 40x 6 mm flat iron section.				metre	11	0	112	123
	CEILING								
9.41	Providing and fixing insulating board ceiling of approved quality with necessary nails etc. complete (frame work to be paid separately) :								
	9.41.1	Natural colour insulating board							
		9.41.1.1	12 mm thick		sqm	153	0	267	420
	9.41.2	White face insulating board							
		9.41.2.1	12 mm thick		sqm	153	0	299	451
	9.41.3	Flame retardant face insulating board							
		9.41.3.1	12 mm thick		sqm	153	0	405	558
9.42	Providing and fixing flat pressed 3 layer medium density particle board or graded particle board (Grade I) IS: 3087 marked, in ceiling with necessary nails etc. complete (frame work to be paid separately):								
	9.42.1	12 mm thick			sqm	153	0	365	518
9.43	Providing and fixing plain multipurpose cement board(Hight pressure steam cured) with suitable screws for cement particle board in ceiling etc. complete (frame work to be paid seperatately).								
	9.43.1	6 mm thick Cement fiber board as per IS: 14862			sqm	153	0	267	420
	9.43.2	6 mm thick Cement bonded wood particle board as per IS:14276			sqm	153	0	248	401
9.44	Extra for Circular cutting including wastages in ceiling with:								
	9.44.1	2nd class teak wood planks 20 mm thick			metre	113	0	249	362
	9.44.2	Natural colour insulating board							
		9.44.2.1	12 mm thick		metre	121	0	33	154
	9.44.3	White face insulating board:							
		9.44.3.1	12 mm thick		metre	121	0	37	158
	9.44.4	Flame retardant face insulating board:							
		9.44.4.1	12 mm thick		metre	121	0	50	171

	9.44.5	Standard quality hard board sheet:						
		9.44.5.1	3 mm thick	metre	121	0	22	142
		9.44.5.2	4.5 mm thick	metre	121	0	33	154
9.45	Extra for providing and fixing ceiling to curved surfaces in narrow widths			sqm	125	0	0	125
9.46	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :							
	9.46.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- (Part I) :2011 (Board with BIS certification marks)		sqm	227	0	434	661
	9.46.2	12.5 mm thick tapered edge Glass Reinforced Gypsum (GRG) board conforming to IS: 2095- (Part 3):1996 (Boards with BIS certification marks)		sqm	227	0	536	763
	9.46.3	12.5 mm thick tapered edge gypsum moisture resistant board		sqm	227	0	578	805
	9.46.4	Fully Perforated Gypsum Plaster Board of size 1200 x 2400x12.5 mm having approx. 15 % perforated area with perforation size and pattern as approved by the Engineer-in-charge and as per manufacturer's specification, with all 4 side tapered and backed by acoustical tissue with NRC value not less than 0.60		sqm	227	0	740	967
9.47	Providing and fixing tiled false ceiling of specified materials of size 595x595 mm in true horizontal level, suspended on inter locking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38 mm made from 0.30 mm thick (minimum) sheet, spaced at 1200 mm center to center and cross "T" of size 24x25 mm made of 0.30 mm thick (minimum) sheet, 1200 mm long spaced between main "T" at 600 mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600 mm and size 24x25 mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600 mm panel to form grids of 600x600 mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, required cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using GI slotted cleats of size 27 x 37 x 25 x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200 mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete for all heights as per specifications, drawings and as directed by Engineer-in-charge.							
	9.47.1	GI Metal Ceiling Lay in plain Tegular edge Global white color tiles of size 595x595 mm, and 0.5 mm thick with 8 mm drop; made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.		sqm	167	0	897	1065
	9.47.2	GI Metal Ceiling Lay in perforated Tegular edge global white color tiles of size 595x595 mm and 0.5 mm thick with 8 mm drop; made of GI sheet having galvanizing of 100 gms/sqm (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC (Noise Reduction Coefficient) of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation, and backed with a black Glass fiber acoustical fleece.		sqm	167	0	1021	1188
	9.47.3	12.5 mm thick square edge PVC Laminated Gypsum Tile of size 595x595 mm, made of Gypsum plasterboard, manufactured from natural gypsum as per IS 2095 part I and laminated with white 0.16mm thick fire retardant PVC film on the face side and 12micron metalized polyester on the back side with all edges sealed with the face side PVC film which goes around and wraps the edges and is bonded to the edges and the back side metalized polyester film so as to make the tile a completely sealed unit.		sqm	167	0	1219	1386
	9.47.4	12.5 mm thick fully Perforated Gypsum Board tile made from plasterboard having glass fibre conforming to IS: 2095 part I, of size 595x595 mm, having perforation of 9.7x9.7 mm at 19.4 mm c/c with center borders of 48 mm and the side borders of 30 mm, backed with non woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.79, with 50 mm resin bonded glass wool backing.		sqm	167	0	613	780
	9.46.5	12.5 mm thick tapered edge gypsum fire resistant board conforming to IS: 2095- Part I		sqm	227	0	488	715
9.48	Providing and Fixing 15 mm thick densified tegular edged eco friendly light weight calcium silicate false ceiling tiles of approved texture of size 595 x 595 mm in true horizontal level, suspended on inter locking metal grid of hot dipped galvanised steel sections (galvanising @ 120 grams per sqm including both side) consisting of main 'T' runner suitably spaced at joints to get required length and of size 24x38 mm made from 0.33 mm thick (minimum) sheet, spaced 1200 mm centre to centre, and cross "T" of size 24x28 mm made out of 0.33 mm (Minimum) sheet, 1200 mm long spaced between main'T' at 600 mm centre to centre to form a grid of 1200x600 mm and secondary cross 'T' of length 600 mm and size 24 x28 mm made of 0.33 mm thick (Minimum) sheet to be inter locked at middle of the 1200x 600 mm panel to from grid of size 600x600 mm, resting on periphery walls /partitions on a Perimeter wall angle pre-coated steel of size(24x24X3000 mm made of 0.40 mm thick (minimum) sheet with the help of rawl plugs at 450 mm centre to centre with 25 mm long dry wall screws @ 230 mm interval and laying 15 mm thick densified edges calicum silicate ceiling tiles of approved texture in the grid, including, cutting/ making opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc., wherever required. Main 'T' runners to be suspended from ceiling using G.I. slotted cleats of size 25x35x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm G.I. adjustable rods with galvanised steel level clips of size 85 x 30 x 0.8 mm, spaced at 1200 mm centre to centre along main 'T', bottom exposed with 24 mm of all Tsections shall be pre-painted with polyster baked paint, for all heights, as per specifications, drawings and as directed by Engineer-in-Charge.			sqm	167	0	1005	1172
	Note :- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening (cut outs) having area less than 0.30 sqmThe calcium silicate ceiling tile shall have NRC value of 0.50 (Minimum), light reflection > 85%, non- combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity <0.043 w/mK.							
9.49	Providing and fixing GI Clip in Metal Ceiling System of 600x600 mm module which includes providing and fixing 'C' wall angle of size 20x30x20 mm made of 0.5 mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300 mm center to centre, suspending the main C carrier of size 10x38x10 mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000 mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34 mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600 mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive), fixing with clip in tiles into spring T with :							
	9.49.1	GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5 mm thick with 25 mm height, made of G I sheet having galvanizing of 100 gms/ sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.		sqm	167	0	1093	1261

	9.49.2	GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5 mm thick with 25 mm height, made of G I sheet having galvanizing of 100 gms/ sqm (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation.		sqm	167	0	1219	1386
9.50	Providing and fixing tiled false ceiling of specified materials of size 595x595 mm in true horizontal level, suspended on interlocking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38 mm made from 0.30 mm thick (minimum) sheet, spaced at 1200 mm center to center and cross "T" of size 24x25 mm made of 0.30 mm thick (minimum) sheet, 1200 mm long spaced between main "T" at 600 mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600 mm and size 24x25 mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600 mm panel to form grids of 600x600 mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, required cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using GI slotted cleats of size 27 x 37 x 25 x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm GI adjustable rods with galvanized butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200 mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete for all heights as per specifications, drawings and as directed by Engineer-in-charge.							
	9.50.1	8 mm thick fully perforated calcium silicate board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with minimum compressive strength 225 kg/ sq. cm, bending strength 100 kg/sq. cm , of size 595x595 mm, having perforation of dia. 10 mm with minimum perforated area 18 % with non woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.85, with 50 mm thick rockwool of 48 kg /cum backing.		sqm	167	0	1115	1282
9.51	Providing & fixing false ceiling at all height including providing & fixing of framework made of special section, power pressed from M.S. sheets and galvanised with zinc coating of 120 gms/ sqm (both side inclusive) as per IS : 277 and consisting of angle cleat of size 25mm wide x 1.6mm thick with flanges of 27mm and 37mm, at 1200mm c/c, one flange fixed to the ceiling with dash fastener 12.5mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25 x10 x0.50mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I chanels 45 x15 x 0.90mm running at the spacing of 1200 mm c/c, to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26 mm each having lips of 10.5mm, at 450mm c/c, shall be fixed in a direction perpendicular to G.I intermediate channel with connecting clip made out of 2.64mm dia x 230mm long G.I wire at every junction, including fixing perimeter channels 0.50mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/ partitions with the help of Rawl plugs at 450mm centre, with 25mm long dry wall screws @ 230mm interval, including fixing of Calcium Silicate Board to ceiling section and perimeter channels with the help of dry wall screws of size 3.5 x25mm at 230mm c/c, including jointing & finishing to a flush finish of tapered and square edges of the board with recommended jointing compounds, jointing tapes,finishing with jointing compounds in three layers covering up to 150mm on both sides of joints and two coats of primer suitable for boards, all as per manufacture's specification and also including the cost of making opening for light fittings, grills, diffusers, cut outs made with frame of perimeter channels suitably fixed, all complete as per drawings, specificaton and direction of the Engineer in charge but excluding the cost of painting with:							
	9.51.1	8 mm thick Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process.		sqm	227	0	567	794
	PLASTER OF PARIS WORK							
9.52	Providing 10 mm thick plaster of Paris (gypsum anhydrous) ceiling up to a height of 5 m above floor level, over first class kail wood strips 25x6 mm with 10 mm gap in between and reinforced with rabbit wire mesh fixed to wooden frame (frame work to be paid separately):							
	9.52.1	Flat surfaces		sqm	369	0	345	715
	9.52.2	Curved surfaces		sqm	474	0	345	819
9.53	Extra for sunk or raised mouldings in the plaster of Paris (Gypsum anhydrous) ceiling.			sqm	157	0	64	221
9.54	Extra for providing plaster of Paris (Gypsum anhydrous) ceiling above 5 metres height from floor level.			sqm per	84	0	0	84
	RAIN WATER SPOUTS AND PIPES							
9.55	Supplying and fixing in position 60 cm long G.I. pipe class 'B' spouts in chajjas and cantilevers							
	9.55.1	15 mm internal dia		metre	47	0	63	111
	9.55.2	20 mm internal dia		metre	56	0	131	186
	9.55.3	25 mm internal dia		metre	66	0	117	183
	9.55.4	40 mm internal dia		metre	76	0	175	251
	9.55.5	50 mm internal dia		metre	86	0	216	303
9.56	Providing and fixing 100 mm diameter and 60 cm long rain water spout in cement mortar 1:4 (1 cement : 4 fine sand).							
	9.56.1	Stone ware spout		each	28	0	48	75
9.57	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.							
	9.57.1	75 mm diameter		metre	35	0	84	119
	9.57.2	110 mm diameter		metre	43	0	154	197
	9.57.3	150 mm diameter		metre	52	0	213	264
9.58	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion.							
	9.58.1	Coupler						
		9.58.1.1	75 mm	each	7	0	41	48
		9.58.1.2	110 mm	each	8	0	73	81
		9.58.1.3	150 mm	each	9	0	107	116
	9.58.2	Single pushfit Coupler						
		9.58.2.1	75 mm	each	7	0	41	48
		9.58.2.2	110 mm	each	8	0	65	73
		9.58.2.3	150 mm	each	9	0	90	99
	9.58.3	Single tee with door						
		9.58.3.1	75x75x75 mm	each	8	0	95	103
		9.58.3.2	110x110x110 mm	each	10	0	143	153
		9.58.3.3	150x150x150 mm	each	13	0	194	207
	9.58.4	Single tee without door						
		9.58.4.1	75x75x75 mm	each	8	0	80	88
		9.58.4.2	110x110x110 mm	each	10	0	130	140
		9.58.4.3	150x150x150 mm	each	13	0	188	201
	9.58.5	Bend 87.5°						
		9.58.5.1	75 mm bend	each	7	0	51	58
		9.58.5.2	110 mm bend	each	8	0	83	91
		9.58.5.3	150 mm bend	each	9	0	119	128
	9.58.6	Shoe (Plain)						
		9.58.6.1	75 mm Shoe	each	7	0	42	49
		9.58.6.2	110 mm Shoe	each	8	0	70	78

		9.58.6.3	150 mm Shoe	each	9	0	102	111
9.59	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.							
	9.59.1	75 mm		each	102	0	36	139
	9.59.2	110 mm		each	102	0	42	145
	9.59.3	150 mm		each	102	0	48	151
9.60	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.			each	3	0	31	34
9.61	Providing and fixing to the inlet mouth of rain water pipe PTMT (an Engineering Thermoplastic) grating square (Slit) 150 mm square with a height of 8 mm and weighing not less than 100 gms.			each	3	0	76	80
9.62	Providing and fixing M.S. holder bat clamps of approved design to C.I. or S.C.I. rain water pipes embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and cost of cutting holes and making good the walls etc. :							
	9.62.1	100 mm diameter		each	103	0	39	142
	9.62.2	150 mm diameter		each	103	0	56	159
9.63	Providing lead caulked joints to sand cast iron rain water pipes and fittings:							
	9.63.1	100 mm dia Pipe		each	75	0	163	238
	9.63.2	150 mm dia Pipe		each	98	0	242	340
9.64	Providing, fixing and embedding sand cast iron accessories for rain water pipes in the masonry surrounded with 12 mm thick cement mortar of the same mix, as that of masonry (lead caulking will be paid for separately):							
	9.64.1	Sand cast iron plain shoes :						
		9.64.1.1	150 mm diameter	each	14	0	325	339

CHAPTER NO. 10

FLOORING
AND
DADOS

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CHAPTER 10.0 - FLOORING AND DADOS

LIST OF BUREAU OF INDIAN STANDARDS CODES

Sr. No.	B.I.S. No.	Subject
1	IS 269	Specification for 33 grade ordinary Portland Cement
2	IS 401	Code of practice for preservation of timber
3	IS 451	Technical supply conditions for wood screws
4	IS 455	Specification for Portland slag cement
5	IS 1130	Specification for marble (blocks, slabs and tiles)
6	IS 1141	Code of practice for Seasoning of timber
7	IS 1200-(Part XI)	Method of measurement of Building and Civil Engineering work (Part 11) paving, floor finishes, dado and skirting
8	IS 1237- Edition 2.3	Specification for cement concrete flooring tiles
9	IS 1443	Code of practice for laying and finishing of cement concrete flooring tiles
10	IS 2114	Code of practice for laying in-situ terrazzo floor finish
11	IS 2571	Code of practice for laying in-situ cement concrete flooring
12	IS 3622	Specification for sand stone (Slab & Tiles)
13	IS 3670	Code of practice for construction of timber floors
14	IS 4457	Acid and/or alkali Resistant tiles.
15	IS 5318	Code of practice for laying of hard wood parquet and wood block floors
16	IS 5766	Code of practice for laying of burnt clay brick floor
17	IS 8041	Specification for rapid hardening Portland cement
18	IS 8042	Specification for white Portland cement
19	IS 8043	Specification for hydrophobic Portland cement
20	IS 8112	Specification for 43 grade ordinary Portland cement
21	IS 12330	Specification for sulphate resisting Portland cement.
22	IS: 13630 (Part-1 to 15)	Methods of Testing of ceramic tiles
23	IS 13712	Specification for ceramic tiles; definition, classification characteristic and marking
24	IS 15622	Specification for pressed ceramic tile

CHAPTER 10.0 - FLOORING AND DADOS

NOTES:

1.0 The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

2.0 BRICK ON EDGE FLOORING

3.0 Bricks of Specified class designations shall be used. Broken bricks shall not be used in flooring except for closing the line. The bricks shall be laid on edge. Flooring shall be laid on base concrete where so provided. Where base concrete is not provided, the earth below shall be properly sloped, watered, rammed and consolidated. Before laying the flooring, it shall be moistened. Bricks shall be so laid that all joints are full of mortar. The thickness of joints shall not exceed 1.0 cm for brick work with bricks of any class designation.

3.0 CEMENT CONCRETE FLOORING

Cement concrete of specified mix grade shall be used. Flooring shall be laid on base concrete where so provided. Immediately before laying the flooring, the base shall be wetted and a coat of cement slurry @ 2 kg of cement spread over an area of one SqM so as to get a good bond between the base and concrete floor. If the cement concrete flooring is to be laid directly on the RCC slab, the top surface of RCC slab shall be cleaned and the laitance shall be removed and a coat of cement slurry @ 2 kg of cement spread over an area of one SqM so as to get a good bond between the base and concrete floor. Floor panels shall be of uniform size and no dimension of a panel shall exceed 2 m and the area of a panel shall not be more than 2 SqM. Normally cement concrete flooring shall be laid in one operation using glass/aluminium/PVC/brass strips/stainless steel strips. Laying of cement concrete flooring in alternate panels may be allowed by the Engineer-in-Charge in case strips are not to be provided. The edges of sunk floors shall be finished and rounded with cement mortar 1:2 (1 cement: 2 coarse sand) and finished with a floating coat of neat cement. The junctions of floor with wall plaster, dado or skirting shall be rounded off where so specified.

4.0 CEMENT CONCRETE FLOORING WITH METALLIC HARDENER TOPPING

Wherever floors are required to withstand heavy wear and tear, use of floor hardener shall be avoided as far as possible by using richer mixes of concrete, unless the use of a metallic hardener is justified on the basis of cost. Where metallic hardener topping is used, it shall be 12 mm thick. Topping shall consist of 12 mm thick layer of mix 1:2 (1 cement: 2 stone aggregate 6 mm nominal size) by volume or as otherwise specified with which metallic hardening compound is mixed in the ratio of 1: 4 (1 metallic concrete hardener: 4 cement) by weight.

5.0 CEMENT PLASTER IN RISERS OF STEPS, SKIRTING, DADO

Plaster at the bottom of wall not exceeding 30 cm in height above the floor shall be classified as skirting. It shall be flush with wall plaster or projecting out uniformly as specified. The work shall be preferably carried out simultaneously with the laying of floor. The finishing of surface shall be done simultaneously with the borders or the adjacent panels of floor. The cement to be applied in the form of slurry for smooth finishing shall be at the rate of 2 kg of cement per litre of water applied over an area of 1 SqM.

6.0 CEMENT CONCRETE PAVEMENT IN COURTYARD AND TERRACE ETC.

The panels shall be of uniform size and no dimension of a panel shall exceed 1.25 m and the area of panel should not exceed 1.25 SqM for the thickness of panels up to 50 mm. Concreting shall be done in alternate panels only and no glass/asbestos strips shall be provided.

7.0 TERRAZO (MARBLE CHIPS) FLOORING LAID IN SITU

The panels shall be of uniform size, not exceeding 2 SqM in area or 2 m in length for in-side situations. In exposed situations, the length of any side of the panel shall not be more than 1.25 metre. Cement slurry @ 2.00 kg per SqM shall be applied before laying of under layer over the base cement concrete/RCC base. 4 mm thick glass strips or 2 mm thick PVC strips/aluminium strips/brass strips / stainless steel strips/copper strips unless otherwise specified shall be fixed with their top at proper level to required slope. The mix for terrazzo shall consist of cement with or without pigment, marble powder, marble aggregate (marble chips) and water. The grinding and polishing may be commenced not before 2 days from the time of completion of laying for manual grinding and not before 7 days for machine grinding.

8.0 CRAZY MARBLE FLOORING

The under layer of crazy marble flooring shall be of cement concrete of thickness 25 mm or as specified. The mix shall normally be 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 12.5 mm nominal size) by volume unless otherwise specified. The mix of crazy marble stone flooring shall consist of white cement with or without pigment, marble powder, marble chips of 00 Nos. and marble stone pieces and water.

9.0 TERRAZO TILE FLOORING

Terrazzo tiles shall generally conform to IS 1237. The tiles shall be manufactured in a factory under pressure process. The proportion of cement to aggregate in the backing of tiles shall be not leaner than 1:3 by weight. Where colouring material is used in the wearing layer, it shall not exceed 10 per cent by weight of cement used in the mix.

10.0 CHEQUERED TILE FLOORING

Chequered Tiles shall be of nominal sizes such as 20 × 20 cm, 25 × 25 cm and 30 × 30 cm or of standard sizes with equal sides. The centre to centre distance of chequers shall not be less than 2.5 cm and not more than 5 cm. The grooves in the chequers shall be uniform and straight. The depth of the grooves shall not be less than 3 mm.

11.0 ACID OR ALKALI RESISTANT TILES

The tiles shall be of vitreous ware and iron oxide content allowable in the raw material shall not exceed two percent. The tiles shall be vitrified at the temperature of 1100^{0}C and above and shall be kept unglazed. The tiles shall be conforming to IS 4457.

12.0 PRESSED CERAMIC TILE FLOORING

Pressed Ceramic Tiles shall be of approved make and shall generally conform to IS 15622. They shall be flat, and true to shape and free from blisters crazing, chips, welts, crawling or other imperfections detracting from their appearance. Classification and Characteristics of pressed ceramic tiles shall be as per IS 13712.

Coloured Tiles: Only the glaze shall be coloured as specified.

Decorative tiles can be

a) Decorated white back ground tiles

b) Decorated and having coloured back-ground

13.0 FIXING OF TILE FLOORING WITH CEMENT BASED HIGH POLYMER MODIFIED QUICK SET ADHESIVE (WATER BASED)

When tile flooring is to be laid over the existing flooring without dismantling old flooring it can be laid with adhesive. High polymer modified quick set tile adhesive (conforming to IS 15477) shall be thoroughly mixed with water and a paste of zero slump shall be prepared so that it can be used with in 1.5 to 2 hours.

14.0 MARBLE STONE FLOORING

Every stone shall be cut to the required size and shape, fine chisel dressed on all sides to the full depth so that a straight edge laid along the side of the stone shall be fully in contact with it. All angles and edges of the marble slabs shall be true, square and free from chippings and the surface shall be true and plane. The bedding for the slabs shall be with cement mortar 1:4 (1 cement: 4 coarse sand) or as given in the description of the item. The average thickness of the bedding mortar under the slab shall be 20 mm and the thickness at any place under the slab shall be not less than 12 mm.

15.0 KOTA STONE FLOORING

Kota Stone Slabs The slabs shall be of selected quality, hard, sound, dense and homogeneous in texture free from cracks, decay, weathering and flaws. They shall be hand or machine cut to the requisite thickness. They shall be of the colour indicated in the drawings or as instructed by the Engineer-in-Charge.

16.0 FINE DRESSED SAND STONE FLOORING

The stone slabs shall be hard, sound, durable and tough, free from cracks, decay and weathering. In case of red sand stone, white patches or streaks shall not be allowed. However, scattered spots up to 10 mm diameter will be permitted. The slabs shall be hand or machine cut to the requisite thickness along planes parallel to the natural bed of stone and should be of uniform size if required. Every slab shall be cut to the required size and shape and chisel dressed on all sides to a minimum depth of 20 mm. The top and the joints shall be fine tooled so that straight edge laid along the face is fully in contact with it. The bedding for the slabs shall be with cement mortar 1:5 (1 cement: 5 coarse sand) or as given in the description of the item. The average thickness of the bedding mortar under the slabs shall be 20 mm and the thickness at any place under the slabs shall not be less than 12 mm.

17.0 WOODEN FLOORING

All timber used for timber floors shall be thoroughly seasoned in accordance with IS 1141. After seasoning the timber shall be treated with preservative in accordance with IS 401. Main beams and joists of the class of wood sections specified in the description of the item for beams and joists, or as instructed by the Engineer-in-Charge shall be fixed in position to dead levels. The width of the joints shall not be less than 50 mm. The arrangement and spacing of beams joists etc. shall be as per design furnished. Boards shall be of the class of timber and thickness specified in the description of the item. Unless otherwise specified or shown in the drawings, the width of boards selected shall not be less than 100 mm nor more than 150 mm. Unless otherwise described in the item, the longitudinal joints of planks shall be tongued and grooved to a minimum depth of 12 mm while the heading joints shall be of the square butt type and shall occur over the centre line of the supporting joists. Heading joists in adjacent boards shall be placed over the same joists.

	CHAPTER 10.0 - FLOORING AND DADOS						
	CEMENT CONCRETE FLOORING						
10.1	Providing and laying of base course of floors consisting of 100 mm thick cement 1:8:16 and 100 mm sand or stone filling.		sqm	97	0	260	356
10.2	Supplying and filling in plinth with sand (conforming to zone-IV, IS 1542) under floors, including watering, ramming, consolidating and dressing complete.		cum	71	0	1149	1220
10.3	Supplying and providing of Tangri River Sand under floors Including watering and compaction in 25cm layers, dressing etc. complete In all respects (As per item 10.2)		cum	53	0	676	730
10.4	Providing and laying of screed of 50 mm thick cement concrete 1:8:16 to be laid below the topping.		sqm	42	0	78	120
10.5	Providing and laying of screed of 40 mm thick cement concrete 1:8:16 to be laid below the topping.		sqm	29	0	63	92
10.6	Providing and laying of screed of 40 mm thick cement concrete 1:4:8 to be laid below the topping.		sqm	442	0	98	540
10.7	Providing and laying of conglomerate floor 50mm thick cement concrete topping 1:2:4		sqm	154	0	164	317
10.8	Providing and laying of conglomerate floor 40mm thick cement concrete topping 1:2:4		sqm	143	0	131	274
10.9	Providing and laying of Conglomerate floor 25 mm thick cement concrete 1:2:4 on 100 mm cement concrete 1:8:16 and 100 mm sand or stone filling.		sqm	104	0	354	458
10.10	Providing and laying Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, but excluding the cost of nosing of steps etc. complete.						
	10.10.1	40 mm thick with 20 mm nominal size stone aggregate	sqm	118	0	155	273
	10.10.2	25 mm thick with 12 mm nominal size stone aggregate	sqm	74	0	97	171
10.11	Providing and laying of 52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.		sqm	190	0	213	403
10.12	Providing and laying of 62 mm thick cement concrete flooring with concrete hardener topping, under layer 50 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate, 6mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacture's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.		sqm	193	0	245	439
10.13	Providing and laying cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.						
	10.13.1	18 mm thick	sqm	151	0	118	269
10.14	Providing a floating coat of 1.50 mm thick neat cement laid in one operation to the topping.		sqm	16	0	13	29
10.15	Extra for using hardner at top surface (3.5Kg /sqm) of trimix M25 to finish surface complete in all respect		sqm	0	0	168	168
10.16	Providing and laying cement concrete pavement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete.		cum	1341	0	3272	4613
10.17	Providing and laying polythene sheet under CC M-25 in road and parking complete in all respect		sqm	4	0	18	22
10.18	Extra for making chequers (2mm deep) of approved pattern on cement concrete floors, steps, landing, pavements etc.		sqm	25	0	0	25
	TERRAZO FLOORING						
10.19	Providing and laying of 40 mm thick marble chips flooring rubbed and polished to granolithic finish, under layer 34 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 6mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 1 mm to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume, including cement slurry etc. complete :						
	10.19.1	Dark shade pigment with ordinary cement	sqm	286	0	189	475
	10.19.2	Light shade pigment with white cement	sqm	286	0	214	500
	10.19.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	286	0	199	485
	10.19.4	White cement without any pigment	sqm	280	0	196	476
	10.19.5	Light shade pigment with ordinary cement	sqm	286	0	185	472
	10.19.6	Ordinary cement without any pigment	sqm	286	0	165	452
10.20	Providing and laying of 40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 31 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 9 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 4 mm to 7 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder : 7 marble chips) by volume, including cement slurry etc. complete.						
	10.20.1	Dark shade pigment with Ordinary cement	sqm	283	0	223	506
	10.20.2	Light shade pigment with white cement	sqm	283	0	260	543
	10.20.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	283	0	237	520
	10.20.4	White cement without any pigment	sqm	280	0	231	511
	10.20.5	Light shade pigment with ordinary cement	sqm	283	0	220	503
	10.20.6	Ordinary cement without any pigment	sqm	278	0	190	468
10.21	Providing and laying of 40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 28 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 12 mm thick with white, black, chocolate, grey yellow or green marble chips of sizes from 7 mm to 10 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 2:3 (2 cement marble powder mix : 3 marble chips) by volume, including cement slurry etc. complete :						
	10.21.1	Dark shade pigment with ordinary cement	sqm	280	0	249	528
	10.21.2	Light shade pigment with white cement	sqm	280	0	300	580
	10.21.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	280	0	268	548
	10.21.4	White cement without any pigment	sqm	278	0	266	544
	10.21.5	Light shade pigment with ordinary cement	sqm	280	0	242	522
	10.21.6	Ordinary cement without any pigment	sqm	278	0	208	486
10.22	Providing and fixing glass strips in joints of terrazo/ cement concrete floors.						
	10.22.1	40 mm wide and 4 mm thick	metre	18	0	25	43
10.23	Extra for laying terrazo flooring on staircase treads not exceeding 30 cm in width, including cost of forming, nosing etc.		sqm	26	0	0	26
10.24	Providing and laying of crazy marble stone flooring, including filling the gaps with light shade pigment with white cement marble powder mixture (3 parts of white cement : 1 part of marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 white, black or white and black marble chips of sizes from 1 mm to 4 mm nominal size by volume), with under layer 25 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size), including rubbing, polishing and cement slurry etc. complete :						
	10.24.1	18 mm thick crazy marble stone white, black or as specified	sqm	531	0	240	771
10.25	Providing and laying of marble chips skirting up to 30 cm height, rubbed and polished to granolithic finish, top layer 6 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from smallest to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume :						

	10.25.1	18 mm thick with under layer 12 mm thick in cement plaster 1:3 (1 cement : 3 coarse sand) :						
		10.25.1.1	Dark shade pigment with ordinary cement	sqm	552	0	138	690
		10.25.1.2	Light shade pigment with white cement	sqm	552	0	164	716
		10.25.1.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	552	0	148	700
		10.25.1.4	White cement without any pigment	sqm	552	0	146	698
		10.25.1.5	Light shade pigment with ordinary cement	sqm	552	0	135	687
		10.25.1.6	Ordinary cement without any pigment	sqm	552	0	115	667
	TILE FLOORING							
10.26	Providing and laying of precast terrazo tiles 20 to 22 mm thick with graded marble chips of size upto 12 mm, laid in floors, and landings, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement:4 coarse sand) :							
	10.26.1	Light shade pigment using white cement		sqm	273	0	522	795
	10.26.2	Medium shade pigment using 50% white cement and 50% ordinary cement		sqm	273	0	479	753
	10.26.3	Dark shade pigment using ordinary cement		sqm	273	0	444	717
	10.26.4	Ordinary cement without any pigment		sqm	226	0	444	670
10.27	Extra if terrazo tiles are laid in treads of steps not exceeding 30 cm in width.			sqm	41	0	0	41
10.28	Providing and laying of precast terrazo tiles 20 to 22 mm thick with graded marble chips of sizes upto 12 mm, in skirting and risers of steps not exceeding 30 cm in height, on 12 mm thick cement plaster 1:3 (1 cement : 3 coarse sand), jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete with tiles of :							
	10.28.1	Light shade pigment using white cement		sqm	548	0	519	1067
	10.28.2	Medium shades pigment using 50% white cement and 50% ordinary cement		sqm	548	0	468	1016
	10.28.3	Dark shade pigment using ordinary cement		sqm	548	0	427	975
	10.28.4	Ordinary cement without any pigment		sqm	489	0	427	915
10.29	Providing and laying of chequered terrazo tiles 20 to 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :							
	10.29.1	Light shade pigment using white cement		sqm	273	0	509	783
	10.29.2	Medium shade pigment using 50% white cement, 50% ordinary cement		sqm	273	0	517	791
	10.29.3	Dark shade pigment using ordinary cement		sqm	273	0	456	730
	10.29.4	Ordinary cement without any pigment		sqm	226	0	432	658
10.30	Providing and laying of chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).							
	10.30.1	Light shade pigment using white cement		sqm	166	0	689	854
	10.30.2	Medium shade pigment using 50% white cement 50% Grey cement		sqm	166	0	589	754
	10.30.3	Dark shade pigment using ordinary cement		sqm	166	0	438	604
	10.30.4	Ordinary cement without any pigment		sqm	111	0	422	533
10.31	Providing and fixing 10 mm thick acid and/or alkali resistant tiles of approved make and colour using acid and/or alkali resisting mortar bedding, and joints filled with acid and/or alkali resisting cement as per IS : 4457, complete as per the direction of Engineer-in- Charge.							
	10.31.1	In flooring on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)						
		10.31.1.1	Acid and alkali resistant tile	sqm	170	0	832	1003
	10.31.2	In dado/skirting on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)						
		10.31.2.1	Acid and alkali resistant tile	sqm	208	0	852	1060
10.32	Providing and laying of tile work in skirting, risers of steps and dado up to 2 m height over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm, including pointing in white cement mixed with pigment of matching shade complete.							
	10.32.1	Marble tiles (polished) Raj Nagar						
		10.32.1.1	8 mm thick	sqm	201	0	585	786
	BRICK FLOORING							
10.33	Providing and laying of brick on edge flooring with bricks of class designation 7.5 on a bed of 12 mm cement mortar, including filling the joints with same mortar, with common burnt clay non modular bricks:							
	10.33.1	1:4 (1 cement : 4 coarse sand)		sqm	101	0	620	721
	10.33.2	1:6 (1cement : 6 coarse sand)		sqm	117	0	571	689
10.34	Providing and laying dry brick on edge flooring in required pattern with bricks of class designation 7.5 on a bed of 12 mm mud mortar, including filling joints with Jamuna sand, with common burnt clay non modular bricks.			sqm	91	0	527	618
10.35	Providing and laying of flat brick on tile flooring with bricks of class designation 7.5 laid in cement sand mortar 1:4 on 100 mm thick cement concrete 1:8:16 and 100 mm sand filling and cement pointing 1:2 on top.			sqm	194	0	603	797
10.36	Providing and laying of flat brick on tile flooring with bricks of class designation 7.5 laid dry over a bed of 6 mm thick cement sand mortar 1:6 grouted with cement sand mortar 1:4 and top surface to be left clean after wire brushing.			sqm	75	0	348	423
	KOTA STONE FLOORING							
10.37	Providing and fixing of Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :							
	10.37.1	25 mm thick		sqm	463	0	524	988
10.38	Providing and fixing of Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.			sqm	529	0	508	1036
	SAND STONE FLOORING							
10.39	Providing and fixing of 40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush.							
	10.39.1	Red sand stone		sqm	249	0	329	579
10.40	Providing and fixing of 40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand), including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone.							
	10.40.1	Red sand stone		sqm	321	0	342	663
10.41	Providing and fixing of 40 mm thick rubbed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints 3 mm thick, side buttered with cement mortar 1:2 (1 cement : 2 stone dust) admixed with pigment to match the shade of stone and pointing with same mortar.							
	10.41.1	Red sand stone		sqm	381	0	341	722
10.42	Extra for pre finished nosing in treads of steps of Kota stone/ sand stone slab.			metre	78	0	0	78
10.43	Extra for Kota stone/ sand stone in treads of steps and risers using single length up to 1.05 metre.			sqm	14	0	0	14
	MARBLE STONE FLOORING							
10.44	Providing and fixing of marble stone flooring with 18 mm thick marble stone, as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :							

	10.44.1	Makrana white second quality	sqm	464	0	1985	2448
	10.44.2	Raj Nagar plain	sqm	464	0	895	1358
	10.44.3	Agaria White	sqm	464	0	1551	2015
	10.44.4	Black Zebra	sqm	464	0	1289	1752
	10.44.5	Udaipur green marble	sqm	464	0	921	1384
	10.44.6	Pink plain marble	sqm	464	0	954	1417
10.45	Extra for pre finished nosing to treads of steps of marble stone.		metre	242	0	0	242
10.46	Extra for marble stone flooring in treads of steps and risers using single length up to 2.00 metre.		sqm	278	0	0	278
10.47	Providing and laying Baroda Green marble stone 17mm and above thick in risers of step, skirting , dado, pillars and wall lining included matching the grains of marble slab in any pattern as specified laid over 12mm thick cement sand mortar 1:3 and jointed with white cement slurry mixed with pigment to match the shade of marble including rubbing and polishing. The rates are for all heights / storey. The sample shall be got approved from Engineer In Charge.		sqm	669	0	970	1639
10.48	Providing and laying Baroda Green marble stone 17mm and above thick flooring included matching the grains of marble slab in any pattern as specified laid over 12mm thick cement sand mortar 1:3 and jointed with white slurry mixed with pigment to match the shade of marble including rubbing and polishing. The rates are for all heights / storey. The sample shall be got approved from Engineer In Charge.		sqm	414	0	970	1384
	GRANITE FLOORING						
10.49	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge :						
	10.49.1	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	326	0	1463	1790
10.50	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.						
	10.50.1	Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	261	0	2383	2644
10.51	Providing and fixing granite stone in all shades 15mm to 18 mm thick in skirting /dado, risers of steps, pillars and wall facing, laid in any pattern as specified over base of 12mm thick cement coarse sand mortar 1:3 and jointed with white cement slurry mixed with pigment to match the shade of Granite including labour for fixing cramps pins and dowels etc.		sqm	740	0	2236	2977
	ITALIAN MARBLE STONE FLOORING						
10.52	Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.						
	10.52.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	455	0	4357	4812
10.53	Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm, including pointing with white cement slurry admixed with pigment to match the marble shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.						
	10.53.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	489	0	4540	5029
	WOODEN FLOORING						
10.54	Providing and fixing 25 mm wooden planking, tongued and grooved in flooring, including fixing with iron screws complete with :						
	10.54.1	Second class teak wood	sqm	145	0	3225	3370
	10.54.2	Second class deodar wood	sqm	117	0	2098	2215
10.55	providing and fixing 38 mm thick wood block flooring of first class teak wood laid over 25 mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm nominal size) to be paid separately, coated with a thin layer of hot bitumen penetration 80/25 (blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) up to half depth, planed, levelled smooth and finished complete.		sqm	1602	0	4370	5972
10.56	Providing and fixing M.S. angle 50x50x5 mm to act as nosing with lugs of M.S. flat 10x5 mm, 10 cm long, forked at end 60cm apart (minimum three lugs to be provided), including necessary welding and applying a priming coat of approved primer on exposed surface etc. complete.		kg	29	0	62	91
	CERAMIC GLAZED TILES						
10.57	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.		sqm	175	0	366	541
10.58	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.		sqm	208	0	329	537
10.59	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick bed of cement mortar 1:4 (1 Cement : 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sq.m including pointing the joints with white cement and matching pigments etc., complete.		sqm	175	0	425	600
10.60	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.		sqm	175	0	513	688
10.61	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including pointing the joints with white cement and matching pigments etc., complete.		sqm	175	0	584	758
10.62	Providing and fixing Ist quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.		sqm	208	0	359	567
	VITRIFIED FLOOR TILES						
10.63	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.						

	10.63.1	Size of Tile 500x500 mm	sqm	175	0	682	856
	10.63.2	Size of Tile 600x600 mm	sqm	175	0	810	985
	10.63.3	Size of Tile 800x800 mm	sqm	1160	0	985	2145
	10.63.4	Size of Tile 1000x1000 mm	sqm	175	0	1161	1336
10.64	Deduct for not using 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) bedding in laying of floor tiles and jointing with grey cement slurry @ 3.3 kg/ sqm		sqm	175	0	130	305
10.65	Providing and fixing glazed/ Ceramic/ Vitrified floor tiles with cement based high polymer modified quick-set tile adhesive (Water based) conforming to IS: 15477, in average 3mm thickness.		sqm	166	0	81	247
10.66	Providing and laying of crazy ceramic tile flooring, with under layer 12 mm thick cement mortar 1:4 (1 cement: 4 coarse sand), with joints not exceeding 5 mm, including filling the gaps with ordinary cement mixture & mixing with synthetic polyester fibre, triangular in shape having specific gravity of 1.34 to 1.40, cross section size ranging from 10 to 40 micron & length upto 6 mm , mixing fibre @ 125 grams per 50 kg of cement in cement mortar, including providing and mixing water proofing material in mortar @ 1 kg per 50 kg of cement, all complete as per direction of Engineer-in-charge.		sqm	233	0	117	350
10.67	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.						
	10.67.1	Size of Tile 500x500 mm	sqm	208	0	658	865
	10.67.2	Size of Tile 600x600 mm	sqm	208	0	787	994
	10.67.3	Size of Tile 800x800 mm	sqm	208	0	962	1170
	10.67.4	Size of Tile 1000x1000 mm	sqm	208	0	1138	1345
10.68	Providing and fixing glazed screen printed border tile 75mm wide having thickness 5mm, of approved quality & make, in all shades, design and prints, in dado, over 12mm thick bed of cement mortar 1:3 (1 Cement : 3 Coarse sand) and jointing with grey cement slurry @ 3.3 kg/sqm including pointing with white cement mixed with pigment of matching shade, all complete as approved by Engineer - in - Charge		metre	16	0	102	117
10.69	Providing and laying Vitrified tiles in different sizes (thickness to be specified by the manufacturer), with water absorption less than 0.08% and conforming to IS: 15622, of approved brand & manufacturer, in all colours and shade, in skirting, riser of steps, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS: 15477, in average 6 mm thickness, including grouting of joints (Payment for grouting of joints to be made separately).						
	10.69.1	Size of Tile 500x500 mm	sqm	254	0	681	934
	10.69.2	Size of Tile 600x600 mm	sqm	254	0	810	1063
	10.69.3	Size of Tile 800x800 mm	sqm	254	0	985	1239
	10.69.4	Size of Tile 1000x1000 mm	sqm	254	0	1161	1414
10.70	Extra for grouting the joints of floor tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg), including filling / grouting and finishing complete as per direction of Engineer-in-charge.						
	10.70.1	Size of Tile 500x500 mm	sqm	76	0	89	165
	10.70.2	Size of Tile 600x600 mm	sqm	62	0	76	138
	10.70.3	Size of Tile 800x800 mm	sqm	47	0	64	111
	10.70.4	Size of Tile 1000x1000 mm	sqm	33	0	47	79
10.71	Providing and laying Vitrified tiles in floor with different sizes (thickness to be specified by the manufacturer), with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS : 15477, in average 6 mm thickness, including grouting of joints (Payment for grouting of joints to be made separately).						
	10.71.1	Size of Tile 500x500 mm	sqm	207	0	681	888
	10.71.2	Size of Tile 600x600 mm	sqm	207	0	810	1017
	10.71.3	Size of Tile 800x800 mm	sqm	207	0	985	1192
	10.71.4	Size of Tile 1000x1000 mm	sqm	207	0	1161	1368
10.72	Deduct for not grouting the joints with white cement and matching pigment in the items of fixing of vitrified tiles.		sqm	1	0	2	3
10.73	Providing and fixing ceramic & Glazed tiles/ vitrified tiles/ of any size of approved make in floors / dados, laid in any pattern as specified over base of 3 mm thick adhesive of reputed brands such as Pidilite, Laticrete , Ferrouscrete & Valendure as per IS specification 15477-2004 using 5 Kg. adhesive per sqm area of tiles and jointed with white cement slurry mixed with pigment to match the shade of tiles excluding cost of tiles.		sqm	740	0	877	1617
10.74	Using ready mixed polymer modified based on grey cement/ white cement tile adhesive 3mm to 4mm thick for Ceramic and Vitrified tiles for wall and floors Technical Specifications: i) Mix Density - 1.7 to 1.8 kg/litre ii) Tensile Adhesion a) Dry conditions (24hrs) - Minimum 750N b) Wet Conditions (7daysdry+7 days in water) - Min. 450N iii) Shear Adhesion a) Dry adhesion (24hrs) - Minimum 8 KN b) Wet adhesion (24hrs) - Minimum 4KN		sqm	0	0	106	106
	CC INTERLOCKING PAVER BLOCKS						
10.75	Providing and laying 50mm thick faciory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over (BIS 15658:2006) and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.		sqm	111	0	475	586
10.76	Providing and laying 60mm thick faciory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over (BIS 15658:2006) and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.		sqm	111	0	524	635
10.77	Providing and laying 80mm thick faciory made cement concrete interlocking paver block of M -35 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over (BIS 15658:2006) and including 60mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.		sqm	111	0	653	764
10.78	Providing and laying 100mm thick faciory made cement concrete interlocking paver block of M -35 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over (BIS 15658:2006) and including 60mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.		sqm	111	0	727	838
	PVC/LINOLEUM FLOORING						
10.79	Providing and laying plain coloured 3.20 mm thick linoleum covering to floors laid dry.		sqm	22	0	544	566
10.80	Extra on item No.10.79, if linoleum of exact size is used.		sqm	22	0	598	620
10.81	Providing and fixing of P.V.C.(vinyl) asbestos tiles as per I.S.3461-1961 coloured and marbled or mottled finish flooring on a smooth and damp proof base using adhesive as recommended by manufacturer including rolling with light wooden roller weighing about 5 kg complete in all respect as desired by Engineer-in-Charge.						
	10.81.1	2 mm thick	sqm	143	0	453	596
	10.81.2	3 mm thick	sqm	143	0	513	656

10.82	Providing and fixing of P.V.C. sheet flexible type conforming to I.S.3462-1966 flooring plain coloured marble or mottled finish on a smooth damp proof base laid with adhesive recommended by manufacturer including pressing the sheet with a suitable tool to get a smooth surface all complete as directed by the Engineer-in-Charge.						
	10.82.1	1.50 mm thick	sqm	50	0	362	412
	10.82.2	2.00 mm thick	sqm	50	0	410	460
	10.82.3	2.50 mm thick	sqm	50	0	452	502
	10.82.4	3.00 mm thick	sqm	50	0	482	532
	10.82.5	4.00 mm thick	sqm	50	0	512	562
	10.82.6	5.00 mm thick	sqm	50	0	542	592
	GLASS/ ALUMINIUM/ PVC STRIPS IN FLOORING						
10.83	Providing and fixing aluminium strips 2 mm thick complete with nails in floors						
	10.83.1	40 mm wide	metre	11	0	64	75
	10.83.2	32 mm Wide	metre	11	0	51	63
	10.83.3	25 mm wide	metre	11	0	40	52
10.84	Providing and fixing glass strips, 3 mm thick in terrazo/ cement concrete floors.						
	10.84.1	40 mm wide	metre	10	0	19	29
	10.84.2	32 mm wide	metre	10	0	15	25
	10.84.3	25 mm wide	metre	10	0	13	23
10.85	Providing and fixing glass strips,4 mm thick in terrazo/ cement concrete floors.						
	10.85.1	40 mm wide	metre	10	0	25	35
	10.85.2	32 mm wide	metre	10	0	20	30
	10.85.3	25 mm wide	metre	10	0	16	26
10.86	Providing and fixing glass strips, 5.5 mm thick 40mm wide in floors		metre	11	0	35	47
10.87	Providing and fixing P.V.C. strips, 40mm wide in floors.						
	10.87.1	4 mm thick	metre	11	0	63	74
	10.87.2	5.5 mm thick	metre	11	0	75	87
	OTHER MISCELLANEOUS ITEMS USED FOR FLOORING						
10.88	Providing of stamping or making grooves for a depth of 2 mm on top of steps in stair case		sqm	31	0	0	31
10.89	Providing and fixing flat iron strips 40 mm x 3 mm thick in flooring (in stepping of floors) including cutting, straightening and fixing with nails etc. complete fixed in position.		metre	13	0	54	67
10.90	Providing and fixing of gun metal cramps 15 mm x 6 mm, 16.5 cm long as per design including cost of mortar		each	5	0	50	55
10.91	Providing and fixing of copper pins 7.5 cm long of 6mm diameter including cost of mortar.		each	2	0	14	16
10.92	Providing and fixing of stone dowel 10mm x 5x 2.50 cm cut to double wedge shape as per design including cost of mortar.		each	2	0	8	10
10.93	Providing and Laying of P.O.P on floors with polythene sheet, cleaning, wiping floor and mixing of POP with water on the polythene sheet and removing it after completion and disposing off the same complete in all respects as per direction of Engineer-in-Charge.		sqm	13	0	82	95
10.94	Providing and filling on joint 6 mm x 8 mm with Epoxy in Kota Stone flooring / Walls with 2.61 Kg/ 9.29 sqmt. complete in all respects as per direction of Engineer-in-Charge.		sqm	194	0	216	409
10.95	Providing and laying 500x500x40 mm thick Turf paver (Turfpave XD) on 150 mm thick sub grade of compacted bed of 20 mm thick nominal size stone aggregate and base course and filling with 150 mm thick jamuna sand, including spreading, well ramming, consolidating and finishing smooth etc. all complete as per direction of Engineer-in-charge.		sqm	101	0	899	999
10.96	Providing and fixing Glass mossaic tiles on finished plain wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in-Charge:		sqm	148	0	2461	2609
10.97	Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50 mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings, as specified and as directed by Engineer-in-charge consisting of:						
	(a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25 mm outer diameter, fully welded on to the G.I. Base plate of size 100mm x 100mm x 3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5 mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug.						
	(b) Stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for securing the stringers on to the pedestal head using fully threaded screws ensuring maximum lateral stability in all directions, the grid formed by the pedestal and stringer assembly shall receive the floor panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the architectural drawings, as specified and as directed by the Engineer-in-charge.						
	(c) Providing and fixing Access Floor panel of 600x600x32 mm medium grade Filled Steel anti static high pressure Lamination of 800H grade (FS800H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and 20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is filled with Pyrogrip noncombustible Portland cementitious core mixed with lightweight foaming compound. The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for superior adhesion and Surface flatness within 0.75mm.The panel is to withstand a Concentrated Load of 363 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 1250 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-in-charge. All specification must be printed on the side of the panel to ensure the quality of the product.						
	10.97.1	300 mm Finished Floor Height (FFH)	sqm	161	0	3947	4108
	10.97.2	450 mm Finished Floor Height (FFH).	sqm	161	0	4193	4354
10.98	Providing and fixing Grass paver block of required strength and thickness on 25 mm thick compacted bed of sand and filling the joint with sand complete in all respect		sqm	77	0	1114	1190
10.99	Providing and fixing covel stone/garden stone of size 150 mm x 150 mm laid in 20 mm thick cement mortar 1:3 including grouting the joint with white cement and matching pigment complete in all respect (Covel/Garden stone to be as per manufacturer's specifications to be got approved from Engineer-in-charge)		sqm	233	0	1646	1879

CHAPTER NO. 11

FINISHING WORKS

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CHAPTER 11.0 - FINISHING WORKS

LIST OF BUREAU OF INDIAN STANDARDS CODES

Sr. No.	B.I.S. No.	Subject
1	IS 75	Linseed Oil Raw and Refined
2	IS 77	Linseed Oil Boiled For Paints
3	IS 102	Ready Mixed Paint, Brushing, Red Lead, Nonsetting, Priming
4	IS 104	Specification for Ready Mixed Paint, Brushing, Zinc Chrome, Priming
5	IS 109	Ready Mixed Paint, brushing, priming Plaster to Indian Standard Colour No.361, 631 White and off White
6	IS 117	Ready Mixed Paint, Brushing, Finishing Exterior, Semigloss for General Purposes to Indian Standards Colours.
7	IS 133	Enamel, Interior (a) Under Coating (b) Finishing
8	IS 137	Ready Mixed Paint, Brushing, Matt Or Egg Shell Flat, Finishing Interior to Indian Standard Colour as required
9	IS 158	Ready Mixed Paint, Brushing, Bituminous Black, Lead Free, Acid, Alkali and Heat Resisting
10	IS 217	Specification for Cut Back Bitumen
11	IS 218	Specification for Creosote and Anthracene Oil For Use As Wood Preservatives
12	IS 290	Coal Tar Black Paint
13	IS 337	Varnish, Finishing Interior
14	IS 341	Black Japan, Types ‘A’, ‘B’ & ‘C’
15	IS 347	Varnish, Shellac for General Purposes
16	IS 348	French Polish
17	IS 427	Distemper, Dry Colour as Required
18	IS 428	Distemper, Oil Emulsion, Colour as Required
19	IS 524	Varnish, Finishing, Exterior, Synthetic Air Drying
20	IS 533	Gum Spirit of Turpentine (Oil of Turpentine)
21	IS 712	Specification For Building Limes
22	IS 1200 (Pt-XII)	Method of Measurements of Building and Civil Engineering Works : Part : XII — Plastering and Pointing
23	IS 1200 (Pt-XIII)	Method of Measurements of Building and Civil Engineering Works : Part : XIII — White Washing, Colour Washing Distempering and Painting of Building Surfaces.
24	IS 1200 (Pt-XV)	Methods of Measurements of Building and Civil Engineering Works : Part : XV — Painting, Polishing, Varnishing etc.
25	IS 2339	Aluminium Paint For General Purposes, in Dual Container
26	IS 2547 (Pt-II)	Gypsum Building Plasters Pt.II Premixed Light Weight Plasters
27	IS 2932	Enamel, Synthetic, Exterior (a) Undercoating, (b) Finishing
28	IS 2933	Enamel, Exterior (a) Undercoating (b) Finishing
29	IS 5410	Cement Paint
30	IS 5411 (Pt-1)	Plastic Emulsion : Paint Part I For Interior Use
31	IS 6278	Code of Practice For White Washing and Colour Washing

CHAPTER 11.0 - FINISHING WORKS

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 11.0 -FINISHING WORKS						
	Note :- Rates for external plaster are for height upto 10m from ground level in less otherwise stated.						
	6MM CEMENT PLASTER						
11.1	6 mm cement plaster of mix :						
	11.1.1	1:3 (1 cement : 3 fine sand)	sqm	82	0	30	112
11.2	6 mm cement plaster 1:3 (1 cement : 3 fine sand) finished with a floating coat of neat cement and thick coat of Lime wash on top of walls when dry for bearing of R.C.C. slabs and beams.		sqm	105	0	42	147
11.3	Neat cement punning.		sqm	19	0	13	32
	CEMENT PLASTER (IN FINE SAND)						
11.4	10 mm thick cement plaster		sqm	64	0	55	119
	11.4.1	1:2 (1 cement: 2 fine sand)	sqm	64	0	55	119
	11.4.2	1:3 (1 cement: 3 fine sand)	sqm	64	0	49	113
11.5	12 mm cement plaster of mix :						
	11.5.1	1:2 (1 cement: 2 fine sand)	sqm	91	0	72	163
	11.5.2	1:3 (1 cement: 3 fine sand)	sqm	91	0	60	151
	11.5.3	1:4 (1 cement: 4 fine sand)	sqm	91	0	49	140
	11.5.4	1:6 (1 cement: 6 fine sand)	sqm	91	0	38	129
11.6	15 mm cement plaster on the rough side of single or half brick wall of mix :						
	11.6.1	1:4 (1 cement: 4 fine sand)	sqm	104	0	59	162
	11.6.2	1:6 (1 cement: 6 fine sand)	sqm	104	0	46	149
11.7	20 mm cement plaster of mix :						
	11.7.1	1:4 (1 cement: 4 fine sand)	sqm	119	0	76	196
	11.7.2	1:6 (1 cement: 6 fine sand)	sqm	119	0	60	179
	CEMENT PLASTER (IN COARSE SAND)						
11.8	12 mm cement plaster of mix :						
	11.8.1	1:4 (1 cement: 4 coarse sand)	sqm	91	0	49	140
	11.8.2	1:6 (1 cement: 6 coarse sand)	sqm	91	0	38	129
11.9	15 mm cement plaster on rough side of single or half brick wall of mix:						
	11.9.1	1:4 (1 cement: 4 coarse sand)	sqm	104	0	59	162
	11.9.2	1:6 (1 cement: 6 coarse sand)	sqm	104	0	46	149
11.10	20 mm cement plaster of mix :						
	11.10.1	1:4 (1 cement: 4 coarse sand)	sqm	119	0	76	196
	11.10.2	1:6 (1 cement: 6 coarse sand)	sqm	119	0	60	179
	CEMENT PLASTER WITH A FLOATING COAT OF NEAT CEMENT						
11.11	12 mm cement plaster finished with a floating coat of neat cement of mix :						
	11.11.1	1:3 (1 cement: 3 fine sand)	sqm	110	0	71	181
	11.11.2	1:4 (1 cement: 4 fine sand)	sqm	110	0	61	171
11.12	15 mm cement plaster on rough side of single or half brick wall finished with a floating coat of neat cement of mix :						
	11.12.1	1:3 (1 cement: 3 fine sand)	sqm	123	0	83	206
	11.12.2	1:4 (1 cement: 4 fine sand)	sqm	123	0	70	193
11.13	Cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement.						
	11.13.1	12 mm cement plaster	sqm	110	0	71	182
	11.13.2	20 mm cement plaster	sqm	130	0	105	235
11.14	15 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.		sqm	123	0	83	206
11.15	6 mm plaster on cement concrete or reinforced cement concrete work with white cement based polymer modified self curing mortar of approved make as per the direction of Engineer-In-Charge.		sqm	41	0	79	121
11.16	Extra for addition of synthetic Polyester triangular fibre of length 6 mm, effective diameter 10-40 microns and specific gravity of 1.34 to 1.40 in cement plaster/mortar by using 125 gms. of synthetic Polyester triangular fibre for 50 kgs. cement used in cement mortar as per directions of Engineer-in-Charge.		per bag of 50 kg of cement	0	0	57	57
11.17	Providing and fixing of chicken wire mesh for avoiding cracks in plaster with necessary nail/screws etc. complete in all respect to the entire satisfaction of engineer-in-charge		sqm	177	0	57	234
	CEMENT PLASTER IN TWO COATS						
11.18	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand).		sqm	136	0	63	198
11.19	18 mm thick moulded cement mortar band in two coats under layer 12 mm thick with cement mortar 1:5 (1 cement : 5 coarse sand) top layer 6 mm thick with cement mortar 1:4 (1 cement : 4 fine sand).		cm per metre	6	0	1	7
11.20	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster 1:3 (1 cement : 3 coarse sand) finished rough with sponge.		sqm	136	0	73	209
11.21	12 mm cement plaster 1:2 (1 cement : 2 stone dust).		sqm	91	0	74	164
11.22	15 mm cement plaster 1:2 (1 cement : 2 stone dust) on the rough side of single or half brick wall.		sqm	104	0	88	191
11.23	20 mm cement plaster 1:2 (1 cement : 2 stone dust).		sqm	119	0	114	234
11.24	White Cement based polymer modified self curing compound in powder form used for levelling and plastering material, applied on red bricks, flyash bricks, AAC & Concrete blocks for internal and external work. Technical Specifications: i) Degree Of Whiteness (in terms of reflection) - >80% ii) Bulk density - 1.4 to 1.5 kg/litre iii) Pot life - 110-180 ninutes iv) Water retentivity - >95% v) Compressive strength @ 28 days > 10N/mm2 vi) Water absorption 30 minutes @ 28 days - <0.8		sqm	0	0	95	95
	POINTING ON BRICK WORK						
11.25	Pointing on brick work or brick flooring with cement mortar 1:3 (1 cement : 3 fine sand):						
	11.25.1	Flush / Ruled/ Struck or weathered pointing	sqm	77	0	12	89
	11.25.2	Raised and cut pointing	sqm	122	0	19	141
	POINTING ON TILE BRICK WORK						
11.26	Pointing on tile brick work with cement mortar 1:3 (1 cement : 3 fine sand):						
	11.26.1	Flush/ Ruled/ Struck or weathered pointing	sqm	103	0	20	123
	POINTING ON STONE WORK						
11.27	Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) :						
	11.27.1	Flush/ Ruled pointing	sqm	112	0	10	122
	11.27.2	Raised and cut pointing	sqm	199	0	16	215
11.28	Raised and cut pointing on stone work in white cement mortar 1:3 (1 white cement : 3 marble dust).		sqm	199	0	31	230
11.29	Pointing on stone slab ceiling with cement mortar 1:2 (1 cement : 2 fine sand):						

	11.29.1	Flush/ Ruled pointing	sqm	62	0	8	70
11.30	Extra for pointing on walls on the outside at height more than 10 m from ground level for every additional height of 3 m or part there of.		sqm	2	0	0	2
11.31	Lime surkhi pointing 2:3 weathered and struck on brick and tile work		sqm	56	0	5	60
	ROUGH CAST PLASTER						
11.32	Rough cast plaster upto 10 m height above ground level with a mixture of sand and gravel or crushed stone from 6 mm to 10 mm nominal size, dashed over and including the fresh plaster in two layers, under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand) and top layer 10 mm cement plaster 1:3 (1 cement : 3 fine sand) mixed with 10% finely grounded hydrated lime by volume of cement.						
	11.32.1	Ordinary cement finish using ordinary cement	sqm	231	0	112	342
	PEBBLE DASH PLASTER						
11.33	Pebble dash plaster upto 10 m height above ground level with a mixture of washed pebble or crushed stone 6 mm to 12.5 mm nominal size, dashed over and including fresh plaster in two layers under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand) and top layer 10 mm cement plaster with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 10% finely grounded hydrated lime by volume of cement.		sqm	213	0	112	324
11.34	Extra for providing and mixing water proofing material (as per BIS 2645:2003) in cement plaster work in proportion recommended by the manufacturers.		per bag of 50 kg	0	0	65	65
11.35	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.		sqm	24	0	0	24
11.36	Extra for plastering on circular work not exceeding 6 m in radius:						
	11.36.1	In one coat	sqm	14	0	0	14
	11.36.2	In two coats	sqm	21	0	0	21
11.37	Extra for plastering done on moulding, cornices or architraves including neat finish to line and level:						
	11.37.1	In one coat	sqm	215	0	0	215
	11.37.2	In two coats	sqm	354	0	0	354
11.38	Extra for plastering:						
	11.38.1	Spherical ceiling	sqm	53	0	0	53
	11.38.2	Groined ceiling	sqm	57	0	0	57
	11.38.3	Flewing soffits	sqm	35	0	0	35
	WASHED STONE GRIT PLASTER						
11.39	Washed stone grit plaster on exterior walls height upto 10 metre above ground level, in two layers, under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand), furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 kg of cement per square metre, top layer 15 mm cement plaster 1:1/ 2:2 (1 cement: 1/2 coarse sand : 2 stone chipping 10 mm nominal size), in panels with groove all around as per approved pattern, including scrubbing and washing the top layer with brushes and water to expose the stone chippings ,complete as per specification and direction of Engineer-in-charge (payment for providing grooves shall be made separately).		sqm	306	0	137	443
11.40	Forming groove of uniform size in the top layer of washed stone grit plaster as per approved pattern using wooden battens, nailed to the under layer, including removal of wooden battens, repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge :						
	11.40.1	15 mm wide and 15 mm deep groove	metre	22	0	1	23
	11.40.2	20 mm wide and 15 mm deep groove	metre	22	0	2	24
11.41	Extra for washed grit plaster on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.		sqm	46	0	0	46
11.42	Extra for washed stone grit plaster on circular work not exceeding 6 m in radius (in two coats).		sqm	40	0	0	40
11.43	Forming groove of uniform size from 12x12 mm and upto 25x15 mm in the top layer of washed stone grit plastered surface as per approved pattern, including providing and fixing aluminum channels of appropriate size and thickness (not less than 2 mm), nailed to the under layer with rust proof screws and nails and finishing the groove complete as per specifications and direction of the Engineer-in-Charge.		metre	7	0	53	61
11.44	Extra for using white cement in place of ordinary cement in the top layer of the item of washed stone grit plaster.		sqm	0	0	71	71
	ARTIFICIAL STONE PLASTER						
11.45	Extra for lining out plaster to imitate stone or concrete blocks walling.		sqm	34	0	0	34
	GYPSUM LIGHTWEIGHT PLASTER						
11.46	Providing and applying 12 mm thick (average) premixed formulated one coat gypsum lightweight plaster having additives and light weight aggregates as vermiculite/ perlite respectively conforming to IS: 2547 (Part - 1 & II) 1976, applied on hacked / uneven background such as bare brick/ block/ RCC work on walls & ceiling at all floors and locations, finished in smooth line and level etc. complete.		sqm	82	0	116	198
	PLAIN CEMENT MORTAR BANDS						
11.47	12 mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand):						
	11.47.1	Flush Band	cm per	2	0	0	3
	11.47.2	Sunk Band	cm per	2	0	0	3
	11.47.3	Raised Band	cm per	3	0	0	3
	11.47.4	Moulded Band	cm per	5	0	0	5
11.48	18 mm thick plain cement mortar band in cement mortar 1:4 (1 cement : 4 fine sand):						
	11.48.1	Flush Band	cm per	3	0	1	3
	11.48.2	Sunk Band	cm per	3	0	1	3
	11.48.3	Raised Band	cm per	3	0	1	4
	11.48.4	Moulded Band	cm per	6	0	1	7
	RENDERING ON RCC SURFACE						
11.49	Smooth finishing of the exposed surface of R.C.C. work with 6 mm thick cement mortar 1:3 (1 Cement : 3 fine sand).		sqm	94	0	30	124
11.50	Smooth finishing of the exposed surface of R.C.C. work with 10 mm thick cement mortar 1:3 (1 Cement : 3 fine sand).		sqm	122	0	50	172
11.51	Smooth finishing of the exposed surface of R.C.C. work with 10 mm thick cement mortar 1:4 (1 Cement : 4 fine sand).		sqm	122	0	41	163
11.52	Cement rendering on plaster 1 mm thick		sqm	40	0	7	46
11.53	Extra for rendering smooth the top of suspended floors, landings and staircases (treads and risers) with cement mortar 1:2 (1 cement : 2 coarse sand), including a floating coat of neat cement and protecting the surface with a layer of 7.5 cm of earth laid over 15 mm of fine sand in case of suspended floor and bricks laid in mud mortar in case of landings and steps, including subsequent removal and cleaning of the same.		sqm	52	0	27	79
11.54	Add for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.		metre	31	0	0	31
	INTERIOR FINISHING						
11.55	Corbelling around almirah including 12mm thick cement plaster 1:6		metre	63	0	92	155
11.56	75mm thick brick architrave to windows and ventilators 115mm projected laid in cement sand mortar 1:4 including 12 mm thick cement plaster 1:4		metre	45	0	69	114
11.57	Providing & laying average 6mm thick POP Coating on walls, Ceiling, beams and lintels etc. complete in all respects as approved by the Engineer-In-Charge.		sqm	70	0	49	119
11.58	Providing and applying two coats white cement based putty of approved brand and manufacturer, over plastered surface and grinding the surface smooth with sand paper to get en even and smooth finish including cost and carriage of all material , labour charges, scaffolding, sundries etc. complete		sqm	56	0	98	154
11.59	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.		sqm	73	0	13	86

11.60	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.		sqm	36	0	22	58
11.61	White washing with lime to give an even shade :						
	11.61.1	New work (three or more coats)	sqm	11	0	2	13
11.62	Colour washing such as green, blue or buff to give an even shade :						
	11.62.1	New work (two or more coats) with a base coat of white washing with lime	sqm	15	0	3	18
	11.62.2	New work (two or more coats) with a base coat of whiting	sqm	15	0	3	18
11.63	Distempering with dry distemper of approved brand and manufacture (two or more coats) of required shade on new work, over and including water thinnable priming coat to give an even shade.		sqm	43	0	10	53
11.64	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade :						
	11.64.1	New work (two or more coats) over and including water thinnable priming coat with cement primer	sqm	54	0	15	69
11.65	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre, of approved manufacturer, of required shade and colour complete, as per manufacturer's specification.						
	11.65.1	Two or more coats on new work	sqm	27	0	10	37
11.66	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.						
	11.66.1	One coat	sqm	18	0	3	22
	11.66.2	Two coats	sqm	27	0	5	32
11.67	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface :						
	11.67.1	Water thinnable cement primer	sqm	22	0	5	27
11.68	Applying priming coat:						
	11.68.1	With ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood)	sqm	17	0	9	26
	11.68.2	With ready mixed aluminium primer of approved brand and manufacture on resinous wood and plywood	sqm	17	0	10	27
	11.68.3	With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works	sqm	16	0	7	23
	11.68.4	With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel work (second coat)	sqm	8	0	5	13
11.69	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.						
	11.69.1	With ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/	sqm	17	0	9	26
	11.69.2	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre	sqm	22	0	5	26
11.70	Extra for using White Cement based primer modified with high performance polymers, applied as an undercoat for exterior/interior cementitious surfaces before paint Technical Specifications: i) Degree of whiteness (in terms of reflectance) >93% ii) Fineness (Residue on 63 Micron Sieve) - Minimum 4.0 iii) Bulk Density - 0.8 to 0.9 kg/litre iv) Viscosity by Brookfield, 50rpm, Spindle no RV 05 at 25 - 300cP to 600cP v) Pot Life - Min. 180 minutes vi) Coverage after 1st coat - 80-100 sqft/kg vii) Adhesion cross-cut on 2 coat application after 48 hours - Min. 3B		sqm	0	0	15	15
11.71	Wall painting on a cement plaster surface with acrylic emulsion paint of approved brand and manufacture to give an even shade :						
	11.71.1	Two or more coats on new work	sqm	35	0	28	64
11.72	Painting with silicon & acrylic emulsion based water thinnable sealer of approved brand and manufacture on wet or patchy portion of plastered surfaces :						
	11.72.1	One coat	sqm	18	0	27	45
	11.72.2	Two coats	sqm	29	0	43	72
11.73	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.						
	11.73.1	On steel work	sqm	52	0	43	95
	11.73.2	On concrete work	sqm	52	0	40	92
11.74	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.						
	11.74.1	One coat	sqm	24	0	6	30
	11.74.2	Two coats	sqm	35	0	10	45
11.75	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade						
	11.75.1	One coat	sqm	24	0	10	34
	11.75.2	Two coats	sqm	35	0	16	51
11.76	Preparation of ply wood surface for painting including sand papering the surface and applying filling with approved quality filler consisting of white lead, linseed oil, varnish and chalk mitti including finishing the surface to required finish complete.		sqm	20	0	21	41
11.77	Applying pink primer or aluminum priming coat on wood work including preparation of surface, Knotting and stopping etc.		sqm	14	0	8	22
11.78	Painting two coats excluding priming coat with synthetic enamel paint in all shades on new wood work or metallic or plastered or concrete surfaces to give an even shade.		sqm	25	0	11	36
11.79	Painting with oil type wood preservative of approved brand and manufacture :						
	11.79.1	New work (two or more coats)	sqm	10	0	15	25
11.80	Providing and applying two coats of fire retardant paint on cleaned wood / ply surface @ 3.5 sqm per litre per coat including preparation of base surface as per recommendations of manufacturer to make the surface fire retardant.		sqm	35	0	169	205
11.81	Coal tarring two coats on new wood work using 0.16 litre and 0.12 litre coal tar per sqm in the first coat and second coat respectively.		sqm	10	0	12	22
11.82	Painting the wooden / metal surface with synthetic enamel paint of approved brand and manufacture to give an even shade :						
	11.82.1	Two or more coats on new work	sqm	35	0	23	58
11.83	Painting over the wooden surface with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :						
	11.83.1	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and	sqm	52	0	32	84
11.84	Painting over the wooden/metal surface with aluminium paint of approved brand and manufacture to give an even shade .						
	11.84.1	Two or more coats on new work	sqm	36	0	14	50
11.85	Painting over wooden/metal surface with acid proof paint of approved brand and manufacture of required colour to give an even shade :						
	11.85.1	Two or more coats on new work	sqm	35	0	30	66
11.86	Varnishing with varnish of approved brand and manufacture :						
	11.86.1	Two or more coats of glue sizing with copal varnish over an under coat of flatting varnish	sqm	58	0	24	82

	11.86.2	Two or more coats glue sizing with spar varnish or an under coat of flatting varnish	sqm	58	0	25	84
11.87	French spirit polishing :						
	11.87.1	Two or more coats on new works including a coat of wood filler	sqm	151	0	20	171
11.88	Polishing on wood work with ready mixed wax polish of approved brand and manufacture :						
	11.88.1	New work	sqm	52	0	13	65
11.89	Floor polishing on masonry or concrete floors with wax polish of approved brand and manufacture.		sqm	26	0	3	29
11.90	Varnishing with varnish of approved brand and manufacture:						
	11.90.1	One or more coats with copal varnish	sqm	24	0	9	33
	11.90.2	One or more coats with spar varnish	sqm	23	0	10	34
11.91	Melamine polishing on wood work (one or more coat).		sqm	23	0	43	66
11.92	Floor painting with floor enamel paint of approved brand and manufacture of required colour to give an even shade :						
	11.92.1	Two or more coats on new work	sqm	35	0	43	78
	EXTERIOR FINISHING						
	WALL AND ROOF SURFACES						
11.93	Finishing walls with water proofing cement paint of required shade :						
	11.93.1	New work (Two or more coats applied @ 7.84 kg/10 sqm)	sqm	30	0	17	47
11.94	Finishing walls with textured exterior paint of required shade :						
	11.94.1	New work (Two or more coats applied @ 7.28 ltr/10 sqm) over and including priming coat of exterior primer applied	sqm	35	0	125	160
11.95	Finishing walls with Acrylic Smooth exterior paint of required shade :						
	11.95.1	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @	sqm	35	0	68	103
11.96	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:						
	11.96.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied	sqm	35	0	65	100
11.97	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specifications :						
	11.97.1	Two or more coats applied on walls @ 1.25 ltr/10 sqm over and including one coat of Special primer applied @ 0.75 ltr /10 sqm	sqm	35	0	49	84
	11.97.2	Painting wood work with Deluxe Multi Surface Paint of required shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @0.75 ltr/10 sqm of approved brand and manufacture	sqm	35	0	38	74
	11.97.3	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.80 ltr/10 sqm of approved brand and manufacture	sqm	35	0	35	70
11.98	Finishing walls with 100% Premium acrylic emulsion paint having VOC less than 50 gm/litre and UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives.						
	11.98.1	New work (Two or more coats applied @ 1.43 litre/ 10 sqm Over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm	sqm	39	0	54	93
11.99	Painting on G.S. sheet with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :						
	11.99.1	New work (two or more coats) including a coat of approved steel primer but excluding a coat of mordant solution	sqm	43	0	19	63
11.100	Applying a coat of mordant solution on G.S. sheet:						
	11.100.1	With a solution of 38 gms of copper acetate in a litre of soft water	sqm	17	0	1	18
	11.100.2	With a solution made of 13 gms of hydrochloric acid in a solution of 13 gms each of copper chloride, copper nitrate and ammonium chloride dissolved in a litre of soft water	sqm	17	0	0	18
	PIPES AND SANITARY HARDWARES						
11.101	Painting (two or more coats) on CI/SCI rain water, soil waste and vent pipes and fittings with black anticorrosive bitumastic paint of approved brand and manufacture, over and including a priming of ready mixed zinc chromate yellow primer on new work:						
	11.101.1	75 mm diameter pipes	metre	14	0	5	19
	11.101.2	100 mm diameter pipes	metre	17	0	6	23
	11.101.3	150 mm diameter pipes	metre	25	0	9	34
11.102	Painting (two or more coats) on rain water, soil waste and vent pipes and fittings with synthetic enamel paint of approved brand and manufacture and required colour over a priming coat of approved steel primer on new work.						
	11.102.1	100 mm diameter pipes	metre	17	0	10	27
	11.102.2	150 mm diameter pipes	metre	26	0	15	40
11.103	Painting with black anti-corrosive bitumastic paint of approved brand and manufacture to give an even shade :						
	11.103.1	Two or more coats on new work	sqm	35	0	11	46
11.104	Painting (two or more coats) on rain water, soil waste and vent pipes and fittings with aluminium paint of approved brand and manufacture over a priming coat of ready mixed zinc chromate yellow primer on new work :						
	11.104.1	75 mm diameter pipes	metre	13	0	5	18
	11.104.2	100 mm diameter pipes	metre	17	0	9	26
	11.104.3	150 mm diameter pipes	metre	26	0	13	39
11.105	Painting sand cast iron/ centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint of any colour such as chocolate grey, or buff etc. over a coat of primer (of approved quality) for new work :						
	11.105.1	100 mm diameter pipe	metre	18	0	10	28
	11.105.2	75 mm diameter pipe	metre	13	0	8	21
11.106	Painting C.I. cistern with bitumastic or any other anti-corrosive paint inside and white paint over a coat of zinc chromate yellow primer (of approved quality) on the outside surface of the cistern, flush pipe, other fittings, etc. complete for new work.		each	210	0	130	340
11.107	Painting G.I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work :						
	11.107.1	15 mm diameter pipe	metre	3	0	2	5
	11.107.2	20 mm diameter pipe	metre	4	0	3	7
	11.107.3	25 mm diameter pipe	metre	5	0	3	9
	11.107.4	32 mm diameter pipe	metre	7	0	4	11
	11.107.5	40 mm diameter pipe	metre	8	0	5	12
	11.107.6	50 mm diameter pipe	metre	10	0	6	15
11.108	Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality :						
	11.108.1	15 mm diameter pipe	metre	2	0	1	3
	11.108.2	20 mm diameter pipe	metre	3	0	1	4
	11.108.3	25 mm diameter pipe	metre	4	0	1	5
	11.108.4	32 mm diameter pipe	metre	5	0	1	6
	11.108.5	40 mm diameter pipe	metre	5	0	2	7
	11.108.6	50 mm diameter pipe	metre	7	0	2	9
	11.108.7	65 mm diameter pipe	metre	8	0	3	11
	11.108.8	80 mm diameter pipe	metre	10	0	3	13
	MISCELLANEOUS ITEMS						
11.109	Extra for mixing Soap solution, 1 percent for cement plastering.		sqm	2	0	11	13

11.110	Satna lime wash on walls with one coat.	sqm	4	0	1	5
11.111	Oiling woodwork with raw linseed oil (2nd quality oil)	sqm	6	0	8	14
11.112	Oiling wood work with raw linseed oil (2nd quality oil) and water.	sqm	8	0	4	12
11.113	Lettering with black Japan paint of approved brand and manufacture	per letter	2	0	0	2
11.114	Painting (one or more coats) with black Japan paint of approved brand and manufacture to give an even shade.	sqm	24	0	7	31
11.115	Painting one coat with solignum with 2nd quality paint	sqm	8	0	5	14
11.116	Painting two coats with solignum with 2nd quality paint	sqm	12	0	9	22
11.117	Painting one coat with creosote	sqm	8	0	4	12
11.118	Painting two coats with creosote	sqm	12	0	7	20
11.119	Coal tarring one coat	sqm	15	0	3	18
11.120	Coal tarring two coats	sqm	23	0	4	27

CHAPTER NO. 12

WOOD WORK, PVC AND ALUMINIUM DOOR AND WINDOWS

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CHAPTER 12.0 - WOOD WORK, PVC AND ALUMINIUM WORK

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 204 (Part I)	Specification for tower bolts (ferrous bolt)
2	IS 204 (Part II)	Specification for tower bolts (non ferrous metals)
3	IS 205	Specification for non ferrous metal butt hinges
4	IS 206	Specification for Tee and strap hinges
5	IS 208	Specification for door handles
6	IS 281	Specification for mild steel door bolts for use with pad locks
7	IS 287	Recommendations for maximum permissible moisture contents of timber used for different purpose
8	IS 303	Specification for plywood for general purposes
9	IS 362	Specification for parliament hinges
10	IS 363	Specification for hasps and stapple
11	IS 401	Code of practice for preservation of timber
12	IS 419	Putty for use on window frames
13	IS 452	Specification for door spring rat tail type
14	IS 453	Specification for double acting spring hinge
15	IS 710	Specifications for Marine Plywood
16	IS 729	Specification for drawer lock, cupboard lock and box locks
17	IS 848	Specification for synthetic resin adhesive for plywood (phenolic and amino plastic)
18	IS 851	Specification for synthetic resin adhesive for const. work (non structural in wood)
19	IS 1003 (Part I)	Specification for timber paneled and glazed shutter Part I (door shutters)
20	IS 1003 (Part II)	Specification for timber paneled and glazed shutter Part II (window and ventilator shutter)
21	IS 1200 Part XIV	Method of measurement of building and civil Engg work glazing.
22	IS 1200 Part XII	Wood work and joinery
23	IS 1328	Specification for veneered decorative plywood
24	IS 1341	Specification for steel butt hinges
25	IS 1378	Specification for oxidized copper finishes
26	IS 1566	Specification for hard drawn steel wire fabric
27	IS 1568	Specification for wire gauge for general purpose
28	IS 1658	Specification for hard drawn steel wire fabric
29	IS 1659	Specification for block boards
30	IS 1868	Specification for anodic coating on aluminium and its alloy
31	IS 2095	Specification for gypsum plaster board
32	IS 2096	Specification for asbestos cement flat sheet.
33	IS 2202 (Pt I)	Specification for wooden flush door shutter, solid core type (plywood face panels)
34	IS 2202 (Part II)	Specification for wooden flush door shutter, solid core type (Particle boards and hard board face panels)
35	IS 2209	Specification for mortice lock (Vertical Type)
36	IS 2380	Method of test for wood particle board and board for lignocelluloses Material
37	IS 2547	Specification for gypsum plaster
38	IS 2681	Specification for non-ferrous metal sliding door bolts use with pad locks
39	IS 3087	Specification for wood particle boards (Medium density) for general purpose
40	IS 3097	Specification for veneered particle board
41	IS 3564	Specification for door closer (hydraulically regulated)
42	IS 3818	Specification for continuous (Piano) hinges
43	IS 4948	Specification for welded steel wire fabric for general use
44	IS 4992	Specification for rebated mortice lock
45	IS 5187	Specification for flush bolts
46	IS 5509	Specification for Fire Retardant Plywood
47	IS 6318	Specification for plastic wire window fasteners
48	IS 7534	Specification for sliding locking bolts for use with pad lock
49	IS 9308 (Part II)	Specification for mechanically extracted coir fibres. (Mattress coir fibres)
50	IS 9308 (Part III)	Specification for mechanically extracted coir fibres. (Decorated coir fibre)
51	IS 12817	Specification for stainless steel Butt Hinges
52	IS 12823	Specification for wood products –Prelaminated particle Boards
53	IS 14616	Specifications for laminated veneer lumber
54	IS 14842	Specification for coir veneer board for general purposes
55	IS 14856	Specification for glass fibre reinforced plastic (FRP) panel type door
56	IS 14900	Specifications for transparent float glass
57	IS 733	Wrought Aluminium and Aluminium Alloys, Bars, Rods and Sections (For General Engineering Purposes) –Specification
58	IS 737	Wrought Aluminium and Aluminium alloy sheet and strip for general engineering purposes –Specification
59	IS 1285	Wrought Aluminium and Aluminium Alloy, Extruded Round Tube and Hollow sections (For General Engineering Purposes) – Specification
60	IS 1868	Anodic coating on Aluminium and its Alloys-Specification
61	IS 1948	Specification for Aluminium Doors, Windows and Ventilators
62	IS 3908	Specification for Aluminium equal leg angles
63	IS 3909	Specification for Aluminium unequal leg angles
64	IS 3965	Dimensions for wrought Aluminium and Aluminium Alloys bars, rods and sections.
65	IS 5523	Method of testing anodic coating on aluminium and its alloys.
66	IS 6012	Measurement of coating thickness by Eddy Current Method
67	IS 6315	Floor springs (Hydraulically regulated) for heavy doors-Specifications

68	IS 6477	Dimensions of extruded hollow section and tolerances
69	IS 12823	Wood products- Pre-laminated particle board –Specifications.
70	IS 14900	Transparent Float glass- Specifications.

CHAPTER 12.0 - WOOD WORK, PVC AND ALUMINIUM WORK

NOTES:

1. Block Board

A Board having a core made up of strips of wood, each not exceeding 25 mm in width, laid separately or glued or otherwise joined to form a slab which is glued between two or more outer veneers with the direction of the grain of the core blocks running at right angles to that of the adjacent outer veneers.

2. Decorative Veneers

Veneers having attractive appearance due to figure, colour, grain, luster, etc.

3. Dovetail Joint

A joint at the corner of two pieces in such a way that the notches made to one are fitted exactly into projections of corresponding size and shape made in the other. There are various kinds of dovetail joints for instance, lapped dovetail joint, wedge shaped dovetail joint, etc.

4. Hard Wood

A conventional term used to denote the wood obtained from broad-leaved trees. It has no relationship to the physical properties of hardness or strength.

5. Mitred Joint

A joint, between two members at an angle which bisects the joining angle usually the joining faces are cut at 45° to form a right angle

6. Mortise and Tenon Joint

A joint in which the reduced end (tenon) of one member fits into the corresponding slot (mortise) in another member

7. Tongue and Groove Joint

A joint in which a tongue is provided on edge of one member to fit into a corresponding groove on the other

8. Particle Board

A board manufactured from particles of wood or other lignocelluloses material, for example, flakes, granules, shavings, slivers, splinter agglomerated, formed and pressed together by use of an organic binder together with one or more of the agents, such as heat, pressure, moisture and a catalyst.

9. Plywood

A board formed of three or more layers of veneers cemented or glued together, usually with the grain of adjacent veneers running at right angles to each other.

10. Structural Timber

Timber used in framing and load bearing structures or timber used or intended for use in buildings where strength is the primary consideration.

11. First Class Wood

Individual hard and sound knots shall not be more than 25 mm in diameter and the aggregate area of all the knots shall not exceed one per cent of the area of the piece.

12. Second Class Wood

Individual hard and sound knot shall not be more than 40 mm in diameter and aggregate of all the knots shall not exceed one and half per cent of the area of the piece. Wood shall be generally free from sapwood, but traces of sapwood may be allowed.

13. PANELLING MATERIAL

14. Timber

Timber panels shall be preferably made of timber of larger width. The minimum width and thickness of a panel shall be 150 mm and 15 mm respectively. When made from more than one piece, the pieces shall be joined with a continuous tongue and groove joint, glued together and reinforced with metal dowels.

15. Plywood /Plywood Boards

Plywood boards are formed by gluing and pressing three or more layers of veneers with the grains of adjacent veneers running at right angles to each other. Face veneers may be either decorative on both sides or one side commercial and the other decorative. Plywood shall be of BWP grade or BWR grade as per IS 303. Plywood boards are available in thickness ranging from 3 to 25 mm.

16. Particle Boards

Particle boards shall be of medium density and manufactured from particles of agro waste, wood or lignocelluloses i.e. material blended with adhesive and formed into solid panels under the influence of heat, moisture, pressure etc. The particle boards shall be flat pressed three layered or graded and of Grade-I as per IS 3087.

17. Veneered Particle Boards

Veneered Particle Boards with core of FPT-1 or graded board Grade-I particle board (IS 3087) with commercial or general purpose veneer (Type-1) or decorative veneers on both faces or with decorative veneer on one face and commercial /general purpose veneers on the other Type-2. Face veneers are bonded using adhesives under the influence of heat and pressure.

18. Non-Asbestos Fibre Boards

Fibre boards shall be of medium density cement board reinforced with wood fibre, produced by fiberizing steamed wood under pressure, blended with adhesive and wax and formed into solid panels under controlled conditions of heat and pressure as per IS 14862.

19. Wire Gauze

Wire Gauze which shall generally conform to IS 1568 shall be regularly woven with equally spaced galvanised mild steel wires in both warp and weft directions. The wire gauge shall be properly selvedged by one or more wires in each edge. Width of aperture and dia of wire gauge shall be as specified. Unless otherwise stated, wire gauge of 1.40 mm average aperture width woven with 0.63 mm nominal dia galvanised mild steel wire shall be used. Fly-proof wire gauge (aperture 1.40 mm) is generally provided in Kitchen and dining areas while wire gauge of smaller aperture is used in mosquito proof shutters.

20. Veneered Decorative Plywood

Decorative plywood shall be of two grades namely BWR and MR Decorative Plywood shall conform to IS 1328. Requirements of Veneered decorative plywood shall be as under:

(a) Open slits checks or open joints not more than 150 mm in length and 0.5 mm in width shall be permissible.

(b) The decorative veneered surface shall be free from torn grain, dead knots discolourisation and sapwood.

(c) The decorative veneered surface shall be selected for figure, texture, colour and grain etc.

21. Prelaminated Particle Boards

Prelaminated particle boards are available in two grades namely Grade I and II as per IS 12823.

22. Marine Plywood

Marine plywood shall be generally conforming to IS 710. Selection of timber species for manufacture of plywood shall be as prescribed in IS 710 and as far as possible a single species of timber shall be used.

23. Fire Retardant Plywood

Fire retardant plywood shall generally conform to IS 5509. The plywood to be given fire retardant treatment shall conform to BWR grade of IS 303 to be able to stand pressure impregnation.

24. DOOR, WINDOW AND VENTILATOR FRAMES

Timber for door, window and ventilators frames shall be as specified. Timber shall be sawn in the direction of the grains. All members of a frame shall be of the same species of timber and shall be straight without any warp or bow.

25. PANELLED GLAZED OR PANELLED AND GLAZED SHUTTERS

Paneled or glazed shutters for doors, windows, ventilators and cupboards shall be constructed in the form of timber frame work of stiles and rails with panel inserts of timber, plywood, block board, veneered particle board, fibre board wire gauze or float glass. The shutters may be single or multipaneled.

26. Beading

Beadings in paneled shutter shall be provided where specified in architectural drawings or directed by the Engineer-in-Charge. Each length of beading shall be single piece. Joints at the corners shall be mitred and exposed edges shall be rounded. Beading shall be fixed with headless nails at 75 mm intervals. For external shutters, the beading shall be fixed on the outside face.

27. Machine/Factory made Shutters

Machine made shutters, where specified, shall be procured from an approved factory. For machine made shutters, operations like sawing, planning, making tongue and tenons, cutting grooves, mortises and rebates, drilling holes and pressing of joints shall be done by suitable machines. Machines made shutters shall be brought to the site fully assembled but without any priming coat. Panel inserts of sheet glass and wire gauze may, however, be fixed at site.

28. FLUSH DOOR SHUTTERS

Flush door shutters shall have a solid core and may be of the decorative or non-decorative (Paintable type as per IS 2202 (Part I). Nominal thickness of shutters may be 25, 30 or 35 mm. Thickness and type of shutters shall be as specified.

29. Lipping

Lipping, where specified, shall be provided internally on all edges of the shutters. Lipping shall be done with battens of first class hardwood or as specified of depth not less than 25 mm. For double leaved shutters, depth of the lipping at meeting of stiles shall be not less than 35 mm. Joints shall not be permitted in the lipping.

30. WALL LINING

Specified timber shall be used, and it shall be sawn in the direction of the grains. Sawing shall be truly straight and square. The timber shall be planed smooth and accurate to the full dimensions, rebates, roundings, and mouldings as shown in the drawings made, before assembly. Patchings or plugging of, any kind shall not be permitted except as provided.

31. SHELVES

Shelves and vertical partitions of cupboards shall be of timber planks fibre board, particle board, block board or veneered particle board as specified. Thickness and type of planks or boards shall be as specified. Each shelf shall be a single piece and vertical partitions between two consecutive shelves shall be without any joint. Exposed edges of boards having particle board core shall be sealed with 3 mm thick single piece teak wood strips of width equal to the thickness of board with headless pins.

32. TRELLIS (JAFFRI) WORK

Specified timber /bamboo shall be sawn/cut in the direction of the grains. Sawing / cutting shall be truly straight and square. The timber / bamboo shall be planed smooth and accurate to the full dimensions, rebates, roundings, and mouldings as shown in the drawings made, before assembly. Patching or plugging of any kind shall not be permitted except as provided.

33. Plain Trellis (Jaffri)

This shall consist of wooden strips or laths 35 x 10 mm section unless otherwise specified planed and nailed together at every alternate crossing. The strips shall cross each other at right angle and shall be spaced 35 mm apart, so as to form 35 × 35 mm square opening or as shown in the drawing. These shall be fixed with nails to the frame. To cover the ends of strips, 50 × 12 mm beading shall be fixed to the frame with screws.

34. Expanded Metal

This shall be in the form of rhombus with its opening diagonals 20 × 60 mm and strands 3.25 mm wide and 1.6 mm thick weighing 3.633 kg/m^2 unless otherwise specified.

35. Wire Fabric

This shall conform to IS 4948 and shall have rectangular mesh of 75 × 25 mm size with wires of diameter not less than 5 mm longitudinally and 3.15 mm transversely. Its weight shall be not less than 7.75 kg/m^2 unless otherwise specified.

36. FITTINGS

Fitting shall be of mild steel brass, aluminium or as specified. Some mild steel fittings may have components of cast iron. These shall be well made, reasonably smooth, and free from sharp edges and corners, flaws and other defects. Screw holes shall be counter sunk to suit the head of specified wood screws. These shall be of the following types according to the material used.

a) Mild Steel Fittings: These shall be bright finish black stone enameled or copper oxidized (black finish), nickel chromium plated or as specified.

b) Brass Fittings: These shall be finished bright satin finish or nickel chromium plated or copper oxidized or as specified.

c) Aluminium Fittings: These shall be anodized to natural matt finish or dyed anodic coating not less than grade AC 10 of IS 1868.

37. Butt Hinges

These shall be of the following types according to the material used.

(a) Mild steel butt hinges (Medium).

(b) Cast brass butt hinges light/ordinary or heavy.

(c) Extruded aluminium alloy butt hinges.

38. P.T.M.T (Polytetra Methylene Tetra phthalate) Fittings

P.T.M.T. fitting shall be in different colours like White, Green, Blue, Derby Brown, Mushroom, Black, Gold, Silver & Bronze or any colours agreed by the manufactures and purchaser. P.T.M.T. fittings are suitable for internal doors shutters kitchen, bath w.c. & cabinet etc. These shall not be used in external door and where security is concern.

39. LAMINATED VENEER LUMBER (LVL)

Laminated Veneer Lumber door frames and shutters shall conform to IS 14616.

40. Laminated Veneer Lumber (LVL) Door Shutters

This specification lays down requirements regarding types, sizes, material, construction, workmanship and finish, performance evaluation, sampling, measurements, rates and testing of Laminated Veneer Lumber (LVL) door shutter for use in domestic buildings, offices, schools, hospitals etc. This specification does not cover large size door shutters for industrial and special buildings such as workshops, garages, godowns etc.

41. UPVC Door Frame

UPVC door frame shall be made of PVC material conforming to IS 10151. The door frame shall be made from extruded UPVC section having overall dimensions of 48 x 40 mm or 42 x 50 mm having wall thickness of 2.0 mm ± 0.2 mm. Corners of the door frame to be joined by M.S. galvanized brackets. Joints mitred and plastic welded. The hinge side vertical outer frames shall be reinforced by galvanized M.S. Tube of size 19 x 19 mm of wall thickness 1 mm ± 0.1 mm and a tie rod shall be provided at the bottom of the frame. The frame shall be fabricated in factory as per nomenclature of the item and directions of Engineer-in-Charge.

42. PVC DOOR SHUTTERS

The shutters shall be fabricated at factory as per nomenclature of the item and directions of Engineer-in-Charge. Shutter shall be made of PVC material conforming to IS 10151.

43. PVC DOOR FRAME

Solid PVC Door Frames consisting of section 50 x 47 mm shall be fabricated from 5 mm PVC sheet having density of 600 kg./cum. The sheet used may be in plain colour, printed design or prelam veneer shade as approved by the Engineer-in-Charge. The weight per running metre of the door frame including reinforcement should be a minimum of 1.5 kg./sq. meter. The depth of the rebate of door frame shall be 10 mm. Frames shall have smooth surface, without any warping or bending in any member. All the parts of the door frame are to be joined to each other using solvent adhesive conforming to IS 14182. A tolerance of ± 3 mm shall be permitted in the specified dimension of PVC section in the door frames.

44. PANEL PVC DOOR SHUTTER

Panel PVC Shutters are factory made shutter and shall be brought to site fully assembled. The Solid Panel PVC Door shall be fabricated from 5 mm PVC sheet. The sheets used may be in plain colour, printed design or prelam veneer shade as approved by the Engineer-in-Charge. The shutters shall be fabricated at factory as per nomenclature of the item and directions of the Engineer-in-charge.

45. FIBRE GLASS REINFORCED PLASTIC (FRP) DOOR FRAMES

Door Frames shall be three legged of cross section 90 mm x 45 mm having single rebate of size 32 mm x 15 mm to receive shutter of 30 mm thickness. The frame shall be made of laminate of thickness of 2 mm and shall be filled with wooden blocks of exterior grade MDF or seasoned and treated hard wood inside the laminate in all the three legs of the frame. The frame to be moulded by either hand lay up or resin transfer moulding process. The process shall consist of laying gel coat at 1000 gms./m^2 and laid over with layer of FRP Mat (CSM mat) gel coat and FRP (CSM Mat) are defined in IS 14856. The CSM mat shall be bonded with Isophatholic resin in the ratio not less than 1:2 (One part of Mat to two parts of Isophatholic resin and fillers & additives) by weight. The edge shall be sealed with gel coat and FRP mat to obtain smooth finish. Sufficient roving shall be laid in the corner to have smooth curve while laying the CSM mat.FRP door shall be manufactured as per specifications laid down in IS 14856, nomenclature of items & direction of Engineer-in-Charge.

46. FIBRE GLASS REINFORCED PLASTIC (F.R.P.) SHUTTERS

F.R.P. Shutters shall be manufactured conforming to the specifications as per IS 14856 and nomenclature of item & direction of Engineer-in-Charge.

47. SOLID PVC FOAM PROFILE DOORS

Solid PVC Foam Profile Frame

Solid PVC foam profile frame doors are made from solid PVC foam profiles 60 x 30 mm with integral skin cut to required size. Doors are provided with naturally strong stiffener frame and sandwich paneled to offer sound and heat insulation with pressure laminate/infill panel to provide scratch resistance surface. Supporting bar at bottom side of frame shall be provided for maintaining frame in plumb. The frame shall be fabricated in factory as per nomenclature of the item and directions of the Engineer-in-charge. PVC door frame should have shore hardness more than 70.

48. SOLID PVC FOAM SHUTTERS

Solid PVC foam shutters are made from solid PVC foam profiles with integral skin. Doors are provided with naturally strong stiffener frame and sandwich paneled to offer sound and heat insulation with pressure laminate/infill panel provides scratch resistance surface. Door shutters can be nailed, screwed, drilled, glued, sawn lapped or welded just like wood and characterized by excellent screw holding strength (200 kgf.).

49. FACTORY MADE FIBRE GLASS REINFORCED PLASTIC CHAJJA

F.R.P. chajja shall be 4 mm thick of required colour/size, design and drawing as approved. The chajja shall have smooth gradual slope curvature for easy drainage of water & shall be factory manufactured as per nomenclature of item & directions of Engineer-in-Charge.

50. ALUMINIUM WORK

Bar

Any solid section, other than round, with at least one dimension of 10 mm or more.

51. Rod

Any round solid section with a diameter of 10 mm or greater.

52. Extruded Round Tube

A circular hollow extrusion of uniform wall thickness not subjected to cold drawing.

53. Hollow Section

An extruded shape other than round tube, the cross section of which completely encloses a void or voids and which is not subject to cold drawing.

54. Anodized Aluminium

Aluminium with an anodic coating, produced by an electrolytic oxidation process, in which the surface of the aluminium is covered with a coating, generally an oxide, to give protective and decorative properties.

55. Sash

It is a complete window unit whether fixed or open type.

56. Composite Window

Window unit having two or more sashes joined together with one or more coupling members.

57. Centre – Hung Ventilator

A ventilator horizontally pivoted at the centre on both sides. Top half opens inwards and bottom half opens outwards.

58. Aluminium Sections

Aluminium sections used for fixed/open able windows, ventilators, partitions, frame work & doors etc. shall be suitable for use to meet architectural designs to relevant works and shall be subject to approval of the Engineer-in-Charge for technical, structural, functional and visual considerations. The aluminium extruded sections shall conform to IS 733 and IS 1285 for chemical composition and mechanical properties. The stainless steel screws shall be of grade AISI 304. The permissible dimensional tolerances of the extruded sections shall be as per IS 6477 and shall be such as not to impair the proper and smooth functioning/operation and appearance of door and windows.

59. Anodizing

Standard aluminium extrusion sections are manufactured in various sizes and shapes in wide range of solid and hollow profiles with different functional shapes for architectural, structural glazing, curtain walls, doors, window & ventilators and various other purposes. The anodizing of these products is required to be done before the fabrication work by anodizing/electro coating plants which ensures uniform coating in uniform colour and shades. The extrusions are anodized up to 30 micron in different colours.

60. Powder Coating

The thickness of the finished polyester powder coating measured by micron meter shall not be less than 50 micron nor more than 120 micron at any point.

61. Aluminium Sheet

Aluminium Sheets for use as panels shall be 1.25 mm thick aluminium alloy sheet conforming to IS 737. Aluminium alloy sheet for use in general paneling work shall be of types and thickness as specified and conforming to the requirement of IS 737. Aluminium sheets shall be of approved make and manufacturer. Aluminium panel may be prefabricated units manufactured on modular or non-modular dimension.

62. EPDM- GASKETS

The EPDM Gaskets shall be of size and profile as shown in drawings and as called for, to render the glazing, doors, windows, ventilators etc. air and water tight.

63. SEALANT

The sealants of approved grade and colour shall only be used. The silicone for perimeter joints (between Aluminium section and RCC/Stone masonry) shall be of make approved by the Engineer in Charge.

64. Reflective Glass

This is an ordinary float glass with a metallic coat to reduce solar heat. Clear glass transmits most of the sunlight that shines upon it, and most of the solar heat as well; the metallic coated glass i.e. reflective glass has better shading coefficients because they reflect rather than absorb infrared energy. However, most of reflective glazing blocks day light more than solar heat.

65. DOOR, WINDOW, VENTILATOR AND PARTITION FRAMES

Frame Work

The fabrication of the individual door/windows/ventilators etc. shall be done as per the actual sizes of the opening left at site. The frames shall be truly rectangular and flat with regular shape corners fabricated to true right angles. The frames shall be fabricated out of section which have been cut to length, mitered and jointed mechanically using appropriate machines. Mitered joints shall be corner crimped or fixed with self tapping stainless steel screws using extruded aluminium cleats of required length and profile. All aluminium work shall provide for replacing damaged/broken glass panes without having to remove or damage any member of exterior finishing material.

66. DOOR, WINDOWS AND VENTILATOR SHUTTERS

Material, fabrication and dimensions of aluminium doors, windows and ventilators manufactured from extruded aluminium alloy sections of standard sizes and designs complete with fittings, ready for being fixed into the building shall be as per IS 1948.

67. Glass Panes

Glass panes shall weigh at least 7.5 kg/m^2 and shall be free from flaws, specks or bubbles. All panes shall have properly squared corners and straight edges.

68. Frames

Frames shall be square and flat, the corners of the frame being fabricated to a true right angle. Both the fixed and opening frames shall be constructed of sections which have been cut to length, mitered and welded at the corners. Where hollow sections are used with welded joints, argon-arc welding or flash butt welding shall be employed (gas welding or brazing not to be done). Subdividing bars of units shall be tenoned and riveted into the frame.

69. Composite Units

The doors shall be coupled to windows or side-lights by extruded aluminium sections made from aluminium alloy conforming to IS Designation HE9-WP of IS 733.

70. Weather Bar

Where a coupling member is fitted over an external opening shutter, the coupling member should incorporate an integrally extruded weather bar.

71. Finish

Aluminium doors, windows and ventilators may be supplied in either matt, scratch-brush or polished finish. They may, additionally, also be anodized, if so required by the Engineer-in-charge. If colour anodizing is to be done then only approved light-fast shades should be used.

A thick layer of clear transparent lacquer based on methacrylates or cellulose butyrate, shall be applied on aluminium doors, windows and ventilators by the supplier to protect the surface from wet cement during installation. This lacquer coating shall be removed after installation is completed.

72. Glazing

Glazing shall be provided on the outside of the frames. If required, glazing clips may be provided as extra fittings. Four glazing clips may be provided per glass pane, except for door type 8HS21 where the glazing clips shall be six per glass pane. In case of doors, windows and ventilators without horizontal glazing bars the glazing clips shall be spaced according to the slots in the vertical members, otherwise the spacing shall be 30 cm.

73. FITTINGS

a) Stainless Steel Friction Stay

The stainless steel friction stays of make approved by the Engineer-in-Charge shall be used. The SS friction stays shall be of grade AISI-304 and of sizes specified in nomenclature of item.

b) Lockable Handles

The lockable handle shall be of make approved by the Engineer-in-Charge and of required colour to match the colour of powder coated /anodized aluminium window sections.

c) Hydraulic Floor Spring

The hydraulic floor spring shall be heavy duty double action floor spring of make approved by the Engineer-in-Charge suitable for door leaf of weight minimum 100 kg. The top cover plate shall be of stainless steel, flushing with floor finish level.

d) Tubular Handle

The tubular handle bar shall be aluminium polyester powder coated minimum 50 micron to required colour/anodized AC 15. Outer dia of tube shall be 32 mm, tube thickness 3.0 mm and centre to centre length 2115 mm $\pm$ 5 mm.

74. LOUVERS

Aluminium extruded sections (anodized or power coated) are used for providing Louvers in aluminium door, window & partition for ventilation.

75. HERMETICALLY SEALED UNIT

Insulating glass shall be a double glazed unit comprising two sheets of float glass panes separated by a spacer, hermetically sealed using primary and secondary sealants. The design of insulating glass system shall consist of:

(a) Hollow Spacer Bar

The hollow aluminium spacer bar shall be of required size and shape and shall be colour anodized. The spacer bar shall have two lines of perforations in the inner surface.

(b) Desiccant

The desiccant shall be Neftomol 3 A Chemetall or equivalent.

(c) Primary Sealant

The primary sealant shall be thermo plastic solvent free sealing compound based on polysosutylene. The sealant surface shall be free from cavities, depression and other defects.

(d) Secondary Sealant

The secondary sealant in double glazed unit shall be silicone sealant.

76. BRASS LOCK

This should generally conform to IS-2209. The size of the lock shall be denoted by the length of the body towards the face and it shall be 100 mm. the measured length shall not vary more than 3 mm from the specified length. Two keys shall be provided with each lock.

77. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 12.0 - WOOD WORK, P.V.C. AND ALUMINIUM WORK							
	A. WOOD WORK							
	DOOR FRAMES, SHUTTERS AND WINDOWS							
12.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).							
	12.1.1	Second class teak wood		cum	8971	0	93683	102654
	12.1.2	Sal wood		cum	8971	0	72469	81440
	12.1.3	Kiln seasoned and chemically treated hollock wood		cum	8971	0	43368	52340
12.2	Providing laminated veneer lumber conforming to IS:14616 in factory made frames of doors, windows, clerestory windows and other frames, wrought framed and fixing in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).			cum	5792	0	84522	90315
12.3	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :							
	12.3.1	2nd class teak wood						
		12.3.1.1	50x12 mm	metre	47	0	65	112
		12.3.2.2	50 x 20 mm	metre	47	0	105	152
	12.3.2	Kiln seasoned and chemically treated hollock wood						
		12.3.2.1	50x12 mm	metre	47	0	34	81
		12.3.2.2	50x20 mm	metre	47	0	54	101
12.4	Providing wood work in frames of false ceiling, partitions etc. sawn and fixed in position with necessary stainless steel screws etc.							
	12.4.1	Sal wood		cum	4141	0	72131	76272
	12.4.2	Kiln seasoned and chemically treated hollock wood		cum	4141	0	43064	47205
12.5	Extra for additional labour for circular works, such as in frames of fan light							
	12.5.1	Second class teak wood		cum	897	0	9368	10265
	12.5.2	Sal wood		cum	897	0	7247	8144
	12.5.3	Kiln seasoned and chemically treated hollock wood		cum	897	0	4346	5243
12.6	Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embedding in cement concrete block 30x10x15cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size).			each	46	0	57	103
12.7	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer-in-charge. (Note:- Butt hinges and necessary screws shall be paid separately)							
	12.7.1	Second class teak wood						
		12.7.1.1	35 mm thick shutters	sqm	431	0	2136	2567
		12.7.1.2	30 mm thick shutters	sqm	431	0	1843	2274
	12.7.2	Kiln seasoned and chemically treated hollock wood						
		12.7.2.1	35 mm thick shutters	sqm	431	0	1050	1481
		12.7.2.2	30 mm thick shutters	sqm	431	0	906	1337
	12.7.3	Kiln seasoned selected planks of sheesham wood						
		12.7.3.1	35 mm thick shutters	sqm	431	0	1775	2206
		12.7.3.2	30 mm thick shutters	sqm	431	0	1531	1962
12.8	Providing and fixing 35 mm thick factory made laminated veneer lumber door shutter conforming to IS : 14616 including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, all complete as per directions of Engineer- in-charge and panelling with panels of : (Note:- Butt hinges and necessary screws shall be paid separately)							
	12.8.1	12 mm thick plain grade -1, medium density flat pressed three layer particle board FPT - I or graded wood particle board FPT- I, IS : 3087 marked, bonded with BWP type synthetic resin adhesive as per IS : 848 :		sqm	152	0	1768	1921
	12.8.2	12 mm thick pre-laminated particle board (decorative lamination on both sides) grade -1, medium density flat pressed, three layer particle board FPT- I or graded wood particle board FPT- I, conforming to IS : 3087, bonded with BWP type synthetic resin adhesive as per IS : 848 and pre-laminated conforming to IS : 12823, Grade 1, Type - II marked :		sqm	152	0	1974	2126
	12.8.3	12 mm thick one side Pre-laminated particle board (decorative lamination on one side and other sides balancing lamination) grade -1, medium density flat pressed, three layer particle board FPT - I or graded wood particle board FPT-1 conforming to IS : 3087 bonded with BWP type synthetic resin adhesive as per IS : 848 and pre-laminated conforming to IS : 12823, Grade -1, Type II marked :		sqm	152	0	2191	2343
12.9	Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured). Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick :							
	12.9.1	Second class teak wood		sqm	376	0	1768	2144
	12.9.2	Kiln seasoned and chemically treated hollock wood		sqm	376	0	877	1253
	12.9.3	Ply wood 5 ply, 9 mm thick						
		12.9.3.1	Decorative plywood both side decorative veneer (Type - I) conforming to IS 1328 BWR type	sqm	376	0	1178	1554
		12.9.3.2	Decorative plywood one side decorative veneer and commercial veneer on other face (Type 1) conforming to IS 1328 BWR Type	sqm	376	0	1206	1582
	12.9.4	Ply wood 7 ply, 9 mm thick						
		12.9.4.1	Decorative plywood one side decorative veneer and commercial veneer on other face (Type 1) conforming to IS 1328 BWR Type	sqm	376	0	1317	1693
	12.9.5	Particle Board 12 mm thick						
		12.9.5.1	Plain particle board flat pressed, 3 layer or graded wood particle board medium density Grade I, IS : 3087 marked	sqm	376	0	400	776
		12.9.5.2	Veneered flat pressed three layer or graded wood particle board with commercial veneering on both sides conforming to IS:3097, grade I	sqm	376	0	666	1042
		12.9.5.3	Pre-laminated particle board with decorative lamination on one side and balancing lamination on other side, Grade I, Type II IS: 12823 marked	sqm	376	0	749	1125
		12.9.5.4	Pre-laminated particle board with decorative lamination on both sides, Grade I, Type II, IS:12823 marked	sqm	376	0	798	1174
	12.9.6	Coir Veneer Board (conforming to IS 14842)						
		12.9.6.1	12 mm thick	sqm	376	0	929	1305
	12.9.7	Float glass panes						
		12.9.7.1	4 mm thick glass pane (weight not less than 10kg/sqm).	sqm	525	0	417	942
		12.9.7.2	5.0 mm thick glass panes (weight not less than 12.50 kg/sqm).	sqm	525	0	694	1219
	12.9.8	Fly proof stainless steel grade 304 wire gauge with 0.5 mm dia. wire and 1.4mm wide aperture with matching wood beading		sqm	358	0	555	914

12.10	Providing and fixing glazed shutters for doors, windows and clerestory windows using 4 mm thick float glass panes, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws.							
	12.10.1	Second class teak wood						
		12.10.1.1	35 mm thick	sqm	478	0	2678	3155
		12.10.1.2	30 mm thick	sqm	478	0	2343	2820
	12.10.2	Kiln seasoned and chemically treated hollock wood						
		12.10.2.1	35 mm thick	sqm	478	0	1442	1920
		12.10.2.2	30 mm thick	sqm	478	0	1278	1756
	12.10.3	Kiln seasoned selected planks of sheesham wood						
		12.10.3.1	35 mm thick	sqm	478	0	2267	2744
		12.10.3.2	30 mm thick	sqm	478	0	1988	2466
12.11	Providing and fixing 12 mm thick panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (area of opening for panel inserts excluding portion inside grooves or rebates to be measured). Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick.							
	12.11.1	Marine plywood conforming to IS: 710		sqm	376	0	964	1340
	12.11.2	Fire retardant plywood conforming to IS: 5509		sqm	376	0	1178	1554
12.12	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt/ suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S, including cost of adhesive of approved quality.							
	12.12.1	1.5 mm thick		sqm	71	0	488	560
	12.12.2	1.0 mm thick		sqm	71	0	381	453
12.13	Providing and fixing factory made laminated veneer lumber glazed shutter conforming to IS: 14616, using 4 mm thick float glass panes for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, all as per directions of Engineer-in-charge (Note:- Butt hinges and necessary screws shall be paid separately)							
	12.13.1	30 mm thick shutters		sqm	154	0	1860	2013
12.14	Extra for providing heavy sheet float glass panes instead of ordinary float glass in glazed doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured)							
	12.14.1	5.0 mm thick instead of 4 mm thick.		sqm	0	0	228	228
12.15	Extra for providing frosted glass panes 4 mm thick instead of ordinary float glass panes 4 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).			sqm	0	0	183	183
12.16	Deduct for providing pin headed glass panes instead of ordinary float glass panes weighing 4 mm thick in doors, windows and clerestory windows shutters (Area of opening for glass panes excluding portion inside rebate shall be measured).			sqm	0	0	6	6
12.17	Extra for providing ISI marked Stainless Steel butt hinges instead of M.S. pressed butt hinges bright finished of required size with necessary screws. (Shutter area to be measured).			sqm	0	0	108	108
12.18	Deduct for not providing hinges in doors, windows or clerestory window shutters with :							
	12.18.1	Stainless steel butt hinges with stainless steel screws :						
		12.18.1.1	For 2nd class teak wood and other class of wood shutters	sqm	0	0	155	155
	12.18.2	ISI marked M.S. pressed butt hinges bright finished of required size.						
		12.18.2.1	For 2nd class teak wood and other class of wood shutters	sqm	0	0	47	47
12.19	Providing and fixing wire gauge shutters using galvanized M.S. wire gauge of average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm, for doors, windows and clerestory windows with hinges and necessary screws :							
	12.19.1	35 mm thick shutters						
		12.19.1.1	with ISI marked M.S. pressed butt hinges bright finished of required size					
			12.19.1.1. Second class teak wood	sqm	560	0	2386	2946
			12.19.1.1. Kiln seasoned and chemically treated hollock wood	sqm	560	0	1292	1851
			12.19.1.1. Kiln seasoned selected class of sheesham wood	sqm	560	0	2022	2582
		12.19.1.2	With ISI marked stainless steel butt hinges of required size					
			12.19.1.2. Second class teak wood	sqm	560	0	2494	3054
			12.19.1.2. Kiln seasoned and chemically treated hollock wood	sqm	560	0	1399	1959
			12.19.1.2. Kiln seasoned selected class of sheesham wood	sqm	560	0	2130	2690
	12.19.2	30 mm thick shutters						
		12.19.2.1	with ISI marked M.S. pressed butt hinges bright finished of required size					
			12.19.2.1. Second class teak wood	sqm	516	0	2076	2592
			12.19.2.1. Kiln seasoned and chemically treated hollock wood	sqm	516	0	1140	1656
			12.19.2.1. Kiln seasoned selected class of sheesham wood	sqm	516	0	1765	2281
		12.19.2.2	With ISI marked stainless steel butt hinges of required size					
			12.19.2.2. Second class teak wood	sqm	516	0	2184	2700
			12.19.2.2. Kiln seasoned and chemically treated hollock wood	sqm	516	0	1248	1764
			12.19.2.2. Kiln seasoned selected class of sheesham wood	sqm	516	0	1872	2389
12.20	Providing and fixing wire gauge laminated veneer lumber shutters conforming to IS : 14616, using galvanised wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm as per IS :1568, for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, as per directions of Engineer-in-charge: (Note:- Butt hinges and necessary screws shall be paid separately)							
	12.20.1	35 mm thick shutters		sqm	152	0	1860	2012
	12.20.2	30 mm thick shutters		sqm	152	0	1643	1795
12.21	Providing and fixing factory made shutters of Pre-laminated particle board flat pressed three layer or graded wood particle board with one side decorative finish and other side balancing lamination conforming to IS: 12823 Grade I Type II, of approved design, and edges sealed with water resistant paint and lipped with aluminium 'U' type edge beading all- round the shutter, including fixing with angle cleat, grip strip, cadmium plated steel screws, including fixing of aluminium hinges 100x63x4 mm etc. complete as per architectural drawing and direction of Engineer-in-Charge (Cost of 'U' beading and hinges will be paid for separately).							
	12.21.1	25 mm thick		sqm	82	0	1073	1155
12.22	Providing and fixing plain lining with necessary screws/nuts & bolts/ nails, including a coat of approved primer on one face, and fixed on wooden /steel frame work, complete as per direction of Engineer-in- charge (Frame work shall be paid for separately).							
	12.22.1	12mm thick commercial ply conforming to IS : 1328 BWR type		sqm	101	0	640	742
12.23	Kail wood planking planed on both sides, rebated and fixed in position including nails and screws etc.							
	12.23.1	50 mm thick						
		12.23.1.1	Planing on both sides	sqm	238	0	1930	2168
		12.23.1.2	Planing on one side (deduct 50% labour)	sqm	119	0	1930	2049
	12.23.2	30 mm thick						
		12.23.2.1	Planing on both sides	sqm	214	0	1188	1402
		12.23.2.2	Planing on one side (deduct 50% labour)	sqm	107	0	1188	1295

	12.23.3	25 mm thick						
		12.23.3.1	Planing on both sides	sqm	207	0	965	1172
		12.23.3.2	Planing on one side (deduct 50% labour)	sqm	103	0	965	1068
	12.23.4	20 mm thick						
		12.23.4.1	Planing on both sides	sqm	200	0	742	942
		12.23.4.2	Planing on one side (deduct 50% labour)	sqm	100	0	742	842
	12.23.5	12.5 mm thick						
		12.23.5.1	Planing on both sides	sqm	191	0	475	666
		12.23.5.2	Planing on one side (deduct 50% labour)	sqm	95	0	475	570
12.24	Planking of commercial hard wood, such as hollock, champ, chikrassy and chaplash etc., (Non-coniferous timber other than teak conforming to I.S. specification no.1003 killn-seasoned) planed on both sides, rebated and fixed in position, including nails and screws, etc:-							
	12.24.1	50 mm thick		sqm	238	0	2598	2836
	12.24.2	45 mm thick		sqm	232	0	2338	2570
	12.24.3	40 mm thick		sqm	226	0	2078	2304
	12.24.4	30 mm thick		sqm	213	0	1559	1772
	12.24.5	25 mm thick		sqm	207	0	1299	1506
	12.24.6	20 mm thick		sqm	201	0	1039	1240
	12.24.7	12.5 mm thick		sqm	191	0	649	841
	CUPBOARD SHUTTERS							
12.25	Providing and fixing 25 mm thick shutters for cup board etc. :							
	12.25.1	Panelled or panelled & glazed shutters :						
		12.25.1.1	Second class teak wood including ISI marked anodised aluminium butt hinges with necessary screws	sqm	599	0	1968	2567
		12.25.1.2	Second class teak wood including iSi marked nickel plated bright finished M.S. piano hinges with necessary screws	sqm	599	0	2090	2688
	12.25.2	Glazed shutters :						
		12.25.2.1	Second class teak wood including ISI marked anodized aluminium butt hinges with necessary screws	sqm	478	0	2074	2551
		12.25.2.2	Second class teak wood including ISI marked nickel plated bright finished M.S. piano hinges with necessary screws	sqm	478	0	2107	2584
12.26	Providing and fixing flat pressed 3 layer particle board medium density exterior grade (Grade I) or graded wood particle board IS : 3087 marked, to frame, backing or studding with screws etc. complete (Frames, backing or studding to be paid separately):							
	12.26.1	12 mm thick		sqm	82	0	350	431
	12.26.2	18 mm thick		sqm	82	0	581	663
12.27	Providing and fixing Pre-laminated flat pressed 3 layer (medium density) particle board or graded wood particle board IS : 3087 marked, with one side decorative and other side balancing lamination Grade I, Type II exterior grade IS : 12823 marked, in shelves with screws and fittings wherever required, edges to be painted with polyurethane primer (fittings to be paid separately).							
	12.27.1	18 mm thick		sqm	125	0	781	906
	12.27.2	25 mm thick		sqm	125	0	1081	1206
12.28	Providing and fixing wooden moulded corner beading of triangular shape to the junction of panelling etc. with iron screws, plugs and priming coat on unexposed surface etc. complete 2nd class teak wood.							
	12.28.1	50x50 mm (base and height)		metre	85	0	126	211
12.29	Providing and fixing 2nd class teak wood lipping/ moulded beading or taj beading of size 18X5 mm fixed with wooden adhesive of approved quality and screws/nails on the edges of the Pre-laminated particle board as per direction of Engineer-in-charge.			metre	15	0	32	47
12.30	Providing and fixing cup board shutters 25 mm thick, with Pre-laminated flat pressed three layer particle board or graded wood particle board IS: 12823 marked, exterior grade (Grade I Type II), having one side decorative lamination and other side balancing lamination, including IInd class teak wood lipping of 25 mm wide x12 mm thick with necessary screws and bright finished stainless steel piano hinges, complete as per direction of the Engineer-in-Charge			sqm	263	0	1157	1420
12.31	Providing and fixing cup board shutters with 25 mm thick veneered particle board IS : 3097 marked, exterior grade (Grade I), of approved make, including IInd class teak wood lipping of 25 mm wide x 12 mm thick with necessary screws and bright finished stainless steel piano hinges, complete as per direction of Engineer-in-Charge.							
	12.31.1	With decorative veneering on one side and commercial veneering on other side		sqm	263	0	918	1181
	12.31.2	With non decorative veneering on both sides		sqm	263	0	832	1095
12.32	Providing and fixing wire gauge shutters using stainless steel grade 304 wire gauge with wire of dia 0.5 mm and average width of aperture 1.4 mm in both directions for doors, windows and clerestory windows with necessary screws :							
	12.32.1	35 mm thick shutters						
		12.32.1.1	with ISI marked M.S. pressed butt hinges bright finished of required size					
			12.32.1.1. Second class teak wood	sqm	561	0	2498	3059
			12.32.1.1. Kiln seasoned and chemically treated hollock wood	sqm	561	0	1403	1964
			12.32.1.1. Kiln seasoned selected class of sheesham wood	sqm	561	0	2134	2694
		12.32.1.2	With ISI marked stainless steel butt hinges of required size					
			12.32.1.2. Second class teak wood	sqm	561	0	2606	3167
			12.32.1.2. Kiln seasoned and chemically treated hollock wood	sqm	561	0	1511	2072
			12.32.1.2. Kiln seasoned selected class of sheesham wood	sqm	561	0	2242	2802
	12.32.2	30 mm thick shutters						
		12.32.2.1	with ISI marked M.S. pressed butt hinges bright finished of required size					
			12.32.2.1. Second class teak wood	sqm	516	0	2188	2704
			12.32.2.1. Kiln seasoned and chemically treated hollock wood	sqm	516	0	1251	1768
			12.32.2.1. Kiln seasoned selected class of sheesham wood	sqm	516	0	1876	2392
		12.32.2.2	With ISI marked stainless steel butt hinges of required size					
			12.32.2.2. Second class teak wood	sqm	516	0	2296	2812
			12.32.2.2. Kiln seasoned and chemically treated hollock wood	sqm	516	0	1359	1875
			12.32.2.2. Kiln seasoned selected class of sheesham wood	sqm	516	0	1984	2500
12.33	Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.							
	12.33.1	With 2nd class teak wood beading 62X19 mm		sqm	130	0	854	984
	12.33.2	With 12 mm mild steel U beading		sqm	130	0	554	684
12.34	Providing and fixing powder coated telescopic drawer channels 300 mm long with necessary screws etc. complete as per directions of Engineer- in-charge.			each	7	0	264	271
12.35	Providing and fixing sliding arrangement in racks/ cupboards/cabinets shutter by with stainless steel rollers to run inside C or E aluminium channel section (The payment of C or E channel shall be made separately)			each	1	0	10	11
	FLUSH DOOR SHUTTERS							

12.36	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.						
	12.36.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	154	0	2199	2353
	12.36.2	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	154	0	1970	2125
	12.36.3	25 mm thick (for cupboard) including ISI marked nickel plated bright finished M.S. Piano hinges IS : 3818 marked with necessary screws	sqm	154	0	1722	1876
12.37	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters:						
	12.37.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	154	0	1228	1382
	12.37.2	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	154	0	1171	1325
	12.37.3	25 mm thick (for cupboard) including ISI marked nickel plated bright finished M.S. piano hinges with necessary screws	sqm	154	0	1139	1293
12.38	Extra for Providing and fixing flush doors with decorative veneering instead of non decorative ISI marked flush door shutters conforming to IS: 2202 (Part I)						
	12.38.1	On one side only	sqm	0	0	377	377
12.39	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of flush door shutters (over all area of door shutter to be measured).		sqm	0	0	343	343
12.40	Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured):						
	12.40.1	Rectangular or square	sqm	0	0	148	148
	12.40.2	Circular	sqm	0	0	154	154
12.41	Extra if louvers (not exceeding 0.2 sqm) are provided in flush door shutters (overall area of door shutters to be measured).						
	12.41.1	Decorative type door	sqm	0	0	303	303
12.42	Extra for cutting rebate in flush door shutters (Total area of the shutter to be measured).		sqm	0	0	80	80
12.43	Providing and fixing aluminum U beading of required size to Pre-laminated/flush door shutter, including fixing etc. complete as per direction of Engineer-in-charge.		kg	9	0	315	324
	PELMETS AND CURTAIN RODS						
12.44	Providing and fixing 18 mm thick, 150 mm wide pelmet of flat pressed 3 layer or graded wood particle board medium density grade I, IS : 3087 marked, including top cover of 6 mm commercial ply wood conforming to IS: 303 BWR grade, nickel plated M.S. pipe 20 mm dia (heavy type) curtain rod with nickel plated brackets, including fixing with 25x3 mm M.S. flat 10 cm long fixed to pelmet with hollock wood cleats of size 100 mm x 40 mm x 40 mm on both inner side of pelmet and rawl plugs 75 mm long etc. all complete.		metre	80	0	248	328
12.45	Providing and fixing 18 mm thick, 150 mm wide pelmet of coir veneer board ISI marked IS : 14842, including top cover of 6 mm coir veneer board, nickle plated M.S. Pipe 20 mm dia. (heavy type) curtain rod with nickel plated brackets, including fixing with 25x3 mm M.S. Flat 10 cm long fixed to pelmet with hollock wood cleats of size 100 mm x 40 mm x 40 mm on both inner side of pelmet and rawl plugs 75 mm long etc. all complete.		metre	80	0	357	436
12.46	Extra for using veneered particle board conforming to IS 3097 Grade I, in item of pelmet 18mm thick 150mm wide.						
	12.46.1	Non decorative veneer on both sides	metre	0	0	28	28
	12.46.2	Particle board with decorative veneering on both sides	metre	0	0	91	91
12.47	Providing and fixing teak wood lipping of size 25x3 mm in pelmet.		metre	15	0	16	31
12.48	Providing and fixing chromium plated brass curtain rod having wall thickness of 1.25mm with two chromium plated brass brackets fixed with C.P. brass screws and PVC sleeves etc., wherever necessary complete :						
	12.48.1	12 mm dia	metre	2	0	224	226
	12.48.2	20 mm dia	metre	2	0	309	311
	12.48.3	25 mm dia	metre	2	0	401	403
12.49	Providing and fixing nickel plated M.S. pipe curtain rods with nickel plated brackets :						
	12.49.1	20 mm dia (heavy type)	metre	2	0	121	123
	12.49.2	25 mm dia (heavy type)	metre	2	0	127	129
	WINDOW GRILLS, METAL MESH, WIRE GAUGE ETC.						
12.50	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.						
	12.50.1	Fixed to steel windows by welding	kg	27	0	63	90
	12.50.2	Fixed to openings /wooden frames with rawl plugs screws etc.	kg	40	0	63	104
12.51	Providing and fixing expanded metal 20x60 mm strands 3.25 mm wide and 1.6mm thick for windows etc. including 62 x19 mm beading of II nd class teak wood and priming coat with approved steel primer all complete.		sqm	150	0	711	861
12.52	Providing and fixing hard drawn steel wire fabric 75x25 mm mesh of weight not less than 7.75 Kg per sqm to window frames etc. including 62x19 mm beading of second class teak wood and priming coat with approved steel primer all complete.		sqm	146	0	899	1045
12.53	Providing and fixing fly proof galvanized M.S. wire gauge to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia 0.63 mm all complete.						
	12.53.1	With 2nd class teak wood beading 62X19 mm	sqm	130	0	666	796
	12.53.2	With 12 mm mild steel U beading	sqm	130	0	366	496
12.54	Deduct for fixing 75x25 mm hard drawn steel wire fabric of weight not less than 7.75 Kg per sqm in panelled and glazed door and window shutter instead of glass sheet 4 mm thick.		sqm	0	0	148	148
	BRIGHT FINISHED M.S. FITTINGS						
12.55	Providing and fixing ISI marked M.S. pressed butt hinges bright finished with necessary screws etc. complete :						
	12.55.1	125x65x2.12 mm	each	9	0	22	32
	12.55.2	100x58x1.90 mm	each	9	0	15	24
	12.55.3	75x47x1.70 mm	each	9	0	10	19
	12.55.4	50x37x1.50 mm	each	3	0	7	10
12.56	Providing and fixing ISI marked, IS : 1341, M.S. heavy weight bright finished butt hinges with necessary screws etc. complete :						
	12.56.1	125x90x4.00 mm	each	9	0	31	40
	12.56.2	100x75x3.50 mm	each	9	0	24	33
	12.56.3	75x60x3.10 mm	each	9	0	14	23
	12.56.4	50x40x2.50 mm	each	3	0	11	14
12.57	Providing M.S. Piano hinges ISI marked IS : 3818 finished with nickel plating and fixing with necessary screws etc., complete.						
	12.57.1	Overall width 35 mm	metre	94	0	62	156
	12.57.2	Overall width 50 mm	metre	94	0	58	152
	12.57.3	Overall width 65 mm	metre	94	0	71	166
12.58	Providing and fixing bright finished brass casement window fastener with necessary screws etc. complete.		each	4	0	56	60
12.59	Providing and fixing bright finished brass casement stays (straight peg type) with necessary screws etc. complete :						
	12.59.1	300 mm weighing not less than 330 gms	each	4	0	150	155
	12.59.2	250 mm weighing not less than 280 gms	each	4	0	119	123
	12.59.3	200 mm weighing not less than 240 gms	each	4	0	113	117

12.60	Providing and fixing bright finished brass hasp and staple (safety type) with necessary screws etc. complete :						
	12.60.1	150 mm	each	3	0	94	97
	12.60.2	115 mm	each	3	0	84	88
	12.60.3	90 mm	each	3	0	73	77
	COPER OXIDISED MILD STEEL FITTINGS (COPPER OXIDISED AS PER IS: 1378)						
12.61	Providing and fixing ISI marked oxidised M.S. pressed butt hinges with necessary screws etc. complete.						
	12.61.1	125x65x2.12 mm	each	9	0	22	32
	12.61.2	100x58x1.90 mm	each	9	0	16	25
	12.61.3	75x47x1.70 mm	each	9	0	11	20
	12.61.4	50x37x1.50 mm	each	3	0	8	11
12.62	Providing and fixing ISI marked oxidised M.S. pressed Parliamentary hinges with necessary screws etc. complete :						
	12.62.1	150x125x27x2.80 mm	each	9	0	44	53
	12.62.2	125x125x27x2.80 mm	each	9	0	41	50
	12.62.3	100x125x27x2.80 mm	each	9	0	32	41
	12.62.4	75x100x20x2.24 mm	each	9	0	26	35
12.63	Providing and fixing ISI marked oxidised M.S. single acting spring hinges with necessary screws etc. complete :						
	12.63.1	150 mm	each	20	0	165	185
	12.63.2	125 mm	each	20	0	142	162
	12.63.3	100 mm	each	20	0	118	138
12.64	Providing and fixing oxidised M.S. double acting spring hinges with necessary screws etc. complete.						
	12.64.1	150 mm	each	20	0	186	207
	12.64.2	125 mm	each	25	0	161	186
	12.64.3	100 mm	each	20	0	141	161
12.65	Providing and fixing ISI marked oxidised M.S. sliding door bolts with nuts and screws etc. complete :						
	12.65.1	300x16 mm	each	10	0	136	146
	12.65.2	250x16 mm	each	10	0	125	135
12.66	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Barrel type) with necessary screws etc. complete :						
	12.66.1	250x10 mm	each	4	0	55	59
	12.66.2	200x10 mm	each	4	0	44	48
	12.66.3	150x10 mm	each	4	0	37	41
	12.66.4	100x10 mm	each	3	0	26	30
12.67	Providing and fixing ISI marked 85x42 mm oxidised M.S. pull bolt lock conforming to IS : 7534 with necessary screws bolts, nut and washers etc. complete.		each	10	0	69	79
12.68	Providing and fixing ISi marked oxidised M.S. door latches conforming to IS:5930 with screws etc. complete :						
	12.68.1	300x20x6 mm	each	5	0	60	65
	12.68.2	250x20x6 mm	each	5	0	49	53
12.69	Providing and fixing ISI marked oxidised M.S. handles conforming to IS:4992 with necessary screws etc. complete :						
	12.69.1	125 mm	each	2	0	25	27
	12.69.2	100 mm	each	2	0	19	21
	12.69.3	75 mm	each	2	0	15	18
12.70	Providing and fixing oxidised M.S. hasp and staple (safety type) conforming to IS : 363 with necessary screws etc. complete :						
	12.70.1	150 mm	each	3	0	18	21
	12.70.2	115 mm	each	3	0	15	19
	12.70.3	90 mm	each	3	0	12	15
12.71	Providing and fixing oxidised M.S. casement stays (straight peg type) with necessary screws etc. complete.						
	12.71.1	300 mm weighing not less than 200 gms	each	4	0	42	46
	12.71.2	250 mm weighing not less than 150 gms	each	4	0	36	40
	12.71.3	200 mm weighing not less than 120 gms	each	4	0	30	34
12.72	Providing and fixing oxidised M.S. Safety chain with necessary fixtures for doors, (weighting not less than 450 gms)		each	4	0	68	72
	STAINLESS STEEL FITTINGS						
12.73	Providing and fixing IS : 12817 marked stainless steel butt hinges with stainless steel screws etc. complete :						
	12.73.1	125x64x1.90 mm	each	9	0	55	65
	12.73.2	100X58X1.90 mm	each	9	0	47	56
	12.73.3	75x47x1.80 mm	each	9	0	31	41
	12.73.4	50x37x1.50 mm	each	3	0	21	25
12.74	Providing and fixing IS : 12817 marked stainless steel butt hinges (heavy weight) with stainless steel screws etc. complete :						
	12.74.1	125x64x2.50 mm	each	9	0	65	74
	12.74.2	100x60x2.50 mm	each	9	0	49	58
	12.74.3	75x50x2.50 mm	each	9	0	37	46
12.75	Providing and fixing bright /matt finished Stainless Steel handles of approved quality & make with necessary screws etc all						
	12.75.1	125 mm	each	3	0	79	81
	12.75.2	100mm	each	3	0	58	60
	12.75.3	75 mm	each	3	0	35	38
	BRASS FITTINGS						
12.76	Providing and fixing bright finished brass butt hinges with necessary screws etc. complete :						
	12.76.1	125x85x5.5 mm (heavy type)	each	8	0	175	183
	12.76.2	125x70x4 mm (ordinary type)	each	8	0	114	122
	12.76.3	100x85x5.5 mm (heavy type)	each	8	0	130	138
	12.76.4	100x70x4 mm (ordinary type)	each	8	0	87	95
	12.76.5	75x65x4 mm (heavy type)	each	8	0	106	114
	12.76.6	75x40x2.5 mm (ordinary type)	each	8	0	53	61
	12.76.7	50x40x2.5 mm (ordinary type)	each	3	0	22	26
12.77	Providing and fixing bright finished brass parliamentary hinges with necessary screws etc. complete :						
	12.77.1	150x125x27x5 mm	each	9	0	314	323
	12.77.2	125x125x27x5 mm	each	9	0	278	287
	12.77.3	100x125x27x5 mm	each	9	0	254	263
	12.77.4	75x100x20x3.2 mm	each	9	0	223	232
12.78	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :						
	12.78.1	250x10 mm	each	4	0	310	314
	12.78.2	200x10 mm	each	4	0	247	251
	12.78.3	150x10 mm	each	4	0	189	193
	12.78.4	100x10 mm	each	4	0	127	132
12.79	Providing and fixing bright finished brass door latch with necessary screws etc. complete :						

	12.79.1	300x16x5 mm	each	5	0	222	227
	12.79.2	250x16x5 mm	each	5	0	210	216
12.80	Providing and fixing bright finished brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.		each	76	0	457	533
12.81	Providing and fixing bright finished brass 100 mm mortice latch with one dead bolt and a pair of lever handles of approved quality with necessary screws etc. complete.		each	76	0	354	430
12.82	Providing and fixing bright finished brass night latch of approved quality including necessary screws etc. complete.		each	76	0	697	773
12.83	Providing and fixing special quality bright finished brass cupboard or ward robe locks with four levers of approved quality including necessary screws etc. complete.						
	12.83.1	40 mm	each	76	0	63	139
	12.83.2	50 mm	each	76	0	97	173
	12.83.3	65 mm	each	76	0	103	179
	12.83.4	75 mm	each	76	0	120	196
12.84	Providing and fixing 50 mm bright finished brass cup board or wardrobe knob of approved quality with necessary screws.		each	6	0	41	47
12.85	Providing and fixing bright finished brass handles with screws etc. complete:						
	12.85.1	125 mm	each	3	0	169	172
	12.85.2	100 mm	each	3	0	157	159
	12.85.3	75 mm	each	3	0	122	125
12.86	Providing and fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete.		each	1	0	88	89
12.87	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.						
	12.87.1	Triple strip vertical type	each	2	0	27	30
	12.87.2	Double strip (horizontal type)	each	2	0	21	23
	HYDRAULIC DOOR CLOSERS						
12.88	Providing and fixing aluminium die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm), with necessary accessories and screws etc. complete.		each	41	0	778	819
12.89	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISi, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.		each	41	0	649	690
	CHROMIUM PLATED BRASS FITTINGS						
12.90	Providing and fixing chromium plated brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.		each	76	0	537	613
12.91	Providing and fixing chromium plated brass night latch of approved quality including necessary screws etc. complete.		each	76	0	571	647
12.92	Providing and fixing special quality chromium plated brass cupboard locks with six levers of approved quality including necessary screws etc. complete.						
	12.92.1	Size 40 mm	each	76	0	69	145
	12.92.2	Size 50 mm	each	76	0	80	156
	12.92.3	Size 65 mm	each	76	0	108	185
	12.92.4	Size 75 mm	each	76	0	137	213
12.93	Providing and fixing chromium plated brass 50 mm cupboard or wardrobe knobs with nuts complete.		each	6	0	92	98
12.94	Providing and fixing chromium plated brass handles with necessary screws etc. complete:						
	12.94.1	125 mm	each	3	0	188	190
	12.94.2	100 mm	each	3	0	165	167
	12.94.3	75 mm	each	3	0	147	150
12.95	Providing and fixing chromium plated brass casement window fastener with necessary screws etc. complete.		each	4	0	111	115
12.96	Providing and fixing chromium plated brass casement stays (straight peg type) with necessary screws etc. complete :						
	12.96.1	300 mm weighing not less than 330 gms	each	4	0	168	173
	12.96.2	250 mm weighing not less than 280 gms	each	4	0	145	150
	12.96.3	200 mm weighing not less than 240 gms	each	4	0	123	127
	ANODISED ALUMINIUM FITTINGS (ALL FITTINGS SHALL BE ISI MARKED)						
12.97	Providing and fixing ISI marked aluminium butt hinges anodised (anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with necessary screws etc. complete:						
	12.97.1	125x75x4 mm	each	10	0	99	108
	12.97.2	125x63x4 mm	each	8	0	79	88
	12.97.3	100x75x4 mm	each	8	0	72	80
	12.97.4	100x63x4 mm	each	8	0	64	72
	12.97.5	100x63x3.2 mm	each	8	0	58	66
	12.97.6	75x63x4 mm	each	8	0	48	56
	12.97.7	75x63x3.2 mm	each	8	0	42	50
	12.97.8	75x45x3.2 mm	each	8	0	39	47
	Note :- Aluminum hinges shall not be used in wooden shutters, stainless steel hinges shall be preferred.						
12.98	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete :						
	12.98.1	300x16 mm	each	21	0	177	198
	12.98.2	250x16 mm	each	21	0	155	176
12.99	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :						
	12.99.1	300x10 mm	each	5	0	88	94
	12.99.2	250x10 mm	each	5	0	77	83
	12.99.3	200x10 mm	each	5	0	66	71
	12.99.4	150x10 mm	each	3	0	57	60
	12.99.5	100x10 mm	each	3	0	42	46
12.100	Providing and fixing aluminium pull bolt lock, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws bolts, nut and washers etc. complete.		each	10	0	53	63
12.101	Providing and fixing 50 cm long aluminium kicking plate of size 100x3.15 mm, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete.		each	5	0	171	176
12.102	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :						
	12.102.1	125 mm	each	3	0	45	48
	12.102.2	100 mm	each	3	0	40	42
	12.102.3	75 mm	each	3	0	34	36
12.103	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.						

	12.103.1	Single rubber stopper	each	1	0	26	27
	12.103.2	Twin rubber stopper	each	1	0	50	51
12.104	Providing and fixing aluminium casement stays, ISI marked, anodised transparent or dyed to required colour and shade or powder coated or polyester powder coated, with necessary screws etc. complete.						
	12.104.1	Anodized (AC-10) Aluminum	each	4	0	45	49
	12.104.2	Anodized (AC-15) Aluminum	each	3	0	52	55
	12.104.3	Powder coated minimum thickness 50 micron aluminum	each	3	0	56	58
	12.104.4	Polyester powder coated minimum thickness 50 micron aluminum	each	3	0	55	57
12.105	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles of approved quality with necessary screws etc. complete.		each	76	0	485	562
12.106	Providing and fixing aluminium tee channels (heavy duty) with rollers & stop end in pelmets as curtain rod.		metre	2	0	114	116
12.107	Providing Aluminum Jali of thickness 7mm thick with openings - 75mm X 75mm of including anodizing and fixing in frame with cost of screws etc. complete.		sqm	86	0	1720	1806
12.108	Providing fixing aluminum round shape handle of outer dia 100mm with screws etc. complete.						
	12.108.1	Anodized (AC-15) Aluminum	each	3	0	63	65
	12.108.2	Powder coated minimum thickness 50 micron	each	3	0	66	69
	12.108.3	Polyester powder coated minimum thickness 50 micorn	each	3	0	71	73
	PTMT (Polytetra Methylene Terephthalate) FITTINGS						
12.109	Providing and fixing PTMT handles with necessary screws etc. complete.						
	12.109.1	125x34x24 mm weighing not less than 23 gms	each	2	0	29	32
	12.109.2	150x34x24 mm weighing not less than 26 gms	each	2	0	29	32
12.110	Providing and fixing PTMT Butt hinges with necessary screws etc. complete.						
	12.110.1	75x60x10 mm fitted with 5.5 mm dia M.S. Bright Bar Rod weighing not less than 34 gms	each	8	0	41	49
	12.110.2	100x75x10 mm fitted with 5.5 mm dia MS Bright Bar Rod weighing not less than 53 gms	each	8	0	55	63
12.111	Providing and fixing PTMT Tower Bolts with 12 mm one piece rod inside and necessary screws etc., complete.						
	12.111.1	152x42x18 mm weighing not less than 60 gms	each	3	0	58	61
	12.111.2	202x42x18 mm weighing not less than 78 gms	each	4	0	81	85
12.112	Providing and fixing PTMT door catcher of length 72 mm and dia. of 42 mm with suitable washers weighing not less than 33		each	1	0	28	30
12.113	Providing and fixing wooden handrail of required shape and design, with necessary screws, including labour, for rounding, vertical and horizontal bends and curves complete fixed in position.						
	12.113.1	Deodar Wood	cum	18180	0	111757	129937
	12.113.2	commercial hard wood, such as hollock, champ, chikrassy and chaplash, etc., (Non- coniferous timber other than teak, conforming to I.S.specification no.1003,kiln seasoned)	cum	18180	0	53214	71394
	12.113.3	Teak wood	cum	18180	0	117427	135607
12.114	Providing and fixing of roller blinds on windows complete with material and labour (Vista or Royal make) complete with push up & down arrangement as per approved design / colour.		sqm	0	0	2055	2055
	WOODEN JAFFERIES						
12.115	Providing and fixing plain jaffri of 35x10 mm laths placed 35 mm apart (frames to be paid separately), including fixing 50x12 mm beading complete with :						
	12.115.1	Second class teak wood	sqm	410	0	1316	1725
12.116	Providing and fixing Bamboo jaffery/ fencing consisting of superior quality 25mm dia (Average) half cut bamboo placed vertically and fixed together with three numbers horizontal running members of hollock wood in scantling of section 50X25 mm, fixed with nails and G.I wire on existing support complete as per direction of Engineer-in-charge.		sqm	77	0	611	688
	B. PVC Work						
	PUC/uPVC, FRP DOOR/WINDOWS FRAMES AND SHUTTERS						
12.117	Providing and fixing factory made uPVC door frame made of uPVC extruded sections having an overall dimension as below (tolerance ±1mm), with wall thickness 2.0 mm (± 0.2 mm), corners of the door frame to be Jointed with galvanized brackets and stainless steel screws, joints mitred and Plastic welded. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 X 19 mm and 1mm (± 0.1 mm) wall thickness and 3 Nos. stainless steel hinges fixed to the frame complete as per manufacturer's specification and direction of Engineer- in-charge						
	12.117.1	Extruded section profile size 48x40 mm	metre	19	0	144	163
	12.117.2	Extruded section profile size 42x50 mm	metre	19	0	183	202
12.118	Providing and fixing to existing door frames.						
	12.118.1	24 mm thick factory made PVC door shutters made of styles and rails of a uPVC hollow section of size 59x24 mm and wall thickness 2 mm (± 0.2 mm) with inbuilt edging on both sides. The styles and rails mitred and joint at the corners by means of M.S. galvanised/ plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanised M.S. tube of size 20x20 mm and 1 mm (± 0.1 mm) wall thickness. The lock rail made up of 'H' section, a uPVC hollow section of size 100x24 mm and 2 mm (± 0.2 mm) wall thickness, fixed to the shutter styles by means of plastic/galvanised M.S. 'U' cleats. The shutter frame filled with a uPVC multi-chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm (± 0.1 mm) wall thickness. The panels filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S. rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer-in-charge. (For W.C. and bathroom door shutter).	sqm	109	0	1240	1349
	12.118.2	30 mm thick factory made Polyvinyl Chloride (PVC) door shutter made of styles and rails of a uPVC hollow section of size 60x30 mm and wall thickness 2 mm (± 0.2 mm), with inbuilt decorative moulding edging on one side. The styles and rails mitred and joint at the corners by means of M.S. galvanised/ plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanised M.S. tube of size 25x20 mm and 1 mm (± 0.1 mm) wall thickness. The lock rail made up of 'H' section, a uPVC hollow section of size 100x30 mm and 2 mm (± 0.2 mm) wall thickness fixed to the shutter styles by means of plastic/ galvanised M.S. 'U' cleats. The shutter frame filled with a uPVC multi-chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm (± 0.1 mm) wall thickness . The panels filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S. rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer-in-charge.	sqm	109	0	1426	1535
	12.118.3	25 mm thick PVC flush door shutters made out of a one piece Multi chamber extruded PVC section of the size of 762 mm X 25 mm or less as per requirement with an average wall thickness of 1 mm (± 0.3 mm). PVC foam end cap of size 23x10 mm are provided on both vertical edges to ensure the overall thickness of 25 mm. M.S. tube having dimensions 19 mm x 19 mm and 1.0 mm (± 0.1 mm) is inserted along the hinge side of the door. Core of the door shutter should be filled with High Density Polyurethane foam. The Top & Bottom edges of the shutter are covered with an end-cap of the size 25 mm X 11 mm. Door shutter shall be reinforced with special polymeric reinforcements as per manufacturer's specification and direction of Engineer-in-charge to take up necessary hardware and fixtures. Stickers indicating the locations of hardware will be pasted at appropriate places	sqm	109	0	1941	2050
12.119	Providing and fixing factory made P.V.C. door frame of size 50x47 mm with awall thickness of 5 mm, made out of extruded 5mm rigid PVC foam sheet, mitred at corners and joined with 2 Nos. of 150 mm long brackets of 15x15 mm M.S. square tube, the vertical door frame profiles to be reinforced with 19x19 mm M.S. square tube of 19 gauge, EPDM rubber gasket weather seal to be provided through out the frame. The door frame to be fixed to the wall using M.S. screws of 65/100 mm size, complete as per manufacturer's specification and direction of Engineer- in-Charge.		metre	20	0	287	307

12.120	Providing and fixing factory made panel PVC door shutter consisting of frame made out of M.S. tubes of 19 gauge thickness and size of 19 mm x 19 mm for styles and 15x15 mm for top & bottom rails. M.S. frame shall have a coat of steel primers of approved make and manufacture. M.S. frame covered with 5 mm thick heat moulded PVC 'C' channel of size 30 mm thickness, 70 mm width out of which 50 mm shall be flat and 20 mm shall be tapered in 45 degree angle on both side forming styles and 5 mm thick, 95 mm wide PVC sheet out of which 75mm shall be flat and 20 mm shall be tapered in 45 degree on the inner side to form top and bottom rail and 115 mm wide PVC sheet out of which 75 mm shall be flat and 20 mm shall be tapered on both sides to form lock rail. Top, bottom and lock rails shall be provided both side of the panel. 10 mm (5 mm x 2) thick, 20 mm wide cross PVC sheet be provided as gap insert for top rail & bottom rail, paneling of 5 mm thick both side PVC sheet to be fitted in the M.S. frame welded/ sealed to the styles & rails with 7 mm (5 mm+2 mm) thick x 15 mm wide PVC sheet beading on inner side, and joined together with solvent cement adhesive. An additional 5 mm thick PVC strip of 20 mm width is to be stuck on the interior side of the 'C' Channel using PVC solvent adhesive etc. complete as per direction of Engineer-in-charge, manufacturer's specification & drawing.						
	12.120.1	30 mm thick plain PVC door shutters	sqm	109	0	1806	1914
	12.120.2	30 mm thick pre laminated PVC door shutters	sqm	109	0	1806	1914
12.121	Providing and fixing factory made door frame (single rebate) made out of single piece extruded solid PVC foam profile with homogenous fine cellular structure having smooth outer integral skin having 62 mm width & 32 mm thickness, frame will be mitred & Jointed with self driven self tapping screws of size 38 mm x 4 mm & PVC solvent cement, including fixing the frame to wall with suitable dia & length anchor fastener as per manufacturer's specification and direction of Engineer-in-charge.		metre	20	0	360	379
12.122	Providing and fixing factory made 30 mm thick door shutter made of solid PVC foam profile. The styles & rails shall be of size 75 mm x 30 mm having wall thickness 5 mm. The styles, top & bottom rails shall have one side wall thickness of 15 mm integrally extruded on the hinge side of the profile for better screw holding power. The styles and rails shall be reinforced with M.S. tubes of size 33 mm x 17 mmx 1 mm, painted with primer , all four corners of reinforcement to be welded or sealed. Solid PVC extruded bidding (push fit type) will be set inside the styles and the rails with a cavity, to receive single piece extruded 5mm PVC sheet as panel. The styles and rails will be mitred cut and joint with the help of PVC solvent cement & self driven self tapping screws. Single piece extruded solid PVC lock rail of size 100 mm x 30 mm with wall thickness 5 mm & 15 mm integrally extruded in the middle of the lock rail & fixed with styles with the help of PVC solvent cement & self driven self tapping screws of size 100mm x 8 mm complete as per manufacturer's specifications and direction of Engineer-in-charge.						
	12.122.1	Non decorative finish	sqm	109	0	2322	2431
	12.122.2	Decorative finish (both side wood grained finish)	sqm	109	0	2437	2545
12.123	Providing and fixing PVC rigid foam sheet 1 mm thick on existing door shutters (bathroom and W.C. doors) using synthetic rubber based adhesive.		sqm	281	0	249	530
12.124	Providing and fixing PVC Door Frame of size 50x47 mm with a wall thickness of 5 mm (± 0.2 mm), made out of single piece extruded PVC profile, with mitred cut joints and joint with 2 Nos. of PVC bracket of size 190 mm x 100 mm long arms of cross section size 35 x 15 mm & self driven self taping screws, the vertical door profiles to be reinforced with 40x20 mm M.S. rectangular tube of 0.8 mm , including providing EPDM rubber gasket weather seal throughout the frame, including jointing 5 mm PVC frame strip with PVC solvent cement on the back of the profile. The door frame to be fixed to the wall using 8 x100 mm long anchor fasteners complete, all as per manufacturer's specification and direction of Engineer -in- charge.		metre	20	0	341	361
12.125	35 mm thick factory made Solid panel PVC Door shutter, made out of single piece extruded soild PVC profiles, 5 mm (± 0.2 mm) thick, having styles & rails (except lock rail) of size 95 mmx 35 mm x 5 mm, out of which 75 mm shall be flat and 20 mm shall be tapered (on both side), having one side thickness of 15 mm integrally extruded on the hinge side of the profile for better screw holding power, including reinforcing with MS tube of size 40 mm X 20 mm x 1 mm, joints of styles & rails to be mitered cut & joint with the help of PVC solvent cement, self driven self tapping screws & M.S. rectangular pipes bracket of size 190 mm X 100 mm of cross section size 35 mm x 17 mm x 1 mm at each corner. Single piece extruded 5 mm thick solid PVC Lock rail of size 115 mm x 35 mm, out of which 75 mm to be flat and 20 mm to be tapered at both ends, having 15 mm solid core in middle of rail section integrally extruded, fixing the styles & rails with the help of solvent and self driven self tapping screws of 125 mm x 11 mm, including providing 5 mm Single piece solid PVC extruded sheet inserted in the door as panel, all complete as per manufacturer's specification and direction of Engineer-in-charge.						
	12.125.1	Non decorative finish (matt finish)	sqm	113	0	2494	2606
	12.125.2	Decorative finish (wood grained finish)	sqm	113	0	3008	3120
12.126	Providing and Fixing factory made uPVC door frame, made of uPVC exturded sections, of size 65 mm x 55 mm with wall thickness 2.0 mm (± 0.2 mm), corners of the door frame to be mitred cut and jointed with plastic brackets and stainless steel screws, reinforcing hinge side vertical of the frames with PVC profile of Size 28 mm x 30 mm having wall thickness 2 mm (±0.2 mm), including providing & fixing 3 Nos. of 125 mm long stainless steel hinges to the frame, fixing the frame with jamb with required number & size of anchor dash fastners, all complete as per manufacturer's specification and direction of Engineer-in-charge.		metre	19	0	405	424
12.127	Providing and fixing 37 mm thick factory made PVC door shutter, styles and rails made of PVC hollow section of size 100 mm x 37 mm with wall thickness 2 mm (± 0.2 mm), with inbuilt bead on one side, styles and rails mitered cut and joint at the corners by means of 2 Nos. of plastic brackets of size 75 mm x 220 mm at each corner and stainless steel screws, reinforcing the hinge side of style by inserting PVC profile of size 28 mm x 30 mm, with wall thickness 2 mm (± 0.2 mm). Lockrail of size 100 mm x 37 mm, wall thickness 2 mm (+ 0.2 mm) will be fixed to the vertical styles. Providing with PVC snapfit beads and panel of size 100 mm x 20 mm, and inserting 2 Nos. tie bar of 6 mm dia and fastening with nuts and washers complete, all as per manufacturer's specification and direction of Engineer-in-charge.		sqm	109	0	2741	2849
12.128	Providing and Fixing factory made PVC door frame made of PVC extruded sections of size 75 mm x 53 mm, having wall thickness 2.0 mm (± 0.2 mm). Both verticalssides of the frame reinforced with PVC profile of cross section size 28 mm x 30 mm x 2 mm thickness (± 0.2 mm) and 75 mm x 200 mm long, including reinforcing both ends of the top frame with PVC profile. PVC Door Frame and PVC reinforcement profile to be mitred cut, jointed and fusion welded together, including providing and fixing 3 Nos. of 125 mm long stainless steel hinges to frame, fixing the frame with jamb with required Nos. & sizes of anchor dash fastener, all complete as per manufacturer's specification and direction of engineer- in-charge.		metre	19	0	457	476
12.129	Providing and fixing 37 mm thick factory made PVC Door shutter, styles and rails made of PVC hollow extruded printed and laminated section having overall dimension 115 mm x 37 mm with wall thickness 2 mm (± 0.2 mm) with inbuilt beading on one side, the styles and rails mitred cut and joint at corners by inserting 2 Nos. PVC profile reinforcement of size 75 mm x 200 mm long with cross section size of 28 mm x 30 mm having wall thickness 2 mm (± 0.2 mm). Styles, rails and reinforcements to be fusion welded together. Only hinge side vertical style to be reinforced with PVC profile reinforcement in full length. Printed and laminated PVC lock rail of size 110 mm x 37 mm having wall thickness 2 mm (± 0.2 mm) to be welded horizontally with the vertical styles after inserting PVC profile reinforcement as in styles and rails, providing with PVC snap fit beading, panels of 100 x 20 mm printed & laminated and inserting 2 Nos. 6 mm dia bright steel rod horizontally with both side threaded and tightened with check nuts and washers complete, all as per manufacturer's specification and direction of engineer-in-charge.		sqm	109	0	2969	3078
12.130	Providing and fixing of casement and fixed windows made from multi chambered UPVC profiles of 56 to 68mm width in natural from stabilized for heat, light, impact & UV radiation The UPVC profiles should be reinforced with galvanized steel profiles of designed thickness. All openable sashes shall be having weather seal fitted in continuous lengths made from Bubble EPOM Rubber and side hung/ top hung with upto 90 degree opening friction stays of SS 304 with provision of multipoint locking system made from Espag rods. All handle shall be made from Die Cast Zinc alloy (Model ESPAG)BS-1004A in white finish with suitable locking arrangement. The windows shall be fixed to opening using expandable screws and friction stays that shall be able to with stand wind speeds upto 180 km/hr. the shoot bolts in windows shall be rust proof metallic coated steel. The window frames shall be fixed in masonary wall RCC with necessary fasteners, nuts, bolts, washers, caps, silicon sealant etc. complete						
	12.130.1	Frame work	sqm	157	0	2935	3092
	12.130.2	Openable shutter	sqm	157	0	4568	4725
	12.130.3	Double glass glazing comprising of6 mm thick toughened clear glass + 12mm air gap + 5mm annealed clear glass.	sqm	317	0	1639	1956

12.131	Providing and fixing factory made uPVC white colour casement/casement cum fixed glazed windows comprising of uPVC multi-chambered frame, sash and mullion (where ever required) extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), uPVC extruded glazing beads of appropriate dimension, EPDM gasket, stainless steel (SS 304 grade) friction hinges, zinc alloy (white powder coated) casement handles, G.I fasteners 100 x 8 mm size for fixing frame to finished wall, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealant shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.						
	Note: For uPVC frame, sash and mullion extruded profiles minus 5% tolerancein dimension i.e. in depth & width of profile shall be acceptable.						
	12.131.1	Casement window single panel with S.S. friction hinges (300 x 19 x 1.9 mm), made of (small series) frame 47 x 50 mm & sash 47 x 68 mm both having wall thickness of 1.9 ± 0.2 mm and single glass pane glazing bead of appropriate dimension. (Area of window upto 0.75 sqm)	sqm	799	0	6673	7473
	12.131.2	Casement window double panels with S.S. friction hinges (300 x 19 x 1.9 mm) made of (small series) frame 47 x 50 mm, sash 47 x 68 mm & mullion 47 x 68 mm all having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension. (Area of window above 0.75 sqm upto 1.50 sqm).	sqm	799	0	6206	7006
	12.131.3	Casement window double panels with top fixed with S.S. friction hinges (350 x 19 x 1.9 mm) made of (small series) frame 47 x 50 mm, sash 47 x 68 mm & mullion 47 x 68 mm all having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension. (Area of window upto 2.50 sqm).	sqm	799	0	4796	5595
	12.131.4	Casement window single panel with S.S. friction hinges (400 x 19 x 1.9 mm) made of (big series)frame 67 x 60 mm & sash 67 x 80 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 0.75 sqm)	sqm	799	0	6650	7449
	12.131.5	Casement window double panels with S.S. friction hinges (350 x 19 x 1.9 mm) made of (big series)frame 67 x 60 mm & sash / mullion 67 x 80 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead/ double glazing bead of appropriate dimension. (Area of window above 1.50 sqm).	sqm	799	0	7047	7847
	12.131.6	Casement cum fixed panel window having both end single casement panel, middle fixed panels and at top completely fixed ventilator with S.S friction hinges (350 x 19 x 1.9) made of (big series) frame 67 x 60 mm , sash 67 x 80 mm & mullion 67 x 80 mm all having wall thickness of 2.3 ± 0.2 mm and single glazing bead/double glazing bead of appropriate dimension. (Area of window above 3.00 sqm upto 5.00 sqm).	sqm	799	0	5072	5872
12.132	Providing and fixing factory made uPVC white colour fixed glazed windows/ventilators comprising of uPVC multi-chambered frame and mullion (where ever required) extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), , uPVC extruded glazing beads of appropriate dimension, EPDM gasket, G.I fasteners 100 x 8 mm size for fixing frame to finished wall, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealant shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.						
	Note: For uPVC frame, sash and mullion extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable.						
	12.132.1	Fixed window / ventilator made of (small series) frame 47 x 50 mm & mullion 47 x 68 mm both having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension. (Area upto 0.75 sqm)	sqm	799	0	4058	4858
12.133	Providing and fixing factory made uPVC white colour casement/ Casement cum fixed glazed door comprising of uPVC multi-chambered frame, sash and mullion (where ever required) extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), uPVC extruded glazing beads of appropriate dimension, EPDM gasket, zinc alloy (white powder coated) 3D hinges and one handle on each side of panels along with zinc plated mild steel multi point locking having transmission gear, cylinder with keeps and one side key, G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws, etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealent shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.						
	Note: For uPVC frame, sash and mullion extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable.						
	12.133.1	Casement door with 3D hinges made of (big series) frame 67 x 64 mm & sash 67 x 110 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of door upto 2.00 sqm).	sqm	799	0	6614	7413
	12.133.2	Casement door with top hung ventilator with 3D and S.S. friction hinges (400 x 19 x 1.9 mm) made of (big series) frame 67 x 64 mm, sash 67 x 110 mm & mullion 67 x 80 mm all having wall thickness of 2.3 ±. 0.2 mm and single glazing bead / double glazing bead of appropriate dimension.(Area of door upto 2.50 sqm)	sqm	799	0	6812	7611
12.134	Providing and fixing factory made uPVC white colour sliding glazed window upto 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gasket, wool pile, zinc alloy (white powder coated) touch locks with hook, zinc alloy body with single nylon rollers (weight bearing capacity to be 40 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes, wire mesh and silicon sealent shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.						
	Note: For uPVC frame and sash extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable.						
	12.134.1	Two track two panels sliding window made of (small series) frame 52 x 44 mm &sash 32 x 60 mm both having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension. (Area of window upto 1.75 sqm)	sqm	799	0	4524	5323
	12.134.2	Three track three panels sliding window with fly proof SS wire mesh (Two Nos. glazed & one no. wire mesh panels) made of (small series) frame 92 x 44 mm & sash 32 x 60 mm both having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension (Area of window upto 1.75 sqm).	sqm	799	0	6440	7239
	12.134.3	Two track two panels sliding window made of (big series) frame 67 x 50 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension . (Area of window above 1.75 sqm upto 2.50 sqm).	sqm	799	0	4729	5528
	12.134.4	Three track three panels sliding window with fly proof S.S wire mesh (Two Nos. glazed & one no. wire mesh panels) made of (big series) frame 116 x 45 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 1.75 sqm).	sqm	799	0	6204	7003

	12.134.5	Three track three panels sliding window made of (big series) frame 116 x 45 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 1.75 sqm)	sqm	799	0	5829	6628
12.135	Providing and fixing factory made uPVC white colour sliding glazed window above 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads, uPVC extruded interlocks and uPVC extruded Inline sash adaptor (if required), EPDM gasket, wool pile, zinc alloy (white powder coated) handle on one side of extreme panel along with zinc plated mild steel multi point locking having transmission gear with keeps, zinc alloy (white powder coated) touch lock with hook (if required for wire mesh panel), stainless steel (SS 304 grade) body with adjustable double nylon rollers (weight bearing capacity to be 120 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes, wire mesh and silicon sealent shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.					
	Note: For uPVC frame and sash extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable.					
	12.135.1	Two track two panels sliding window made of (big series) frame 67 x 50 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 2.50 sqm upto 4.00 sqm)	sqm	799	0	4740	5540
	12.135.2	Two track four panels sliding window made of (big series) frame 67 x 50 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 4.00 sqm upto 8.00 sqm).	sqm	799	0	3991	4790
12.136	Providing and fixing factory made uPVC white colour sliding glazed door comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension uPVC extruded glazing beads, uPVC extruded interlock and uPVC extruded Inline sash adaptor (if required), EPDM gasket, wool pile, zinc alloy (white powder coated) handle with key on one side of extreme panels along with zinc plated mild steel multi point locking having transmission gear with keeps, zinc alloy (white powder coated) cresent lock (if required), stainless steel (SS 304 grade) body with adjustable double nylon rollers (weight bearing capacity to be 120 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes, wire mesh and silicon sealent shall be paid separately). Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.					
	Note: For uPVC frame and sash extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable.					
	12.136.1	Two track two panels sliding door made of (big series) frame 67 x 50 mm & sash 46 x 82 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of door above 2.00 sqm upto 5.00 sqm)	sqm	799	0	4019	4819
	12.136.2	Two track four panels sliding door made of (big series) frame 67 x 50 mm & sash 46 x 82 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of door above 8.00 sqm upto 10.00 sqm).	sqm	799	0	3476	4276
	12.136.3	Three track three panels sliding door made of (big series) frame 116 x 45 mm & sash 46 x 82 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead/ double glazing bead of appropriate dimension. (Area of door above 5.00 sqm)	sqm	799	0	4091	4890
	12.136.4	Three track three panels sliding door with fly proof S.S wire mesh (Two Nos. glazed & one no. wire mesh panels) made of (big series) frame 116 x 45 mm & sash 46 x 82 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of door above 2.00 sqm upto 5.00 sqm)	sqm	799	0	5530	6329
12.137	Providing and fixing stainless steel (SS-304 grade) friction hinges to the side/top hung uPVC windows, of approved quality, with necessary stainless steel screws etc. as per direction of Engineer-in-charge.						
	12.137.1	200 x 19 x 1.9 mm	each	9	0	236	244
	12.137.2	250 x 19 x 1.9 mm	each	9	0	264	273
	12.137.3	300 x 19 x 1.9 mm	each	9	0	281	290
	12.137.4	350 x 19 x 1.9 mm	each	9	0	396	404
	12.137.5	400 x 19 x 1.9 mm	each	9	0	418	427
12.138	Providing and fixing casement handle made of zinc alloyed (white powder coated) for uPVC casement window with necessary screws etc. complete.		each	5	0	149	154
12.139	Providing and fixing zinc alloyed (white powder coated) touch lock for uPVC sliding window with necessary screws etc. complete.		each	5	0	120	126
12.140	Providing and fixing steel roller for uPVC sliding window with necessary screws etc. complete.		each	5	0	65	70
12.141	Providing and fixing steel roller for uPVC sliding door with necessary screws etc. complete.		each	5	0	109	114
12.142	Providing and fixing steel (white power coated) crescent lock for uPVC sliding window/ door with necessary screws etc. complete.		each	5	0	132	137
	FRP DOOR/WINDOW FRAMES AND SHUTTERS						
12.143	Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminate shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall be 2mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.		metre	20	0	533	553
12.144	Providing and fixing to existing door frames.						
	12.144.1	30 mm thick Glass Fibre Reinforced Plastic (FRP) panelled door shutter of required colour and approved brand and manufacture, made with fire - retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, with wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, cast monolithically with 5 mm thick FRP laminate for panels conforming to IS: 14856, including fixing to frames.	sqm	109	0	2695	2804
	12.144.2	30 mm thick Fiberglass Reinforced Plastic (F.R.P.) flush door shutter in different plain and wood finish made with fire retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF)/Polystyrene foam to be used as filler material throughout the hollow panel, casted monolithically with testing parameters of F.R.P. laminate conforming to table - 3 of IS: 14856, complete as per direction of Engineer-in-charge.	sqm	109	0	3093	3202

12.145	Providing and fixing factory made Fiberglass Reinforced plastics (F.R.P.) chajja 4 mm thick of required colour, size and design made by Resin Transfer Moulding (RTM) Machine Technology, resulting in void free compact laminate in single piece, having smooth gradual slope curvature for easy drainage of water and duly reinforced by 2 Nos. vertically and 1 Nos. horizontally 50x2 mm thick M.S. flat with 12 mm in built hole for grouting on the existing wall along with the 50 mm flanges duly inserted and sealed in the wall complete in one single piece casted monolithically, including all necessary fittings . The FRP Chajja should be manufactured using unsaturated Polyester resin as per IS: 6746, duly reinforced with fibre glass chopped strand mat (CSM) as per IS: 11551 complete with protective Gel coat U/V coating on Top for complete resistance from the extreme of temperature, weather & sunlight (Only plan area of chajjas shall be measured for making payment).			sqm	159	0	3464	3622
	WALL PANELLING							
12.146	Providing and fixing, in position concealed G.I. section for wall paneling using board of required thickness fixed on the 'W' profile (0.55 mm thick) having a knurled web of 51.55 mm and two flanges of 26 mm each with lips of 10.55 mm, placed @ 610 mm C/C in perimeter channel having one flange of 20 mm and another flange of 30 mm with thickness of 0.55 mm and web of length 27 mm. Perimeter channel is fixed on the floor and the ceiling with the nylon sleeves @ 610 mm C/C with fully threaded self-tapping dry wall screws. Board is fixed to the 'W' profile with 25 mm countersunk ribbed head screws @ 200 mm C/C., all complete as per the drawing & directions of engineer-in-charge, the joints of the boards are finished with specially formulated jointing compound and 48mm wide jointing tape to provide seamless finish.							
	12.146.1	Tapered edge calcium silicate board made with calcareous & siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with compressive strength 225 kg/ sq.cm, Bending strength 100 kg/sq.cm.						
		12.146.1.1	10mm thick	sqm	230	0	649	880
	12.146.2	Multipurpose cement board reinforced with suitable fibre cement screw.						
		12.146.2.1	8 mm thick cement fibre board as per IS : 14862	sqm	230	0	398	628
		12.146.2.2	8 mm thick Cement bonded wood particle board as per IS:14276	sqm	230	0	392	622
	12.146.3	Plain Gypsum plaster board conforming to IS: 2095 Part -1:2011 (Board with BIS certification marks)						
		12.146.3.1	12.5 mm thick	sqm	230	0	316	547
	FIRE RESISTANT DOOR FRAMES AND SHUTTERS							
12.147	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermuculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumuscent fire seal strip of size 10x4 mm (minimum) alround the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately).			metre	11	0	1199	1210
12.148	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/m2) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).			sqm	41	0	5139	5180
12.149	Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/m²) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5 x 20 mm size etc complete in all respect as per NBC 2016, IS 16231 (Part 3):2016 and as per direction of Engineer-in-charge with glass of required thickness having 60 minutes of fire resistance both integrity & radiation control (EW60) and minimum 20 minutes of insulation (EI20). The manufacturer have to give test report/certification of fire glass and the glass should have the stamp showing the value of E, EW & EI. The glass shall be tested in approved NABL accredited lab or by any other accreditation body which operates in accordance with ISO/IEC 17011 and accredits labs as per ISO/IEC 17025 for testing and calibration scopes shall be eligible. The maximum glazing size shall not be more than 1100x2200 mm (w x h) or 2.42 sqm			sqm	59	0	30593	30652
12.150	Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.			each	76	0	5938	6014
12.151	Providing and fixing fire resistant door frame of section 50 x 60 mm on horizontal side & 35 x 60 mm on vertical sides having built in rebate made out of 1.6 mm thick GI sheet (Zinc coating not less than 120gm/m²) suitable for mounting 120 min Fire Rated Glazed Door Shutters. The frame shall be filled with Mineral wool Insulation having density min 96Kg/m³ . The frame will have a provision of G.I. Anchor fastners 14 Nos. (5 each on vertical style & 4 on horizontal style of size M10 x 80) suitable for fixing in the opening along with Factory made Template for SS Ball Bearing Hinges of Size 100x89x3mm for fixing of fire rated glazed shutter . The frame shall be finished with a approved fire resistant primer or Powder coating of not less than 30 micron in desired shade as per the directions of Engineer - in- charge . (Cost of SS ball bearing hinges is excluded).			metre	49	0	1142	1191
12.152	Providing and fixing 60 mm thick glazed fire resistant door shutters of 120 min Fire Rating confirming to IS:3614 (Part II) or EN1634-1:1999, tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, top rail & side rail 60 mm x 60 mm wide and bottom rail of 110 mm x 60 mm made out of 1.6mm thick G.I. sheet (zinc coating not less than 120gm/m²) duly filled mineral wool insulation having density min 96 kg/m³ and fixing with necessary stainless steel ball bearing hinges of size 100x89x3mm of approved make, including applying a coat of approved fire resistant primer or powder coating not less than 30 micron etc all complete as per direction of Engineer-in-charge (panelling to be paid for seperately).			sqm	88	0	6884	6972
12.153	Providing and fixing non load bearing fixed frame for fire resistant glazed Partition for 120 minutes Fire Rating, made out to a profile of dimension 60mm x 70 mm of 1.6 mm thick galvanised steel sheet as per test evidence suitable for fixing fire rated glass for 120 minutes of both integrity & radiation control (EW120) & minimum 20 minutes of insulation (EI20).The profile has to be fixed to the supporting construction by means of anchor fasteners of size M10 x 80, every 150 mm from the edges and every 500 mm (approx) c/c. Linear measurement of frame shall be measured for payment. The frame shall be filled with mineral wool insulation of density min 96kg/ m³. and finished with a approved fire resistant primer or Powder coating of not less than 30 micron in desired shade as per NBC 2016, IS 16231 (Part 3):2016 and directions of Engineer - in- charge.			metre	53	0	1142	1195
12.154	Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/m²) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5 x 20 mm size etc complete in all respect as per NBC 2016, IS 16231 (Part 3):2016 and as per direction of Engineer-in-charge with glass of required thickness having 120 minutes of fire resistance both integrity & radiation control (EW120) and minimum 20 minutes of insulation (EI20). The manufacturer have to give test report/certification of fire glass and the glass should have the stamp showing the value of E, EW & EI. The glass shall be tested in approved NABL accredited lab or by any other accreditation body which operates in accordance with ISO/IEC 17011 and accredits labs as per ISO/IEC 17025 for testing and calibration scopes shall be eligible. The maximum glazing size shall not be more than 1100x2200 mm (w x h) or 2.42 sqm			sqm	59	0	33448	33506
	PARTITIONS							

12.155	Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.							
	12.155.1	75 mm overall thickness partition with 12.5 mm thick double skin fire rated Glass Reinforced Gypsum (GRG) plaster board conforming to IS: 2095: part 3 (Board with BIS certification marks)			sqm	275	0	858	1133
	12.155.2	75mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum plaster board conforming to IS: 2095: (part I): 2011 (Board with BIS certification marks)			sqm	275	0	664	939
	12.155.3	66mm overall thickness Partition with 8mm thick double skin Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process with Compressive Strength 225 kg/sq.cm, Bending Strength 100 kg./ sq.cm			sqm	275	0	915	1190
	12.155.4	66mm overall thickness partition using 8mm thick double skin multipurpose cement board reinforced with cellulose fibre manufactured through autoclaving process (High pressure steam cured) as per IS : 14862 with suitable fibre cement screws			sqm	275	0	813	1087
	12.155.5	66 mm overall thickness partition using 8 mm thick double skin multipurpose cement bonded wood particle board manufactured as per IS: 14276 with suitable cement bonded board screws			sqm	275	0	801	1076
12.156	Providing and fixing frame work for partitions/ wall lining etc. made of 50x50x1.6 mm hollow MS tube, placed along the walls, ceiling and floor in a grid pattern with spacing @ 60 cm centre to centre both ways (vertically & horizontally) or at required spacing near opening, with necessary welding at junctions and fixing the frame to wall/ ceiling/ floors with steel dash fasteners of 8 mm dia, 75 mm long bolt, including making provision for opening for doors, windows, electrical conduits, switch boards etc., including providing with two coats of approved steel primer etc. complete, all as per direction of Engineer-in-charge.				kg	13	0	84	98
	C. ALUMINIUM WORK								
	DOOR/WINDOW FRAMES AND SHUTTERS								
12.157	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :								
	12.157.1	For fixed portion							
		12.157.1.1	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)		kg	39	0	278	317
		12.157.1.2	Powder coated aluminium (minimum thickness of powder coating 50 micron)		kg	39	0	305	344
		12.157.1.3	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)		kg	39	0	312	352
	12.157.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)							
		12.157.2.1	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)		kg	68	0	300	367
		12.157.2.2	Powder coated aluminium (minimum thickness of powder coating 50 micron)		kg	68	0	328	396
		12.157.2.3	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)		kg	68	0	335	403
12.158	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of engineer-in-charge.								
	12.158.1	Pre-laminated particle board with decorative lamination on one side and balancing lamination on other side			sqm	82	0	652	734
	12.158.2	Pre-laminated particle board with decorative lamination on both sides			sqm	82	0	694	776
12.159	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):								
	12.159.1	With float glass panes of 4.0 mm thickness (weight not less than 10kg/sqm)			sqm	146	0	509	655
	12.159.2	With float glass panes of 5 mm thickness (weight not less than 12.50 kg/sqm)			sqm	146	0	761	907
	12.159.3	With float glass panes of 6 mm thickness (weight not less than 15 kg/sqm)			sqm	146	0	812	958
	12.159.4	With float glass panes of 8 mm thickness (weight not less than 20 kg/sqm)			sqm	146	0	901	1047
12.160	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.								
	12.160.1	With stainless steel cover plate minimum 1.25 mm thickness			each	121	0	1750	1871
	12.160.2	With brass cover plate minimum 1.25 mm thickness			each	121	0	1887	2008
12.161	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side, having 12 mm air gap, including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete.				sqm	193	0	2836	3029
12.162	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.								
	12.162.1	205 X 19 mm			each	9	0	198	207
	12.162.2	255 X 19 mm			each	9	0	255	264
	12.162.3	355 X 19 mm			each	9	0	224	233
	12.162.4	510 X 19 mm			each	9	0	601	610
	12.162.5	710 X 19 mm			each	9	0	1029	1038
12.163	Providing and fixing aluminium tubular handle bar 32 mm outer dia, 3.0 mm thick & 2100 mm long with SS screws etc .complete as per direction of Engineer-in-Charge.								
	12.163.1	Anodized (AC 15) aluminium tubular handle bar			each	5	0	426	431
	12.163.2	Powder coated minimum thickness 50 micron aluminium tubular handle bar			each	5	0	469	474
	12.163.3	Polyester powder coated minimum thickness 50 micron aluminium tubular handle bar			each	5	0	480	486

12.164	Providing and fixing Brass 100mm mortice latch and lock with 6 levers without pair of handles (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.		each	76	0	240	316
12.165	Providing and fixing anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868. Minimum anodic coating of grade AC 15) sub frame work for windows and ventilators with extruded built up standard tubular sections of approved make conforming to IS: 733 and IS: 1285, fixed with dash fastener of required dia and size (Dash fastener to be paid for separately).		kg	12	0	278	290
12.166	Providing and fixing aluminium casement windows fastener of required length for aluminium windows with necessary screws etc. complete.						
	12.166.1	Anodized (AC 15) aluminium	each	3	0	52	55
	12.166.2	Powder coated minimum thickness 50 micron aluminium	each	3	0	56	58
	12.166.3	Polyester powder coated minimum thickness 50 micron aluminium	each	3	0	54	57
12.167	Providing and fixing aluminium round shape handle of outer dia 100 mm with SS screws etc. complete as per direction of Engineer-in-charge						
	12.167.1	Anodized (AC 15) aluminium	each	3	0	62	65
	12.167.2	Powder coated minimum thickness 50 micron aluminium	each	3	0	66	68
	12.167.3	Polyester powder coated minimum thickness 50 micron aluminium	each	3	0	70	73
12.168	Extra for applying additional anodic coating AC 25 instead of AC 15 to aluminium extruded sections.						
	12.168.1	For fixed portion	kg	0	0	11	11
	12.168.2	For shutters of doors, windows & ventilators	kg	0	0	11	11
12.169	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.						
	12.169.1	Upto 5mm depth and 5 mm width	metre	16	0	17	33
12.170	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).		kg	41	0	357	398
12.171	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & double acting hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).		sqm	330	0	3033	3362
12.172	Filling the gap in between aluminium/ stone/ wood frame and adjacent RCC/Brick/ Stone/ wood/ Ceramic/ Gypsum work by providing weather/structural non sag elastomeric PU sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete, complying to ASTM C920, DIN 18540-F & ISO 11600						
	12.172.1	Upto 5 mm depth and 5 mm width	metre	21	0	68	89
	12.172.2	Upto 10 mm depth and 10 mm width	metre	26	0	98	125
	12.172.3	Upto 20 mm depth and 20 mm width	metre	39	0	218	257
12.173	Providing and fixing bright finished 100 mm mortice lock with 6 levers without pair of handles of approved quality for aluminium door, with necessary screws etc complete as per direction of Engineer- in-charge.		each	58	0	428	486
	ALUMINIUM FALSE CEILING						
12.174	Providing and fixing powder coated aluminium work (minimum thickness of powder coating 50 micron) consisting of tee/ angle sections, of approved make conforming to IS : 733 in frames of false ceiling including aluminium angle cleats with necessary C.P. brass/ stainless steel sunk screws, aluminium perimeter angles fixed to wall with stainless steel rawl plugs @ 450 mm centre to centre and fixing the frame work to G.I. level adjusting hangers 6 mm dia. with necessary cadmium plated machine screws all complete as per approved architectural drawings and direction of the Engineer-in-charge (level adjusting hangers, ceiling cleats and expansion hold fasteners to be paid for separately).		kg	65	0	433	498
12.175	Providing and fixing 6 mm dia. G.I. level adjusting hangers (upto 1200mm length), fixed to roof slabs by means of ceiling cleats made out of G.I. flat 40x3mm size 60 mm long and stainless steel expandable dash fastener of 12.5 mm dia and 50 mm long, complete as per direction of Engineer-in-charge.		each	9	0	39	48
12.176	Providing and fixing machine moulded aluminium covering of approved pattern & design, made out of machine cut aluminium sheet and machine holed for receiving dash fastener, over expansion joints on vertical surfaces/ceiling floors, the fixing on plate in one row on one side of joint only shall be done with stainless steel dash fasteners of 8 mm dia and 75 mm long bolt including providing aluminium washers 2 mm thick & 15 mm dia , at a staggered pitch of 200mm centre to centre including drilling holes in the receiving surface and providing expandable plastic sleeves in holes etc. complete as per direction of Engineer-in-charge.						
	12.176.1	Anodised aluminium sheet 2.5mm thick (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	kg	37	0	409	446
	12.176.2	Powder coated aluminium sheet 2.5mm thick (minimum thickness of powder coating 50 micron)	kg	37	0	437	473

CHAPTER NO. 13

STEEL
AND
IRON WORK

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CHAPTER 13.0 - STEEL & IRON WORK

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 228	Structural steel (Standard quality)
2	IS 277	Specification for galvanized steel sheets (Plain and corrugated)
3	IS 800	Code of practice for use of structural steel in general in steel construction
4	IS 806	Code of practice for use of steel Tubes in general building construction
5	IS 808	Dimensions for Hot rolled steel beams, columns, channel and angle sections
6	IS 812	Glossary of terms relating to welding and cutting metals
7	IS 813	Scheme of symbols for welding
8	IS 816	Code of practice for use of metal arc welding for general construction in mild steel
9	IS 818	Code of practice for safety and healthy requirements in electric and gas welding and cutting operations
10	IS 822	Code of procedure for inspection of welds
11	IS 823	Manual for metal arc welding in mild steel
12	IS 1038	Steel doors, windows and ventilators
13	IS 1081	Code of practice for fixing and glazing of metal (Steel and Aluminium) doors, windows and ventilators
14	IS 1148	Hot rolled steel rivet bars (up to 40 mm diameters) for structural purposes
15	IS 1161	Steel tubes for structural purposes
16	IS 1200 (Pt.-VIII)	Method of measurements of steel work and iron works
17	IS 1363 Part I, II & III	Hexagon head bolts, screws, and nuts of product grade C (Hexagon Head bolt)
18	IS 1367	Technical supply conditions for threaded steel fasteners
19	IS 1599	Method for bend test
20	IS 1821	Dimensions for clearance holes for bolts and screws
21	IS 1894	Method for tensile testing of steel tubes
22	IS 1977	Structural steel (ordinary quality)
23	IS 2062	Hot Rolled low, medium and high tensile structural steel
24	IS 2074	Ready mixed paint, air drying red oxide zinc chrome priming
25	IS 4351	Specification for steel door frames
26	IS 4711	Methods for sampling of steel pipes, tube and fittings
27	IS 4736	Hot – dip zinc coating on mild steel tubes
28	IS 4923	Hollow Steel Sections for Structural Use
29	IS 6248	Metal rolling shutters and rolling grills
30	IS 7452	Specification for hot rolled steel sections for doors, windows and ventilators.

CHAPTER 13.0 - STEEL & IRON WORK

NOTES:

1.0 Weld: A union between two pieces of metal at faces rendered plastic or liquid by heat or pressure, or both, Filler metal may be used to effect the union.

1.1 Fillet Weld: A weld of approximately triangular cross-section joining two surfaces approximately at the right angles to each other in a lap joint, tee joint or corner joint. It is of two types:

(1) Continuous

(2) Intermittent.

1.2 Fusion Welding: Any welding process in which the weld is made between metals in a state of fusion without hammering or pressure.

1.3 Non- fusion Welding: A term applied to the deposition, by the Oxy-Acetylene process of filler metal on parent metal without fusion of the latter.

2.0 Steel

2.1 Grades: There shall be nine grades of steel as given in the table below. While placing the order the steel should be designated by 'Designation'

Grade	E165	E250A	E2	E2	E300	E350	E410	E450	E450
Designation	Fe290	Fe410A	Fe	Fe	Fe440	Fe490	Fe540	Fe570	Fe590

All finished materials shall be well and cleanly rolled to the dimensions, sections and masses specified. The finished material shall be reasonably free from surface flaws; laminations; rough/ jagged and imperfect edges and all other harmful defects.

2.2 Rivets: Rivets shall be made from rivet bars of mild steel as per IS 1148.

2.3 Bolts: These are of two types - namely turned and fitted bolts and black bolts. Turned & fitted bolts are turned to exact diameter in automatic lathe. Black bolts are not finished to exact sizes. They shall conform to IS 1367

2.4 Electrodes: The electrodes required for metal arc welding shall be covered electrodes and shall conform to IS 814.

3.0 STEEL WORK IN SINGLE SECTION FIXED INDEPENDENTLY WITH CONNECTING PLATE

3.1 Fabrication: No two pieces shall be welded or otherwise jointed to make up the required length of member. All straightening and shaping to form, shall be done by pressure.

3.2 Painting: All surfaces which are to be painted, oiled or otherwise treated shall be dry and thoroughly cleaned to remove all loose scale and loose rust. Part to be encased in concrete shall not be painted or oiled. A priming coat of approved steel primer such as Red

3.3 Erection: Steel work shall be hoisted and placed in position carefully without any damage to itself and other building work and injury to workmen. Where necessary mechanical appliances such as lifting tackle, winch etc. shall be used.

4.0 STEEL WORK IN BUILT UP SECTIONS (RIVETED AND BOLTED)

4.1 Laying Out: A figure of the steel structure to be fabricated shall be drawn on a level platform to full scale.

4.2 Fabrication: Fabrication shall generally be done as specified in IS 800. In major works or where so specified, shop drawings giving complete information for the fabrication of the component parts of the structure including the location, type, size, length and details or rivets, bolts or welds, shall be prepared in advance of the actual fabrication and approved by the Engineer-in-charge.

4.3 Erection: Steel members shall be hoisted and erected in position carefully, without any damage to itself, other structures and equipment and injury to workmen. The method of hoisting and erection proposed to be adopted by the contractor shall be got approved from the Engineer-in-charge in advance.

4.4 Painting: Before the members of the steel structure are placed in position or taken out of the workshop these shall be painted.

4.5 Measurements: The work as fixed in place shall be measured in running meters correct to a millimeter and weights calculated on the basis of standard tables correct to the nearest kilogram. The standard weight of steel sections shall conform to IS 808 with tolerance in sizes as per IS 1852.

4.6 Rate: Rate includes the cost of labour and materials required for all the operations described above.

5.0 COLLAPSIBLE STEEL GATES: These shall be fabricated from the mild steel sections. The gates shall consist of double or single collapsible gate depending on the size of the opening.

6.0 M.S. SHEET SLIDING SHUTTER: These shall be manufactured as per drawings and specification. These shall be fabricated from mild steel sheets. The shutters shall be double or single leaf shutter as specified.

7.0 M.S. SHEET SHUTTERS: These shall be manufactured as per drawing and specification. These shall be fabricated from mild steel sheets and angle iron.

Painting: All the members of the door including angle iron shall be thoroughly cleaned off rust, scales, dust etc. and given a priming coat of approved steel primer i.e. Red Oxide/ Zinc chrome primer confirming to IS 2074 before fixing them in position.

8.0 ROLLING SHUTTERS: Rolling shutters shall conform to IS 6248. Shutters upto 10 sq. metre shall be of push and pull type and shutters with an area of over 10 sq. metre shall generally be provided with reduction gear operated by mechanical device with chain or handle, if bearings are specified for each of operation, these shall be paid for separately.

8.1 Shutter: The shutter be built up of inter locking lath section formed from cold rolled steel strips.

8.2 Spring: The spring shall be of coiled type manufactured from high tensile spring steel wire or strips of adequate strength conforming to IS 4454- Part I .

8.3 Roller and Brackets: The suspension shaft of the roller shall be made of steel pipe conforming to heavy duty as per IS 1161.

8.4 Guide Channel: The width of guide channel shall be 25 mm.

8.5 Cover: Top cover shall be of mild steel sheets not less than 0.90 mm thick and stiffened with angle or flat stiffeners at top and bottom edges to retain shape.

8.6 Fixing: The arrangement for fixing in different situations in the opening shall be as per IS 6248.

9.0 STEEL DOORS, WINDOWS, VENTILATORS AND COMPOSITE UNITS

Hot rolled steel sections for fabrication of steel doors, windows, ventilators and fixed lights shall conform to IS 7452. Shapes weights and designations of hot rolled sections shall be as per IS 7452.

9.1 Glazing: Glazing shall be provided on the outside of the frame unless otherwise specified. Putty of approved make conforming to IS 419 shall be used for fixing glass panes.

9.2 Finishing: All steel surfaces shall be thoroughly cleaned of rust, scale and dirt. Where so specified. A priming coat of approved steel primer i.e. red oxide/ zinc chromate perimer conforming to IS 2074 shall be given.

10.0 T-IRON DOORS, WINDOWS AND VENTILATORS FRAMES:

T-iron doors, windows and ventilators frames shall be manufactured from uniform mild steel Tee section. The steel shall be of the grade as provided in 10.1.1 The frames shall be got fabricated in approved workshop.

11.0 PRESSED STEEL DOOR FRAMES: Steel door frames shall be manufactured from commercial mild steel sheet of specified thickness, conforming to IS 2062 and 4351.

12.0 TUBULAR / HOLLOW SECTION TRUSSES: Structural Steel Tube shall be of:

1. Hot finished welded (HFW) type, or

2. Hot finished seamless (HFS) type, or

3. Electric resistance or induction butt welded (ERW), having carbon content less than 0.03 percent, yield stress of 21.5 kg/mm^2 (YST 210) type.

13.0 M.S. HOLLOW RECTANGULAR DOOR FRAMES (I-TYPE SECTION*)*

Steel door frames shall be manufactured from commercial mild steel sheet of 1.60 mm thickness, conforming to IS 2062 and 4351. Steel door frames shall be made in the profiles as per drawings and/or as directed by the Engineer- in-charge.

14.0 The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 13.0 - STEEL AND IRON WORK							
	STEEL DOOR/ WINDOW FRAMES AND SHUTTERS							
13.1	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections, joints mitred and welded, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.							
	13.1.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size).		kg	9	0	68	78
	13.1.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)		kg	9	0	66	75
13.2	Providing and fixing angle iron frames for doors, windows and ventilators of mild steel Angle sections of size 35x35x5 mm, joints mitred and welded by angle iron 35x35x5 mm or 35x 5 mm flat pieces to the existing T-iron frame or to the wall with dash fastener, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer, all complete as per the direction of Engineer-In-charge.			kg	9	0	65	74
13.3	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 2.0 mm thickness, including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25 mm, or base ties of 2.00 mm, pressed mild steel welded or rigidly fixed together by mechanical means, including M.S. pressed butt hinges 2.5 mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:							
	13.3.1	Profile B						
		13.3.1.1	Fixing with adjustable lugs with split end tail to each jamb	metre	31	0	307	338
		13.3.1.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)	metre	31	0	302	333
	13.3.2	Profile C						
		13.3.2.1	Fixing with adjustable lugs with split end tail to each jamb	metre	31	0	329	360
		13.3.2.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)	metre	31	0	325	356
	13.3.3	Profile E						
		13.3.3..1	Fixing with adjustable lugs with split end tail to each jamb	metre	31	0	352	383
		13.3.3.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)	metre	31	0	348	379
13.4	Providing and fixing M.S. Tubular frames for doors, windows, ventilators and cupboard with rectangular/ L-Type sections, made of 1.60 mm thick M.S. Sheet, joints mitred, welded and grinded finish, with profiles of required size, including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.							
	13.4.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)		kg	10	0	90	100
	13.4.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)		kg	9	0	85	93
13.5	Providing and fixing carbon steel galvanised (minimum coating 5 micron) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm2), counter sunk head, comprising of 10 mm dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in-charge.							
	13.5.1	10 x 60 mm		each	28	0	30	58
	13.5.2	10 x 80 mm		each	28	0	34	62
	13.5.3	10 x 120 mm		each	35	0	42	76
	13.5.4	10 x 140 mm		each	35	0	51	86
	13.5.5	10 x 160 mm		each	41	0	66	107
13.6	Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6 mm angle iron and 3 mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.							
	13.6.1	Using M.S. angels 40x40x6 mm for diagonal braces		sqm	909	0	1789	2698
	13.6.2	Using flats 30x6mm for diagonal braces and central cross piece		sqm	907	0	1654	2560
13.7	Fixing standard steel glazed doors, windows and ventilators in walls, including fixing of float glass panes with glazing clips and special metal-sash putty of approved make, or metal beading with screws, (only steel windows, glass panes cut to size and glazing clips or metal beading with screws, shall be supplied by department free of cost.							
	13.7.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)		kg	21	0	2	23
	13.7.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)		kg	14	0	0	14
13.8	Providing and fixing factory made ISI marked steel glazed doors, windows and ventilators, side /top /centre hung, with beading and all members such as F7D,F4B, K11 B and K12 B etc. complete of standard rolled steel sections, joints mitred and flash butt welded and sash bars tenoned and riveted, including providing and fixing of hinges, pivots, including priming coat of approved steel primer, but excluding the cost of other fittings, complete all as per approved design, (sectional weight of only steel members shall be measured for payment).							
	13.8.1	Fixing with 15x3 mm lugs 10 cm long embedded in cement concrete block 15x10x10 cm of C.C. 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)		kg	31	0	65	96
	13.8.2	Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately)		kg	11	0	63	74
13.9	Providing & fixing fly proof wire gauze to windows, clerestory windows & doors with M.S. Flat 15x3 mm and nuts & bolts complete.							
	13.9.1	Galvanised M.S. Wire gauze with 0.63 mm dia wire and 1.4 mm aperture on both sides		sqm	115	0	382	497
	13.9.2	Stainless steel (grade 304) wire gauze of 0.5 mm dia wire and 1.4 mm aperture on both sides		sqm	115	0	570	685
13.10	Providing & fixing glass panes with putty and glazing clips in steel doors, windows, clerestory windows, all complete with :							
	13.10.1	4.0 mm thick glass panes		sqm	153	0	378	531
	13.10.2	5.5 mm thick glass panes		sqm	153	0	629	782
13.11	Extra for providing and fixing steel beading of size 10 x 10 x 1.6 mm (box type), approved shape and section with screws instead of glazing clips and metal sash putty, in steel doors, windows, ventilators and composite units.			metre	2	0	31	34
13.12	Extra for providing and fixing steel beading of MS flat of size 20mm x 3mm section							
	13.12.1	for doors		sqm	30	0	111	141
	13.12.2	For windows		sqm	133	0	231	364
13.13	Providing and fixing bright finished brass handles of minimum weight of 200 grams to side hung steel windows including fixing the same with necessary iron built and nut etc. complete			No.	4	0	56	60
13.14	Providing and fixing bright finished brass peg-stay 300 mm long of minimum weight 330 grams to side hung steel windows including fixing the same with necessary iron bolt and nut etc. complete			No.	4	0	148	152
13.15	Providing and fixing bright finished brass peg-stays 250 mm long weight 280 grams to steel ventilator with necessary iron bolt and nut etc.complete			No.	4	0	119	123
13.16	Providing and fixing bright finished brass peg-stays 200 mm long weight 240 grams to ventilator with necessary iron bolt and nuts etc. complete			No.	4	0	113	117
13.17	Providing and fixing 14 mm bright finished brass spring catch to steel Centre hung ventilators with necessary iron bolt and nuts etc. complete.			No.	4	0	13	17
13.18	Providing and fixing hard drawn steel wire fabric 75 mm X 25 mm rectangular mesh with 3.25 mm dia wire fixed on steel windows of standard rolled sections with 3 mm thick flat iron cover moulding of 12.5 mm width fixed with machine screws welded complete in all respect.			sqm	259	0	682	941
13.19	Providing and fixing galvanised wire mesh of average width of aperture 1.4 mm and nominal dia of wire 0.63 mm fixed on steel windows of standard rolled steel section, with 3 mm thick MS flat iron cover moulding of 12.5 mm width, fixed with machine screws welded complete in all respects.			sqm	204	0	459	664

13.20	Providing and Fixing Poly Carbonate Sheet 1.25mm thickness on Gates and grills excluding the cost of MS framework but including the cost of nut bolts, Welding rods complete in all respect as per direction of Engineer-in-Charge.		sqm	233	0	1055	1288
	PRE-PAINTED / POWDER COATED GALVANISED SHEET DOOR/WINDOW FRAMES AND WINDOW SHUTTERS						
13.21	Supply & fixing Windows frames (Chowkhats) including mullions consisting frame fabricated from sheet roll formed out of 0.58mm thick galvanized sheet (Base steel as per IS 513) with zinc of 120 gm/sqm steel sheet pre coated (as per approved colour) with Polyster paint of 12-16 microns thickness under coat of EPOXY primer & back coat with ALKYD backerof 5-7 microns total thickness of coating 0.58mm of approved shade, weldless corner assembly with brackets & screws, fixed in position by means of PVC & metal hold fastner with PVC cap complete in all respects as per drawing, design, specification & entire satisfaction of Engineer-in-charge.						
	13.21.1	Door Frame of size 80mm x 50mm with 37mm wide single rebate for 35mm door shutter	metre	182	0	750	932
	13.21.2	Door Frame of size 125mm x 60mm with 37mm wide single rebate for 35mm door shutter	metre	281	0	938	1220
13.22	Supply & fixing Windows frames (Chowkhats) including mullions consisting frame fabricated from sheet roll formed out of 0.58mm thick galvanized sheet (Base steel as per IS 513) with zinc of 120 gm/sqm steel sheet pre coated (as per approved colour) with Polyster paint of 12-16 microns thickness under coat of EPOXY primer & back coat with ALKYD backerof 5-7 microns total thickness of coating 0.58mm of approved shade, weldless corner assembly with brackets & screws, fixed in position by means of PVC & metal hold fastner with PVC cap complete in all respects as per drawing, design, specification & entire satisfaction of Engineer-in-charge.						
	13.22.1	Windows Outer frame of size 72mm x 55mm and central mullion 72mm x 50mm with Double rebate	metre	222	0	630	852
13.23	Supply & fixing Windows frames (Chowkhats) including mullions consisting frame fabricated from sheet roll formed out of 0.58mm thick galvanized sheet (Base steel as per IS 513) with zinc of 120 gm/sqm steel sheet pre coated (as per approved colour) with Polyster paint of 12-16 microns thickness under coat of EPOXY primer & back coat with ALKYD backerof 5-7 microns total thickness of coating 0.58mm of approved shade, weldless corner assembly with brackets & screws, fixed in position by means of PVC & metal hold fastner with PVC cap complete in all respects as per drawing, design, specification & entire satisfaction of Engineer-in-charge.						
	13.23.1	Glazed Windows shutter section 47mm x 20mm (Without Glass)	sqm	836	0	3549	4385
	13.23.2	Wire Mesh Windows shutter Section 40mm x 20mm with S.S wire mesh 32 guage flymesh with 144 holes per square Inch	sqm	836	0	3667	4503
	13.23.3	Providind & fixing fixed beeding 12mm x 12mm for fixed glass ECO fixed gasket (EPDM)	metre	43	0	156	199
13.24	Providind & fixing glazing in door, window, ventilator shutters and partitions etc. complete as per the archtectural drawings and the directions of engineer-in-charge. (Cost of Gasket / beading shall be paid as per respective item)						
	13.24.1	Float glass panes of 5.5mm thickness	sqm	114	0	628	742
13.25	Supply & fixing Windows frames (Chowkhats) including mullions consisting frame fabricated from sheet roll formed out of 0.72mm thick galvanized sheet (Base steel as per IS 513) with zinc of 120 gm/sqm steel sheet pre coated (as per approved colour) with Polyster paint of 12-16 microns thickness under coat of EPOXY primer & back coat with ALKYD backerof 5-7 microns total thickness of coating 0.58mm of approved shade, weldless corner assembly with brackets & screws, fixed in position by means of PVC & metal hold fastner with PVC cap complete in all respects as per drawing, design, specification & entire satisfaction of Engineer-in-charge.						
	13.25.1	Windows Outer frame of size 98mm x 50mm and central mullion 46mm x 70mm and Addittional Mullion 29mm x 46mm with Double rebate	metre	222	0	738	960
13.26	Supply & fixing Windows frames (Chowkhats) including mullions consisting frame fabricated from sheet roll formed out of 0.72mm thick galvanized sheet (Base steel as per IS 513) with zinc of 120 gm/sqm steel sheet pre coated (as per approved colour) with Polyster paint of 12-16 microns thickness under coat of EPOXY primer & back coat with ALKYD backerof 5-7 microns total thickness of coating 0.58mm of approved shade, weldless corner assembly with brackets & screws, fixed in position by means of PVC & metal hold fastner with PVC cap complete in all respects as per drawing, design, specification & entire satisfaction of Engineer-in-charge.						
	13.26.1	Glazed Windows shutter section 46mm x 46mm (Without Glass)	sqm	836	0	4183	5019
	13.26.2	Providind & fixing fixed beeding 25mm x 18mm for fixed glass ECO fixed gasket (EPDM)	metre	43	0	212	255
	SIGLE/BUILT-UP STEEL/TUBULAR SECTIONS						
13.27	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.		kg	10	0	60	70
13.28	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.		kg	12	0	61	74
13.29	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.						
	13.29.1	In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	kg	4	0	74	79
	13.29.2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	kg	25	0	65	90
13.30	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.						
	13.30.1	Hot finished welded type tubes	kg	19	0	85	104
	13.30.2	Hot finished seamless type tubes	kg	19	0	97	116
	13.30.3	Electric resistance or induction butt welded tubes	kg	19	0	73	92
13.31	Providing and fixing mild steel round holding down bolts with nuts and washer plates complete.		kg	7	0	58	65
13.32	Providing and fixing bolts including nuts and washers complete.		kg	24	0	55	79
13.33	Providing and fixing M.S. rivets of sizes in position.		kg	53	0	57	111
13.34	Supply and Fixing of Tensile Sheet Shed 650GSM sheet with M.S Iron pipe Frame Pole 125mm Heavy Truss M.S Pipe 60mm Heavy, Membrane M.S Pipe 50mm Heavy, Complete With cost of Painting and Labour for Fixing Paint Complete in all respects		sqm	0	0	4568	4568
	ROLLING/COLLAPSIBLE/SLIDING DOOR SHUTTERS						
13.35	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer.		sqm	2426	0	2170	4595
13.36	Providing and fixing 1 mm thick M.S. sheet sliding-shutters, with frame and diagonal braces of 40x40x6 mm angle iron, 3 mm M.S. gusset plates at the junctions and corners, 25 mm dia pulley, 40x40x6 mm angle and T- iron guide at the top and bottom respectively, including applying a priming coat of approved steel primer		sqm	880	0	2335	3215
13.37	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.						
	13.37.1	80x1.25 mm M.S. laths with 1.25 mm thick top cover	sqm	236	0	1726	1962
	13.37.2	80x1.20 mm M.S. laths with 1.20 mm thick top cover	sqm	386	0	1834	2220
	13.37.3	80x0.90 mm M.S. laths with 0.90 mm thick top cover	sqm	236	0	1707	1943
13.38	Providing and fixing ball bearing for rolling shutters.		each	0	0	317	317
13.39	Extra for providing mechanical device chain and crank operation for operating rolling shutters.						
	13.39.1	Exceeding 10.00 sqm and upto 16.80 sqm in the area	sqm	0	0	924	924
	13.39.2	Exceeding 16.80 sqm in area	sqm	0	0	924	924
13.40	Extra for providing grilled rolling shutters manufactured out of 8 mm dia M.S. bar instead of laths as per design approved by Engineer-in- charge, (area of grill to be measured).		sqm	0	0	571	571

	STAINLESS STEEL RAILING						
13.41	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).		kg	59	0	329	389
13.42	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.						
	13.42.1	M.S. tube	kg	19	0	87	106
	13.42.2	E.R.W. tubes	kg	21	0	76	96
	13.42.3	G.I. pipes	kg	18	0	85	104
	OTHER USEFUL STEEL WORK ITEMS						
13.43	Providing and fixing M.S. fan clamp type I or II of 16 mm dia M.S. bar, bent to shape with hooked ends in R.C.C. slabs or beams during laying, including painting the exposed portion of loop, all as per standard design complete.		each	34	0	93	127
13.44	Providing and fixing circular/ Hexagonal cast iron or M.S. sheet box for ceiling fan clamp, of internal dia 140 mm, 73 mm height, top lid of 1.5 mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/ M.S. sheet box by means of 3.3 mm dia round headed screws, one lock at the corners. Clamp shall be made of 12 mm dia M.S. bar bent to shape as per standard drawing.		each	26	0	104	130
13.45	Welding by gas or electric plant including transportation of plant at site etc. complete.		cm	3	0	0	3

CHAPTER NO. 14

LINING
AND
OUTLETS

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CHAPTER 14.0 - LINING & OUTLETS

NOTES:

1. The cost of water is included in the rates. Water shall be arranged by the contractor and nothing extra is payable on this account.

2. The rates, for Item Nos. 14.1 to 14.6 include the cost of fine dressing to exact level, watering and preparing sub grade. All basket earthworks, to be paid extra, at the rates for lip cutting.

3. The contractor shall arrange bailing out water in the bed, accumulated due to rains. The pumping out of water caused by springs, sub-soil water, canal or river seepage and broken water mains, or drains, for which the contractor is not responsible; shall be arranged by the department, and the cost for the same is not
included in the rate.

4. All type of concreting is to be done with use of mechanical mixer and vibrator. Accordingly the rates of all type of concrete, in this chapter include the cost of mixing with mechanical mixer and with the use of vibrator, which are to be arranged by the contractors at its own expenses. However, an exemption for the use of mechanical mixer and vibrator upto a quantity of 10 cum of concrete for each exceptional / isolated work shall be given with the written approval of Executive Engineer with the reduction of rates accordingly.

5. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 14.0 - LINING AND OUTLETS								
	A. LINING								
14.1	Dressing bed and preparation of sub grade for lining					sqm	10	0	0	10
14.2	Dressing side slopes and preparation of sub grade for lining					sqm	15	0	0	15
14.3	Dressing bed and preparation of sub grade for lining in earth work, with admixture of shingle or kankar									
	14.3.1	Upto 40 percent				sqm	15	0	0	15
	14.3.2	Above 40 percent				sqm	19	0	0	19
14.4	Dressing side slopes and preparation of sub grade for lining in earth work, with admixture of kankar									
	14.4.1	Upto 40 percent				sqm	19	0	0	19
	14.4.2	Above 40 percent				sqm	8	0	0	8
14.5	Dressing bed and preparation of sub grade for lining in mixed gravel and conglomerate reaches.					sqm	27	0	0	27
14.6	Dressing side slopes and preparation of subgrade for lining in mixed gravel and conglomerate reaches					sqm	31	0	0	31
14.7	Double layer tile lining for irrigation channels consisting of:									
	(i) 10 mm thick cement mortar 1 :5 in sub grade.									
	(ii) First layer of 5.08 cm thick tiles 30.48 cm X 15.24 cm laid in 1:5 cement mortar as mentioned above.									
	(iii) Sand-wiched plaster 1:3 cement mortar 15 mm thick									
	(iv) Second layer of tiles, laid in 1:3 cement mortar, with 6 mm thick layer of mortar, over sand-wiched plaster-									
	The above gives total thickness of lining as 13.36 cm									
	14.7.1	In bed				sqm	127	0	489	617
	14.7.2	On side Slopes-								
		14.7.2.1	Up to 3.50 meters hight above bed level			sqm	168	0	489	658
		14.7.2.2	above 3.50 metres but upto 5.50 metres height.			sqm	173	0	489	663
		14.7.2.3	above 5.50 metres, but upto 7.50 metres height			sqm	179	0	489	668
	Note: The height is to be measured vertically									
14.8	Single layer tile lining in bed only, consisting of -					sqm	109	0	287	397
	(i) 10mm thick cement mortar 1:5 on Sub grade.									
	(ii) Single layer of 5.08 cm. thick tiles 30.48 cm. x 15.24 cm x 5.08 cm. laid in 1:5 cement sand mortar, mentioned above.									
	(iii) 20mm thick cement plaster 1:3 properly rendered and finished.									
14.9	Cement concrete lining 15cm thick or less for irrigation channels, using cement concrete 1:3:6 (M-10)									
	14.9.1	Concrete lining in bed.				cum	1237	0	2778	4014
	14.9.2	concrete lining on side slopes for vertical height upto 3.50 m.				cum	1262	0	2778	4039
	14.9.3	concrete lining on side slopes for vertical height above 3.50 metre but upto 5.50 metres				cum	1406	0	2778	4183
	14.9.4	Concrete lining on side slopes for vertical height above 5.50 m. but upto 7.50 m.				cum	1550	0	2778	4328
14.10	Lining with design mix concrete of grade M-15 with minimum cement content 240kg/cum, 75mm thick in curve portion and side slope manually including rendering with cement sand (1:3) slurry, form work, dressing and preparation of subgrade as per directions of Engineer-in-charge.									
	14.10.1	75mm thickness								
		14.10.1.1	In bed							
			14.10.1.1.	Manually		sqm	112	0	258	371
			14.10.1.1.	Using Paver		sqm	112	13	258	384
		14.10.1.2	In slope							
			14.10.1.2.	Manually		sqm	117	0	258	376
			14.10.1.2.	Using Paver		sqm	117	13	258	389
	14.10.2	100 mm thickness								
		14.10.2.1	In bed							
			14.10.2.1.	Manually		sqm	145	0	336	482
			14.10.2.1.	Using Paver		sqm	145	13	336	494
		14.10.2.2	In slope							
			14.10.2.2.	Manually		sqm	150	0	336	487
			14.10.2.2.	Using Paver		sqm	150	13	336	499
14.11	Excavating conglomerate for drains and bed sleepers, under the lining					cum	24	0	306	330
14.12	Making dry brick drains behind lining 7.50 cm. brick all-round.					metre	24	0	0	24
14.13	Putting 1:3 Cement sand slurry, 6mm thick on prepared bed and side slopes before laying concrete on bed and side slopes					sqm	4	0	30	34
14.14	Curing Lining for 28 days									
	14.14.1	In bed				sqm	7	0	2	9
	14.14.2	On Side slopes				sqm	27	0	6	33
14.15	Extra allowance for providing templates in curved portion of lining					sqm of	1	0	6	6
14.16	Extra allowance for form work in concrete lining									
	14.16.1	In Bed				cum	96	0	59	155
	14.16.2	On side slopes				cum	117	0	59	175
14.17	Extra allowance for scaffolding, in tile and concrete lining for side slopes.					sqm	1	0	6	7
	Note: The rates for Item No. 14.17 are payable on area of side slopes only									
14.18	Filling expansion joints, with speical impervious hot pour, 12.5 mm wide.					per metre	2	0	1	2
14.19	Bending and fixing iron rungs in lined slopes.					each	52	0	465	517
14.20	Making temporary perforated French drain on top of coping of lining for curing consisting of two tiles, laid on edge in 1:7 mortar, on each side of the drain.					metre	11	0	60	71
14.21	Dismantling perforated french drain on top of lining					metre	9	0	0	9
	Note: The rates for item Nos. 14.20 and 14.21 are include in the rates of Item No.14.14, for curing ; and are not payable in addition These rates are payable only when curing is done departmentally, and the work of French drain is got done through contractor.									
14.22	Collecting kattals and brick bats from bed, including stacking of collected material, out side the canal.									
	Refer to chapter of carriage of materials by manual labour and add Rs.10.00 per cum for collecting the scattered material									
	Note for Item No. 14.22: For converting lift into horizontal lead, the lift uptp 4.0 meters will be mulitiplied by 10 and from above 4.0 metres to 6 metres, it will be squared and multiplied by 3.25 and beyond 6 metres, it will be multiplied by 20. No cross-leads, what so ever, shall be measured and paid for.									
14.23	Cement pointing 1:2 on lining									
	14.23.1	In bed.				sqm	42	0	10	52
	14.23.2	On side slopes.				sqm	46	0	10	56
	Note: The work of Item No. 14.23 is to be done and paid for only when specially permitted, by the Superintending Engineer.									
14.24	Earth work for 'Lip-cutting' for lining of irrigation channels, inclusive of all allowances, lead and dressing.									

	14.24.1	0 to 1.5m depth.	cum	106	0	0	106
	14.24.2	Depth exceeding 1.5 metres but upto 3.0 meters	cum	114	0	0	114
	14.24.3	Depth exceeding 3.00 metres but upto 4.50m	cum	129	0	0	129
	14.24.4	Depth exceeding 4.50 metres but upto 6.00m	cum	151	0	0	151
	14.24.5	Depth exceeding 6.00 m but upto 7.50m	cum	173	0	0	173
	Note: (i) The depth in Item No.14.24 is to be measured vertically.						
	(ii) The rates for lip-cutting are payable for the entire depth, including the bottom curve.						
14.25	Double layer tile lining for water storage tanks,as per specifications of item No. 14.7 but including cost of dressing sub-grade providing scaffolding and curing etc. complete in all respects						
	14.25.1	In bed	sqm	162	0	491	653
	14.25.2	On Side slopes	sqm	225	0	501	726
14.26	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregate 20 mm nominal size laid over 7.50 cm thick layer of cement concrete 1:6:12 using brick ballast 40 mm nominal size including dressing of sub-grade, curing form work and scaffolding, etc. complete in all respects.						
	14.26.1	Concrete lining in bed	sqm	143	0	277	420
	14.26.2	Concrete lining On Side Slopes	sqm	170	0	287	457
14.27	Double layer tile lining for water storage tanks, consisting of-						
	(i)10mm thick cement plaster 1:5 in sub-grade						
	(ii) First layer of 3.81 cm thick tiles of 22.86 cm x 11.43 cm laid in 1:5 cement morter as mentioned above						
	(iii) Sand-wiched plaster 1:3 cement 15 mm thick.						
	(iv) Second layer of tiles laid in 1:3 cement mortar, with 6mm mortar over sand-wiched plaster including cost of dressing sub grade scaffolding and curing etc. complete in all respects-						
	14.27.1	In bed.	sqm	206	0	739	945
	14.27.2	On side slopes.	sqm	262	0	749	1011
14.28	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregats 20 mm nominal size laid over 7.5 cm .thick layer of cement lime sand concrete 1:2:9:24 , (0.041 cum cement 0.082 cum ground hydrated lime 0.37 cum sand 1.00 cum stone blasst 20 mm nominal size) including dressing of sub-grade, curing of work and scaffolding, etc. complete in all						
	14.28.1	Concrete lining in bed.	sqm	151	0	284	436
	14.28.2	Concrete lining on side slopes	sqm	170	0	290	461
14.29	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregats 20 mm nominal size laid over 7.5 cm .thick layer of cement lime sand concrete 1:2:9:24 , 0.041 cum cement 0.082 cum ground hydrated lime 0.37 cum sand 1.00 cum stone blasst 40 mm nominal size including dressing of sub-grade, curing of work and scaffolding, etc. complete in all respects.						
	14.29.1	concrete lining in bed.	sqm	151	0	180	331
	14.29.2	concrete lining on side slopes	sqm	170	0	190	360
14.30	Double layer brick lining for storage tanks consisting of ;						
	(i) 10 mm thick cement mortar 1:5 in sub grade						
	(ii) 22.86 cm x 11.11 cm size laid in 1:5 cement moartar						
	(iii) sand-wiched plaster in 1:3 cement mortar 12 mm thick						
	(iv) Second layer of brick laid in 1:3 cement mortar with 6 mm thick 1:3 cement mortar over sand-wiched plaster, including cost of dressing of sub-grade, scaffolding and curing etc. complete in all respects						
	14.30.1	in Bed	sqm	230	0	724	954
	14.30.2	in Side slopes	sqm	292	0	724	1015
14.31	Single layer brick lining for irrigation channels for discharge upto 150 cusecs consisting of:						
	(i)10 mm thick cement plaster 1:6 on sub grade.						
	(ii)10 mm thick cement plaster 1:3 over first plaster						
	(iii)First layer of 6.83 mm thick brick layer (22.86x11.11 mm) laid in 1:3 mortar over 6 mm thick cement 1:3 the above cost						
	(total thickness of lining as 9.43 cm)						
	14.31.1	In Bed	sqm	115	0	402	517
	14.31.2	On Side Slopes.	sqm	146	0	402	548
14.32	Single layer brick lining for irrigation channels for discharge above 150 cusecs but upto 1000 cusecs, consisting of:						
	(i)10 mm thick cement plaster 1 :6 on sub grade.						
	(ii)12 mm thick cement plaster 1:3 over first plaster.						
	(iii) First layer of 68.3 mm thick brick layer (228.6x111.1 mm) laid in1:3 mortar over 6mm thick 1 :3 cement mortar.						
	(total thickness of lining as 9.43 cm)						
	14.32.1	In Bed	sqm	115	0	414	529
	14.32.2	On Side Slopes	sqm	146	0	414	560
14.33	Single layer brick lining for irrigation channels for discharge above 1000 cusecs, consisting of:						
	(i)10 mm thick cement plaster 1:6 on sub grade.						
	(ii)16 mm thick cement plaster 1:3 over first plaster.						
	(iii)First layer of 68.3 mm thick brick layer (228.6x111.1 mm) laid in 1:3 mortar over 6mm thick 1:3 cement mortar.						
	(total thickness of lining as 9.43 cm)						
	14.33.1	In Bed	sqm	115	0	441	556
	14.33.2	On Side Slopes.	sqm	146	0	441	587
14.34	Single layer brick lining for irrigation channels for discharge consisting of						
	(i)Laying polythene film 200 micron over subgrade						
	(ii)First layer of 6.83 cm thick bricks 22.86x11.11 cm laid in 1:4 mortar over 6 mm thick cement morter 1:4						
	14.34.1	In Bed	sqm	84	0	371	455
	14.34.2	In side slopes	sqm	100	0	371	472
14.35	Providing and fixing in position LDPE film of 1000 micron (1.0 mm) IS mark of grade 231 for bed and sides of canal including cost of all materials, labour, laying, joining as per specifications etc. complete with all leads and lifts		sqm	26	0	240	266
14.36	Providing and fixing in position LDPE film of 500 micron (0.30 mm) IS mark of grade 231 for bed and sides of canal including cost of all materials, labour, laying, joining as per specifications etc. complete with all leads and lifts		sqm	42	0	126	168
14.37	Providing and laying of 150 mm dia. PVC corrugated perforated pipes in longitudinal & transverse drains including joints etc. complete as per specifications.		metre	12	0	274	287
14.38	Providing and forming 610x610x975 mm deep filter drain pocket around pressure relief pipe consisting of 75 mm thick each layer with 20 - 40 mm graded gravel layer & 5-20 mm graded gravel and sand layer including cost of all materials, labour etc. complete with lead up to 50 m and all lifts.		each	134	0	357	491
14.39	Extra for using locally manufactured manual paver for laying in situ vibrated concrete M-15 or any other grade for side lining of canal including finishing the junction of bed and sides to required curvature.		sqm	75	0	0	75
14.40	Providing and fixing 50 mm dia perforated GI pressure relief pipes 125 mm long with one end closed with perforated GI plate and other end provided with aluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.		each	48	0	82	130

14.41	Providing and fixing 50 mm dia perforated GI pressure relief pipes 225 mm long with one end closed with perforated GI plate and other end provided with aluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts.			each	53	0	116	169
14.42	Providing and fixing 50 mm dia perforated GI pressure relief pipes 300 mm long with one end closed with perforated GI plate and other end provided with aluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts			each	59	0	141	200
14.43	Providing and fixing 50 mm dia perforated GI pressure relief pipes 450 mm long with one end closed with perforated GI plate and other end provided with aluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts			each	76	0	192	268
14.44	Providing and fixing 50 mm dia perforated GI pressure relief pipes 750 mm long with one end closed with perforated GI plate and other end provided with aluminium lid hinged to pipe including cost of all materials, labour, drilling 8 mm dia holes etc., complete with all leads and lifts			each	93	0	293	386
14.45	Providing and forming 350 x 350 x 400 mm deep filter drain consisting of 75 mm thick 10 mm down coarse aggregate around pressure relief pipe and 75 mm thick sand around coarse aggregate filter including cost of all materials, labour, excavation of pit etc., complete with lead upto 50 m and all lifts			each	9	0	50	59
14.46	Providing and fixing 20 mm thick 100 mm depth tar felt expansion joint filler boards for cement concrete lining of canal including cost of all materials, labour etc., complete with all leads and lifts			metre	8	0	53	61
14.47	Providing and fixing 20 mm thick 150 mm depth tar felt expansion joint filler boards for cement concrete lining of canal including cost of all materials, labour etc., complete with all leads and lifts			metre	8	0	80	88
14.48	Fixing control points by Differential Global Position System (DGPS) instrument at every One Km. along the both side of canal including collection of necessary data etc			km (2 points)	1618	0	0	1618
14.49	Providing computerised detailed cross section drawings in two copies at 100 m interval with actual profile of river (levels at every 30m. distance along cross section) on A-3 size paper with scale 1cm = 15m or 1cm = 30m which is suitable as per site condition.			per km	6637	0	0	6637
	a) upto 100 Cross-sections							
	b) 100 Cs. to 500 Cross-sections							
	c) 500 Cs to 1000 Cross-sections							
	d) over 1000 Cross-sections							
14.50	Topographic and cadastral survey for command area including canal of irrigation projects by using Total station GPS, etc. (Minimum 20 number of points reading per hactare, to generate 30mx30m grid and 0.5 m interval contours including transfer of entire data to computer system in different geo-referenced layers / themes using features of standard software, compatible with design software packages, including supply of soft and hard copies of point readings, including digitizing village maps and super imposing the contours on village map (scale 1in 4000) including marking all permanent features like roads, cart tracks, existing canals, temples, tanks, forest boundary and electric poles, etc., including marking of ridges and valleys on survey sheet including supply of 4 soft copies and 4 hard copies after approval of competent authority, preparation & submission of 10m x10m grid for all structures of canal etc.complete.)			per hactare	1526	0	0	1526
14.51	Hire charges for Hydraulic excavator/Loader like JCB/Pocklain, Hitachi etc with all accessories having bucket capacity							
	14.51.1	Hire Charges forJCB with bucket capacity of 0.4 cum		per day	0	6852	0	6852
	14.51.2	Hire Charges for excavator 0.40 to 0.75 cum bucket capacity		per day	0	9135	0	9135
	14.51.3	Hire Charges for excavator with over 0.75 cum bucket capacity		per day	0	11419	0	11419
14.52	Extra for Providing and placing in position M-15 grade Design Mix concrete having air entraining agent by paver machine in bed, side slopes and curvature including cost of all material trimming, batching, mixing, transporting, placing, vibrating, inserting PVC strips at joints, smooth finishing, curing with 50 m lead& lifts of all materials etc. complete. Using graded aggregate of maximum size.			cum	10	0	32	42
	Note: Rate is for air entraining agent only, providing M-15 Design Mix, its mixing, laying and finishing etc. are not included.							
14.53	Concrete surface with epoxy mortar of average 25mm thickness having compressive strength equivalent to M35 including preparation of surface by sand blasting and cleaning, applying epoxy mortar with specified pressure , finishing the surface etc. including cost of all material, machinery,T & P and labour with all lead and all lifts and cost of other incidental charges and testing as per relevant specifications etc. complete. - For average 25mm thick layer.			sqm	54	0	1170	1225
	B. OUTLETS							
	Notes:							
	1. The item 'discharge' wherever used in this chapter means, designed full supply discharge of the parent channel,							
	2.The rate of constructing, watching and removing bunds in running water, include the cost of bags.							
14.54	Earth work for outlets:-							
	14.54.1	Earth work for dismantling or constructing new pipe or barrel type outlets (including excavation, refilling, consolidation and dressing)						
		14.54.1.1	Channel discharge upto 1.5 cums per second.	each	545	0	0	545
		14.54.1.2	Channel discharge exceeding 1.5 cum/s but upto 3 cum/s	each	869	0	0	869
		14.54.1.3	Channel discharge exceeding 3 cum/s but upto 6 cum/s	each	1363	0	0	1363
		14.54.1.4	Channel discharge exceeding 6 cum/s but upto 10 cum/s	each	2146	0	0	2146
	Note: Channels with discharge over 10 cum/s are classified as branches, and, therefore, their payment should be based on actual measurements.							
	14.54.2	Earth work involved in dismantling Open flume, A.P.M. or O.S.M. type Outlets (including excavation, refilling , consolidation and dressing)						
		14.54.2.1	With 'H' upto 0.6 m	each	545	0	0	545
		14.54.2.2	With 'H' more than 0.6 m but upto 0.9 m	each	1363	0	0	1363
		14.54.2.3	With 'H' more than 0.9 m but upto 1.10m	each	2146	0	0	2146
	14.54.3	Earth work involved in dismantling gullet walls of outlets, for adjusting 'Y' of A.P.M. or 'B' of open flume outlets:-						
		14.54.3.1	With 'H' upto 0.6 m	each	164	0	0	164
		14.54.3.2	With 'H' more than 0.6 m but upto 0.9 m	each	511	0	0	511
		14.54.3.3	With 'H' more than 0.9 m but upto 1.10 m	each	818	0	0	818
	14.54.4	Earth work involved in constructing new O.F., A.P.M. or O.S.M. type outlets:-						
		14.54.4.1	With 'H' upto 0.6 m	each	1635	0	0	1635
		14.54.4.2	With 'H' more than 0.6 m but upto 0.9 m	each	3168	0	0	3168
		14.54.4.3	With 'H' more than 0.9 m but upto 1.10 m	each	4701	0	0	4701
	Notes: (i) Outlets with 'H' more than 1.10 m, will usually be located in main canal and branches. Payment for these should be based on actual measurements.							
	(ii) In case of dismantling, all earth-work borrowed from outside for making up the deficiency in bank, if any, will be paid for separately in addition to above rate.							
	(iii) The job rates, given above, include all operations, for excavations, refilling and watering in layers, consolidation and dressing.							
14.55	Dismantling outlets including removal of dismantled material involving lead upto 100 metres-							
	14.55.1	Pipe or barrel type outlets						
		14.55.1.1	Channel discharge upto 1.5 cum/s	each	511	0	0	511
		14.55.1.2	Channel discharge above 1.5 cum/s but upto 3 cum/s	each	681	0	0	681

		14.55.1.3	Channel discharge above 3 cum/s but upto 6 cum/s	each	767	0	0	767
		14.55.1.4	Channel discharge above 6 cum/s but upto 10 cum/s	each	818	0	0	818
	14.55.2	Dismantlng O.F., A.P.M. or O.S.M. type outlets consisting of total dismantling i.e. concrete R.C. Slab and cement masonry.						
		14.55.2.1	With 'H' upto 0.6 m	each	2862	0	0	2862
		14.55.2.2	With 'H' more than 0.6m but upto 0.9 m	each	5519	0	0	5519
		14.55.2.3	With 'H' more than 0.9 m but upto 1.10m	each	8176	0	0	8176
	14.55.3	Dismantling O.F., A.P.M. Or O.S.M. type outlets involving dismantling cement masonry and removing of precast R.C. Slab-						
		14.55.3.1	With 'H' upto 0.6 m	each	2044	0	0	2044
		14.55.3.2	With 'H' more than 0.6 m but upto 0.9 m	each	4395	0	0	4395
		14.55.3.3	With 'H' more than 0.9 m but upto 1.10m	each	6745	0	0	6745
	14.55.4	Dismantling tail cluster bifurcation-						
		14.55.4.1	Complete dismantling including concrete and masonry	each	4906	0	0	4906
		14.55.4.2	Cement masonry only	each	3577	0	0	3577
	14.55.5	Dismantling tail cluster triifurcation-						
		14.55.5.1	Complete dismantling including concrete and masonry.	each	6848	0	0	6848
		14.55.5.2	Cement masonry only	each	4906	0	0	4906
	14.55.6	Dismantling tail cluster quadrifurcation-						
		14.55.6.1	Complete dismantling concrete as well as masonry	each	8892	0	0	8892
		14.55.6.2	Cement masonry only	each	6439	0	0	6439
14.56	Making temporary A.P.M. Block and fixing at site-							
	14.56.1	In case of new outlets, where no dismantling and reconstructing of gullet walls is involved		each	350	0	157	507
	14.56.2	Extra for dismantling and reconstructing gullet walls where temporary A.P.M. block is to be fixed on existing outlet without change in width of gullet i.e. 'B'						
		14.56.2.1	With 'H' upto 0.6 m	each	461	0	804	1265
		14.56.2.2	With 'H' more than 0.6 m but upto 0.9 m	each	602	0	1419	2021
		14.56.2.3	With 'H' more than 0.9 m but upto 1.10m	each	886	0	1825	2711
	14.56.3	Extra over item No. 14.56.1 in case of old Outlets where dismantling and reconstructing of gullet walls is involved, including change in width of gullet i.e. 'B' of the outlet upto 30 mm-						
		14.56.3.1	With 'H' upto 0.6 m	each	636	0	1318	1953
		14.56.3.2	With 'H' more than 0.6 m but upto 0.9 m	each	1084	0	2644	3729
		14.56.3.3	With 'H' more than 0.9 m but upto 1.10m	each	1630	0	3859	5489
14.57	Adjusting A.P.M. to the correct 'Y' and fixing in position-							
	14.57.1	In case of new outlet where no dismantling and reconstructing of gullet wall is involved.		each	171	0	0	171
	14.57.2	Extra over item No.14.57.1 in case of old outlets where dismantling and reconstructing of gullet walls is involved without change in width of gullet i.e. 'B' of the outlet						
		14.57.2.1	With 'H' upto 0.6 m	each	461	0	0	461
		14.57.2.2	With 'H' more than 0.6 m but upto 0.9 m	each	602	0	0	602
		14.57.2.3	With 'H' more than 0.9 m but upto 1.10m	each	886	0	0	886
	14.57.3	Extra over item No. 14.57.1 In case of old outlets where dismantling and reconstructing of gullet walls is involved including change in width of gullet i.e. 'B' of the outlet upto 30 mm						
		14.57.3.1	With 'H' upto 0.6 m	each	636	0	0	636
		14.57.3.2	With 'H' more than 0.6 m but upto 0.9 m	each	1084	0	0	1084
		14.57.3.3	With 'H' more than 0.9 m but upto 1.10m	each	1630	0	0	1630
14.58	Adjusting check plates of open flume outlet to the correct 'B' and fixing at site flush with the gullet walls-							
	14.58.1	In case of new outlets where no dismantling and reconstructing of gullet walls is involved.		each	171	0	0	171
	14.58.2	Extra over item No. 14.58.1 In case of old outlets where dismantling and reconstructing of gullet wall is involved without change in width of gullet Walls i.e. 'B' of the outlet						
		14.58.2.1	With 'H' upto 0.6 m	each	461	0	0	461
		14.58.2.2	With 'H' more than 0.6 m but upto 0.9 m	each	602	0	0	602
		14.58.2.3	With 'H' more than 0.9 m but upto 1.10m	each	886	0	0	886
	14.58.3	Extra over item No. 14.58.1 In case of existing outlets where dismantling and reconstructing side walls is involved including change of 'B' upto 30 mm-						
		14.58.3.1	With 'H' upto 0.6 m	each	715	0	1405	2121
		14.58.3.2	With 'H' more than 0.6 m but upto 0.9 m	each	1327	0	3203	4530
		14.58.3.3	With 'H' more than 0.9 m but upto 1.10m	each	1921	0	4784	6705
	Note (i) In case change in 'B' is more than 30 mm, curved approach shall have to be dismantled considerably and therefore, payments may be made on the basis of actual measurements.							
	(ii) Rates for adjusting 'B', of an open flume outlet, without check plates, will be the same; as for Item Nos. 14.58.3.1 to 14.58.3.3 as the case may be.							
14.59	Extra over item Nos. 14.56, 14.57 and 14.58 as the case may be, for adjusting of crest levels of O.F. and A.P.M. outlets with 1:2:4 cement concrete when lowering of crest level is involved.							
	14.59.1	H' upto 0.6 m		each	311	0	43	354
	14.59.2	H' more than 0.6 m but upto 0.9 m		each	466	0	65	531
	14.59.3	H' more than 0.9 m but upto 1.10 m		each	621	0	79	700
14.60	Extra over item Nos. 14.56, 14.57 and 14.58 as the case may be, for Adjusting of crest levels of O.F. and A.P.M. outlets with 1:2:4 cement concrete, when raising of crest level is involved							
	14.60.1	'H' upto 0.6 m		each	233	0	43	276
	14.60.2	'H' more than 0.6 m but upto 0.9 m		each	311	0	65	375
	14.60.3	'H' more than 0.9 m but upto 1.10 m		each	466	0	79	545
14.61	Constructing, watching and removing bund in running water for outlets:-							
	14.61.1	For adjusting 'B','Y' or crest Level of the O.F. and A.P.M. Types-						
		14.61.1.1	For channels with designed F.S. depth upto 0.6 m.	each	944	0	228	1172
		14.61.1.2	for channels with designed F.S. depth above 0.6 m but upto 0.9m	each	1609	0	440	2049
		14.61.1.3	for channels with designed F.S. depth above 0 .90 but upto 1.0 m	each	2765	0	719	3484
	14.61.2	For constructing complete O.F. or A.P.M. type outlets in running water-						
		14.61.2.1	For channels with designed F.S. depth upto 0.6 m	each	1934	0	548	2482
		14.61.2.2	for channels with designed F.S. depth above 0.5 m But upto 0.9m	each	2669	0	754	3422
		14.61.2.3	for channels with designed F.S. depth above 0.90 but upto 1.1 m	each	4297	0	1279	5576
	14.61.3	For dismantling or constructing pipe outlets						
		14.61.3.1	For channels with designed F.S. depth upto 0.6 m	each	944	0	228	1172
		14.61.3.2	for channels with designed F.S. depth above 0.6 m but upto 0.9 m	each	1073	0	314	1387

		14.61.3.3	for channels with designed F.S. depth above 0.90 but upto 1.1 m	each	1650	0	400	2050
14.62	Adjusting 'B' of tail cluster by dismantling and rebuilding throat walls			each	259	0	513	772
14.63	Extra labour for dressing bricks on O.F. and A.P.M. type outlets-							
	14.63.1	With 'H' upto 0.6 m		each	343	0	0	343
	14.63.2	With 'H' more than 0.6 m. but upto 0.9 m		each	685	0	0	685
	14.63.3	With 'H' more than 0.9 m but upto 1.10m		each	1028	0	0	1028
14.64	Repairing damaged reducing collar of hume pipe outlets			each	311	0	29	339
14.65	Laying iron pipes for outlets upto 150 m.m. diameter			metre	40	0	0	40
14.66	Laying R.C.C. pipes for outlets and culverts including joining ends and fixing collar with cement mortar 1:2-							
	14.66.1	upto 150 mm inside diameter		metre	48	0	8	56
	14.66.2	above 150 mm but upto 300 mm inside diameter		metre	102	0	16	118
	14.66.3	above 300 mm but upto 600 mm inside diameter		metre	191	0	34	225
	14.66.4	above 600mm but upto 900 mm inside diameter		metre	382	0	56	438
	Note:The through rates for Item No.14.66 are applicable when the joints are plugged with cement mortar 1:2.							
14.67	Hoisting and placing precast R.C. concrete slab or stones in position on outlets or W.C. culverts			each	114	0	0	114

CHAPTER NO. 15

DEEP FOUNDATIONS

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CHAPTER 15.0 - DEEP FOUNDATIONS
(Open, Wells and Piles)

NOTES:

1. For item No. 15.1 specific indication be given while framing estimates whether excavation would be manual or mechanical depending upon the quantum and site conditions.

2. Cost of dewatering for Item No 15.1 has not been added, which would increase with depth of excavation. While estimating, rates may be increased by certain percentage of HSR rates indicated against the sub items.

3. The clauses of MORT&H Specifications,which have been mentioned, may be referred for detailed specifications and construction procedures. The rate mention only brief description of work.

4. The rates include the cost of working of road machinery including cost of fuels, lubricants, stores, establishment, depreciation and intrest chrages. In case the machinery is provided by the department, the working cost as mentioned shall be recovered from the contractor at the rates fixed by the department.

5. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

CHAPTER 15.0 -DEEP FOUNDATIONS (Open, Wells and Piles)							
Item No.	**Description**	Ref. MORTH (Specifications)	**Unit**	**Labour Rate**	**Machinery Rate**	**Material Rate**	**Through Rate**
	Excavation for Structures						
15.1	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material as per clause 304 of MORT&H specifications	304					
	Ordinary soil,						
15.1.1	Manual Means						
15.1.1.1	Depth upto 3 m		cum	148	0	0	148
	Note:- 1. Cost of dewatering may be added where required upto, 10 per cent of labour cost Assessment for dewatering shall be made as per site conditions.						
	2.The excavated earth can be used partially for backfilling of foundation pit and partly for road work except for marshy soil. Hence cost of disposal has not been added except for marshy soil. This remark is common to all cases of item 12.1 excluding marshy soil.						
	3.The cost of shoring and shuttering, where needed, may be added @ 1 per cent on cost of excavation for open foundation.						
15.1.1.2	Depth 3 m to 6 m		cum	190	0	0	190
	Note:- Cost of dewatering may be added where required upto 15 per cent of labour cost. Assessment for dewatering shall be done as per actual ground conditions.						
15.1.1.3	Depth above 6 m		cum	254	0	0	254
	Note:Cost of dewatering may be added where required upto 20 per cent of labour cost. Assessment for dewatering shall be made as per site conditions.						
15.1.2	Mechanical Means						
15.1.2.1	Depth upto 3 m		cum	14	25	0	39
	Note:- Cost of dewatering upto 5 per cent of labour & machinery cost may be added, where required. Assessment for dewatering shall be made as per site conditions..						
15.1.2.2	Depth 3 m to 6 m		cum	16	28	0	45
	Note:- Cost of dewatering upto 7.5 per cent of labour & machinery cost may be added, where required. Assessment for dewatering shall be made as per site conditions..						
15.1.2.3	Depth above 6m		cum	24	33	0	57
	Note:- 1. Cost of dewatering upto 10 per cent of labour & machinery cost may be added, where required. Assessment for dewatering shall be made as per site conditions..						
	2.Labour provided for excavation by mechanical means includes that required for trimming of bottom and side slopes.						
15.2	Ordinary Rock (not requiring blasting)						
15.2.1	Manual Means						
15.2.1.1	Depth upto 3 m		cum	212	0	0	212
	Note:- Cost of dewatering upto 10 per cent of labour cost may be added, where required. Assessment for dewatering shall be made as per site conditions..						
15.2.2	Mechanical Means						
15.2.2.1	Depth upto 3 m		cum	14	33	0	47
	Note:- 1.Cost of dewatering upto 10 per cent of labour & machinery cost, may be added, where required Assessment for dewatering shall be made as per site conditions.						
	2.In case of rock, foundation beyond 3 m is not dug and hence not included.						
15.3	Hard Rock (requiring blasting)						
15.3.1	Manual Means		cum	370	23	39	431
	Note:- Cost of dewatering @ 10 per cent of labour & machinery cost may be added, where required Assessment for dewatering shall be made as per site conditions.						
15.4	Hard Rock (blasting prohibited)						
15.4.1	Mechanical Means		cum	212	136	0	348
	Note:- 1. Cost of dewatering upto10 per cent of labour & machinery cost, may be added, where required Assessment for dewatering shall be made as per site conditions.						
	2.In case of rock, foundation beyond3 m is not dug and hence not included.						
15.5	**PCC 1:3:6 in Foundation**	2100					

	Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days as per clause 2100 of MORT&H specifications		cum	405	235	2993	3632
15.6	**Brick Masonry Work in Cement Mortar 1:3 in Foundation complete excluding Pointing and Plastering, as per Drawing and Technical Specifications.**						
15.6.1	Cement Mortar 1:3 (1 cement : 3 sand)	Sub-analysis	cum	437	0	4498	4935
15.6.2	Cement Mortar1:2 (1cement :2 sand)	Sub-analysis (Addl.)	cum	437	0	5397	5834
15.6.3	Cement Mortar1:4 (1cement :4 sand)	Sub-analysis (Addl.)	cum	437	0	3895	4332
15.6.4	Cement Mortar1:6 (1cement :6 sand)	Sub-analysis (Addl.)	cum	437	0	3410	3847
15.7	**Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications.**	1400					
15.7.1	Square Rubble Coursed Rubble Masonry (first sort)	1405.4	cum	1790	0	3506	5296
15.7.2	Random Rubble Masonry	1405.3	cum	1608	0	3555	5163
	Note:- Vibrator is a part of minor T & P which is already included in overhead charges of the contractor.						
15.8	**Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical 1500, 1700 and 2000 of MORT&H Specifications.**	1500, 1700 & 2100					
15.8.1	**PCC Grade M15**		cum	428	250	3333	4011
	Note:- Needle Vibrator is an item of minor T & P which is already included in overhead charges. Hence not added in rate analysis of cement concrete works.						
15.8.2	**PCC Grade M20**		cum	428	216	3733	4377
15.8.3	**RCC Grade M20**						
15.8.3.1	Using Concrete Mixer		cum	428	216	3752	4396
15.8.3.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	3807	4163
15.8.4	**PCC Grade M25**						
15.8.4.1	Using Concrete Mixer		cum	428	216	4044	4689
15.8.4.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4112	4469
15.8.5	**RCC Grade M25**						
15.8.5.1	Using Concrete Mixer		cum	428	216	4068	4712
15.8.5.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4134	4490
15.8.6	**PCC Grade M30**						
15.8.6.1	Using Concrete Mixer		cum	428	216	4061	4705
15.8.6.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4134	4490
15.8.7	**RCC Grade M30**						
15.8.7.1	Using Concrete Mixer		cum	428	216	4076	4720
15.8.7.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4274	4630
15.8.8	**RCC Grade M35**						
15.8.8.1	Using Concrete Mixer		cum	428	216	4142	4786
15.8.8.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	223	4212	4512
	WELL FOUNDATION						
15.9	Providing and Constructing Temporary Island 16 m diameter for Construction of Well Foundation for 8m dia. Well.	1200					
15.9.1	Assuming depth of water 1.0 m and height of island to be 1.25 m.		each	6264	23293	51172	80730
	Note:- It is assumed that earth will be available within the working space of crane with grab bucket.						
15.9.2	Assuming depth of water 4.0 m and height of island 4.5 m.		each	59227	56813	474953	590992
	Note:- For other well diameters rate can be worked out on the basis of cross-sectional area of well. The diameter of the island shall be in the conformity with clause 1203.2 of MoRTH specifications.						

15.9.3	Providing and constructing one span service road to reach island location from one pier location to another pier location		per metre	85	864	1079	2029
15.10	Providing and Laying Cutting Edge of Mild Steel weighing 40 kg per metre for Well Foundation complete as per Drawing and Technical specification.	1200 & 1900	per tonne	14298	0	66893	81191
15.11	**Plain/Reinforced Cement Concrete, in Well Foundations complete as per Drawing and Technical Specification, in Well Curb**	1200, 1500 & 1700					
15.11.1	**RCC M20 Grade**						
15.11.1.1	Using Concrete Mixer		cum	428	216	4300	4944
15.11.1.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4376	4733
15.11.2	**RCC M25 Grade**						
15.11.2.1	Using Concrete Mixer		cum	618	216	4677	5511
15.11.2.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4856	5212
15.11.3	**RCC M35 Grade**						
15.11.3.1	Using Concrete Mixer		cum	618	216	4803	5637
15.11.3.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4897	5253
	Note:- If curb concrete is carried out within steel liner, cost of formwork shall be excluded.						
15.12	**Plain/Reinforced Cement Concrete, in Well Foundations complete as per Drawing and Technical Specification, in Well Steining**						
15.12.1	**PCC M15 Grade**						
15.12.1.1	Using Concrete Mixer		cum	618	250	3497	4365
15.12.2	**PCC M20 Grade**						
15.12.2.1	Using Concrete Mixer		cum	618	216	3921	4755
15.12.3	**RCC M20 Grade**						
15.12.3.1	Using Concrete Mixer		cum	618	216	3941	4775
15.12.3.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	308	4011	4396
15.12.4	**PCC M25 Grade**						
15.12.4.1	Using Concrete Mixer		cum	618	216	4262	5096
15.12.4.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4346	4702
15.12.5	**RCC M25 Grade**						
15.12.5.1	Using Concrete Mixer		cum	618	216	4287	5121
15.12.5.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4369	4725
15.12.6	**PCC M30 Grade**						
15.12.6.1	Using Concrete Mixer		cum	618	216	4299	5134
15.12.6.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4380	4737
15.12.7	**RCC M30 Grade**						
15.12.7.1	Using Concrete Mixer		cum	618	216	4308	5142
15.12.7.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4391	4747
15.12.8	**RCC M35 Grade**						
15.12.8.1	Using Concrete Mixer		cum	618	216	4402	5236
15.12.8.2	With Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	5214	5571
15.12.9	**RCC M40 Grade**						
15.12.9.1	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4576	4932
15.13	**Plain/Reinforced Cement Concrete, in Well Foundations complete as per Drawing and Technical Specification, in Bottom Plug**						
	Concrete to be placed using tremie pipe						
	Note: 10% extra cement to be added where under water concreting is involved						
15.13.1	**PCC Grade M20**						
15.13.1.1	Using Concrete Mixer		cum	619	387	3987	4993
15.13.1.2	Using Batching Plant, Transit Mixer and Crane/ concrete pump		cum	77	280	3972	4329
15.13.2	**PCC Grade M25**						
15.13.2.1	Using Concrete Mixer		cum	619	387	4170	5176

15.13.2.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	4149	4505
15.13.3	**PCC Grade M30**						
15.13.3.1	Using Concrete Mixer		cum	619	387	4205	5211
15.13.3.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	4187	4544
15.13.4	**PCC Grade M35**						
15.13.4.1	Using Concrete Mixer		cum	619	387	4288	5294
15.13.4.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	4270	4627
15.14	**Plain/Reinforced Cement Concrete, in Well Foundations complete as per Drawing and Technical Specification, in Intermediate Plug**						
15.14.1	**Grade M20 PCC**						
15.14.1.1	Using Concrete Mixer		cum	619	387	3768	4774
15.14.1.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	3779	4136
15.14.2	**Grade M25 PCC**						
15.14.2.1	Using Concrete Mixer		cum	619	387	3942	4948
15.14.2.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	3947	4304
15.14.3	**Grade M30 PCC**						
15.14.3.1	Using Concrete Mixer		cum	619	387	3976	4981
15.14.3.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	3984	4341
15.15	**Plain/Reinforced Cement Concrete, in Well Foundations complete as per Drawing and Technical Specification, in Top Plug**						
15.15.1	**Grade M15 PCC**						
	Using Concrete Mixer		cum	618	250	3341	4208
15.15.2	**Grade M20 PCC**						
	Using Concrete Mixer		cum	618	216	3564	4398
15.15.3	**Grade M25 PCC**						
15.15.3.1	Using Concrete Mixer		cum	618	216	3875	4709
15.15.3.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	4112	4469
15.15.4	**Grade M30 PCC**						
15.15.4.1	Using Concrete Mixer		cum	618	216	3909	4743
15.15.4.2	Using Batching Plant, Transit Mixer and Crane/concrete pump		cum	77	280	3982	4339
15.16	**Plain/Reinforced Cement Concrete, in Well Foundations complete as per Drawing and Technical Specification, in Well Cap**						
15.16.1	**RCC Grade M20**						
15.16.1.1	Using Concrete Mixer		cum	618	216	3725	4559
15.16.1.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	3770	4126
15.16.2	**RCC Grade M25**						
15.16.2.1	Using Concrete Mixer		cum	618	216	4075	4909
15.16.2.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4135	4491
15.16.3	**RCC Grade M30**						
15.16.3.1	Using Concrete Mixer		cum	618	216	4082	4916
15.16.3.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4144	4500
15.16.4	**RCC Grade M35**						
15.16.4.1	Using Concrete Mixer		cum	618	216	4147	4981
15.16.4.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4214	4570
15.16.5	**RCC M40 Grade**						
	Using Batching Plant, Transit Mixer and Concrete Pump		cum	77	280	4292	4648
15.17	**Sinking of 6 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	Section 1200					
15.17.1	**Sandy Soil**						
15.17.1.1	Depth below bed level upto 3.0 M		per metre	1269	2375	0	3644

15.17.1.2	Beyond 3m upto 10m depth		per metre	1586	3562	0	5149
15.17.1.3	Beyond 10m upto 20m depth		per metre				6800
	Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.17.1.4	Beyond 20m upto 30 m		per metre				12754
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.17.1.5	Beyond 30m upto 40 m		per metre				30299
	Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.17.2	**Clayey Soil (6m dia. Well)**						
15.17.2.1	Depth below bed level upto 3.0 M		per metre	1586	3562	0	5149
15.17.2.2	Beyond 3m upto 10m depth		per metre	3173	7624	0	10797
15.17.2.3	Beyond 10 m upto 20 m		per metre				14260
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.17.2.4	Beyond 20m upto 30 m		per metre				26749
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering of the cost, if required						
	© Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						

	29th m						
	30th m						
15.17.2.5	Beyond 30m upto 40 m		per metre				63552
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.17.3	Soft Rock (6m dia well)		per metre	10220	6417	0	16636
	Depth in Soft rock strata up to 3m						
15.17.4	Hard Rock (6m dia well)		per metre	8058	7624	1233	16915
	Depth in hard rock strata upto 3 m						
15.18	**Sinking of 7 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	Section 1200					
15.18.1	**Sandy Soil**						
15.18.1.1	Depth below bed level upto 3.0 M		per metre	1586	3859	0	5445
15.18.1.2	Beyond 3m upto 10m depth		per metre	1904	5343	0	7247
15.18.1.3	Beyond 10m upto 20m		per metre				9569
	Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.18.1.4	Beyond 20m upto 30 m		per metre				17947
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.18.1.5	Beyond 30m upto 40 m		per metre				42641
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.18.2	**Clayey Soil (7m dia. Well)**						
15.18.2.1	Depth below bed level upto 3.0 M		per metre	1904	5343	0	7247
15.18.2.2	Beyond 3m upto 10m depth		per metre	2546	7837	0	10383

15.18.2.3	Beyond 10 m upto 20 m		per metre				13713
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.18.2.4	Beyond 20m upto 30 m		per metre				25722
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c) Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.18.2.5	Beyond 30m upto 40 m		per metre				61113
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.18.3	**Soft Rock (7m dia well)**						
	Depth in soft rock strata upto 3m		per metre	6665	6928	0	13593
15.18.4	**Hard Rock (7m dia well)**						
	Depth in Hard rock strata up to 3 m		per metre	11005	8213	779	19998
15.19	**Sinking of 8 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	Section 1200					
	Diameter of well - 8 m.						
15.19.1	**Sandy Soil**						
15.19.1.1	Depth below bed level upto 3.0 M		per metre	1904	4750	0	6653
15.19.1.2	Beyond 3m upto 10m depth		per metre	2237	5937	0	8174
15.19.1.3	Beyond 10m upto 20m		per metre				10796
	Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.19.1.4	Beyond 20m upto 30 m		per metre				20252

	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.19.1.5	Beyond 30m upto 40 m		per metre				7119
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.19.2	**Clayey Soil (8m dia. Well)**						
15.19.2.1	Depth from bed level upto 3.0 M		per metre	2327	6531	0	8857
15.19.2.2	Beyond 3m upto 10m depth		per metre	2978	7999	0	10977
15.19.2.3	Beyond 10 m upto 20 m		per metre				14496
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.19.2.4	Beyond 20m upto 30 m		per metre				27190
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c) Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd m						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.19.2.5	Beyond 30m upto 40 m		per metre				64600
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						

	39th m						
	40th m						
15.19.3	**Soft Rock (8m dia well)**						
	Depth in soft rock strata upto 3m		per metre	7764	7606	0	15371
15.19.4	**Hard Rock (8m dia well)**						
	Depth in hard rock strata upto 3 m		per metre	11121	8043	1840	21005
15.20	**Sinking of 9 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	Section 1200					
15.20.1	**Sandy Soil**						
15.20.1.1	Depth below bed level upto 3.0 M	0	per metre	2009	4750	0	6759
15.20.1.2	Beyond 3m upto 10m depth		per metre	2449	6531	0	8979
15.20.1.3	Beyond 10m upto 20m		per metre				11859
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.20.1.4	Beyond 20m upto 30 m		per metre				22245
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.20.1.5	Beyond 30m upto 40 m		per metre				52852
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.20.2	**Clayey Soil (9m dia. Well)**						
15.20.2.1	Depth below bed level upto 3.0 M		per metre	2538	6827	0	9366
15.20.2.2	Beyond 3m upto 10m depth		per metre	3189	8655	0	11845
15.20.2.3	Beyond 10 m upto 20 m		per metre				15644
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						

15.20.2.4	Beyond 20m upto 30 m		per metre				29345
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c) Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.20.2.5	Beyond 30m upto 40 m		per metre				69720
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.20.3	**Soft Rock (9m dia well)**						
	Depth in soft rock strata up to 3m		per metre	8806	9594	0	18401
15.20.4	**Hard Rock (9m dia well)**						
	Depth in hard rock strata upto 3 m		per metre	12947	10236	2261	25444
15.21	**Sinking of 10 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	1200					
15.21.1	**Sandy Soil**						
15.21.1.1	Depth below bed level upto 3.0 M		per metre	2115	5937	0	8052
15.21.1.2	Beyond 3m upto 10m depth		per metre	2668	6827	0	9496
15.21.1.3	Beyond 10m upto 20m		per metre				12542
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.21.1.4	Beyond 20m upto 30 m		per metre				23526
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.21.1.5	Beyond 30m upto 40 m		per metre				55895
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						

	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.21.2	**Clayey Soil (10m dia. Well)**						
15.21.2.1	Depth below bed level upto 3.0 M		per metre	3356	7124	0	10480
15.21.2.2	Beyond 3m upto 10m depth		per metre	3620	8124	0	11745
15.21.2.3	Beyond 10 m upto 20 m		per metre				15512
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.21.2.4	Beyond 20m upto 30 m		per metre				29097
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c) Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.21.2.5	Beyond 30m upto 40 m		per metre				69131
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd m						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.21.3	**Soft Rock (10m dia well)**						
	Depth in soft rock strata upto 3m		per metre	9857	9843	0	19699
15.21.4	**Hard Rock (10m dia well)**						
	Depth in hard rock strata upto 3 m		per metre	12822	14689	1947	29458
15.22	**Sinking of 11 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**						
15.22.1	**Sandy Soil**						
15.22.1.1	Depth from bed level upto 3.0 M		per metre	4076	7837	0	11913
15.22.1.2	Beyond 3m upto 10m depth		per metre	5548	9499	0	15047

15.22.1.3	Beyond 10m upto 20m		per metre				19874
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.22.1.4	Beyond 20m upto 30 m		per metre				37277
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.22.1.5	Beyond 30m upto 40 m		per metre				88566
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b)Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.22.2	**Clayey Soil (11 m dia. Well)**						
15.22.2.1	Depth from bed level upto 3.0 M		per metre	5500	11874	0	17373
15.22.2.2	Beyond 3m upto 10m depth		per metre	7875	16373	0	24249
15.22.2.3	Beyond 10 m upto 20 m		per metre				32025
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.22.2.4	Beyond 20m upto 30 m		per metre				60070
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c)Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						

15.22.2.5	Beyond 30m upto 40 m		per metre				142718
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.22.3	**Soft Rock (11m dia well)**						
	Depth in soft rock strata upto 3m		per metre	21813	22310	0	44123
15.22.4	**Hard Rock (11m dia well)**						
	Depth in hard rock upto 3 m		per metre	27335	37591	4525	69451
15.23	**Sinking of 12 m external diameter well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	1200					
15.23.1	**Sandy Soil**						
15.23.1.1	Depth below bed level upto 3.0 M		per metre	9714	28497	0	38211
15.23.1.2	Beyond 3m upto 10m depth		per metre	12399	30872	0	43270
15.23.1.3	Beyond 10m upto 20m		per metre				57147
	Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.23.1.4	Beyond 20m upto 30 m		per metre				107193
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.23.1.5	Beyond 30m upto 40 m		per metre				254674
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.23.2	**Clayey Soil (12 m dia. Well)**						
15.23.2.1	Depth below bed level upto 3.0 M		per metre	12691	29685	0	42376
15.23.2.2	Beyond 3m upto 10m depth		per metre	16645	44063	0	60708

15.23.2.3	Beyond 10 m upto 20 m		per metre				80177
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.23.2.4	Beyond 20m upto 30 m		per metre				150393
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c) Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.23.2.5	Beyond 30m upto 40 m		per metre				357314
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.23.3	**Soft Rock (12m dia well)**						
	Depth in soft rock strata upto 3m		per metre	48445	54857	0	103302
15.23.4	**Hard Rock (12m dia well)**						
	Depth in hard rock strata upto 3 m		per metre	58885	63369	9341	131594
15.24	**Sinking of Twin D Type well (other than pneumatic method of sinking) through all types of strata namely sandy soil, clayey soil and rock as shown against each case, complete as per drawing and technical specifications. Depth of sinking is reckoned from bed level.**	1200					
15.24.1	**Sandy Soil**						
15.24.1.1	Depth from bed level upto 3.0 M		per metre	2115	6531	0	8646
15.24.1.2	Beyond 3m upto 10m depth		per metre	2359	6982	0	9341
15.24.1.3	Beyond 10m upto 20m		per metre				12337
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.24.1.4	Beyond 20m upto 30 m		per metre				23141
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						

	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour.						
	21st m						
	22nd m						
	23rd m						
	24th m						
	25th m						
	26th m						
	27th m						
	28th m						
	29th m						
	30th m						
15.24.1.5	Beyond 30m upto 40 m		per metre				54979
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 20 per cent of cost for Kentledge including supports, loading arrangement, and Labour etc.						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.24.2	**Clayey Soil (Twin D Type Well)**						
15.24.2.1	Depth below bed level upto 3.0 M		per metre	2750	7421	0	10171
15.24.2.2	Beyond 3m upto 10m depth		per metre	3946	9045	0	12990
15.24.2.3	Beyond 10 m upto 20 m		per metre				17157
	(a) Add 5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add for dewatering @ 5 per cent of cost, if required.						
	11th m						
	12th m						
	13th m						
	14th m						
	15th m						
	16th m						
	17th m						
	18th m						
	19th m						
	20th m						
15.24.2.4	Beyond 20m upto 30 m		per metre				32183
	(a) Add 7.5 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering on the cost, if required						
	(c) Add 25 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.24.2.5	Beyond 30m upto 40 m		per metre				76464
	(a) Add 10 per cent for every additional meter depth of sinking over the rate of sinking for the previous meter						
	(b) Add 5 per cent of cost for dewatering, if required						
	(c) Add 20 per cent of cost for Kentledge including supports, loading arrangement and Labour).						
	31st m						
	32nd						
	33rd m						
	34th m						
	35th m						
	36th m						
	37th m						
	38th m						
	39th m						
	40th m						
15.24.3	**Soft Rock (Twin D Type Well)**						
	Depth in soft rock strata upto 3m		per metre	9751	11960	0	21711

15.24.4	**Hard Rock (Twin D Type Well)**						
	Depth in hard rock strata upto 3 m		per metre	13359	12624	2401	28384
15.25	Pneumatic sinking of wells with equipment of approved design, drawing and specifications worked by competent and trained personnel and comprising of compression and decompression chambers, reducers, two air locks separately for men and plant & materials, arrangement for supply of fresh air to working chambers, check valves, exhaust valves, shafts made from steel plates of riveted construction not less than 6 mm thick to withstand an air pressure of 0.50 MPa, controlled blasting of hard rock where required, staircases and 1 m wide landing plateforms with railing, arrangement for compression and decompression, electric lighting of 50 V maximum, proper rooms for rest and medical examinations and compliance with safety precautions as per IS:4138, all as per clause1207.6 of MoRTH Specifications.	1200					
	Note:- 1.The cost of induction, deinduction and erection of equipment shall be divided by the total quantity of pneumatic sinking for all the wells of a particular bridge to arrive at the per cum rate on account of this item.						
	2.Cost of pneumatic sinking per cum of individual wells will be added to the cost indicated at (1) above to arrive at the final rate of pneumatic sinking per cum.						
	3.The cost of induction and deinduction will depend upon the distance involved for shifting of equipment which may be assessed in individual cases as per actual ground conditions at the time of making of cost estimates.						
	4.In case pneumatic sinking is involved on a dry bed, the provision of barge and boat may be omitted.						
	5.The necessity and dimensions of the corbel will be as per actual ground conditions.						
	6.Small equipments like welding sets, pumps, vibrators, pneumatic tools, portable lamps, fire extinguishers, hose pipes etc., have not been included as the same are covered as items of minor T&P under overhead charges.						
	7.Depth of sinking shall be restricted to 30 m.						
15.26	Sand Filling in Wells complete as per Drawing and Technical Specifications.	1207	cum	126	0	1227	1353
15.27	Providing Steel Liner 10 mm thick for Curbs and 6 mm thick for Steining of Wells including Fabricating and Setting out as per Detailed Drawing.	1200 & 1900	per tonne	59653	14288	0	73941
	Pile Foundation						
15.28	Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.	1100 & 1700					
	Pile diameter-750 mm		metre	99	2373	2537	5009
15.29	Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.	1100,1600 & 1700					
	Pile diameter-1000 mm		metre	169	3586	4513	8268
15.30	Bored cast-in-situ M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m.	1100 & 1700					
	Pile diameter-1200 mm		metre	212	4008	6497	10716
15.31	Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification	1100 & 1700					
	Pile diameter - 750 mm		per metre	32	687	3402	4120
	Note: -1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
	2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.						
15.32	Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification	1100 & 1700					
	Pile diameter - 1000 mm		per metre	56	923	5665	6644
	Note: -1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
	2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.						
15.33	Driven cast-in-place vertical M35 grade R.C.C. Pile excluding Reinforcement complete as per Drawing and & Technical Specification	1100 & 1700					
	Pile diameter - 1200 mm		per metre	95	1373	8227	9695

	Note: -1.The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
	2.In case steel lining is included in the design for driven cast-in-situ pile and is planned to be retained, the same may be included in the rate analysis. In case the temporary steel casing used during casting is planned to be removed, an additional cost @ 0.50 per cent of cost of concrete may be provided to cover its usage.						
15.34	**Driven precast vertical M35 grade R.C.C. Piles excluding Reinforcement complete as per Drawing and & Technical Specification**	1100 & 1700					
	Pile Diameter = 500 mm		per metre	21	554	2308	2883
	Note: -The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
15.35	Driven precast vertical M35 grade R.C.C. Piles excluding Reinforcement complete as per Drawing and & Technical Specification	1100 & 1700					
	Pile Diameter = 750 mm		per metre	34	682	4150	4866
	Note:- The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
15.36	Driven precast vertical M35 grade R.C.C. Piles excluding Reinforcement complete as per Drawing and & Technical Specification	1100 & 1700					
	Pile Diameter = 1000 mm		per metre	53	1001	6702	7756
	Note: -The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
15.37	Driven precast vertical M35 grade R.C.C. Piles excluding Reinforcement complete as per Drawing and & Technical Specification	1100&1700					
	Size of pile - 300 mm x 300 mm		per metre	21	511	1407	1939
	Note: -The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
15.38	Driven precast vertical M35 grade R.C.C. Piles excluding Reinforcement complete as per Drawing and & Technical Specification	1100 &1700					
	Size of pile - 500 mm x 500 mm		per metre	34	665	2566	3265
	Note: -The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
15.39	Driven precast vertical M35 grade R.C.C. Piles excluding Reinforcement complete as per Drawing and & Technical Specification	1100 &1700					
	Size of pile - 750 mm x 750 mm		per metre	48	831	4895	5774
	Note: -The quantity of concrete required to be removed above the designed top level of concrete, if any, will be provided for in the rate analysis.						
15.40	Driven Vertical Steel Piles complete as per Drawing and & Technical Specification	1100, 1900					
	Section of the pile - H Section steel column 400 x 250 mm (ISHB Series)		per metre	18	438	4929	5385
15.41	Driven Vertical Steel Piles complete as per Drawing and & Technical Specification	1100 &1900					
	Section of the pile - H Section steel column 450 x 250 mm (ISHB Series)		per metre	25	511	5551	6087
				22	450	4885	5357
15.42	**Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV)**	1100					
a	Initial and routine load test		tonne				739
b	Lateral load test		tonne				5681
	Note:- Although, this item is incidental to work and is not required to be included in BOQ of contract, the same is required to be added in the estimate to assess cost of work.						
15.43	Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification	1100, 1500 &1700					
15.43.1	**RCC Grade M20**						
15.43.1.1	Using Concrete Mixer		cum	641	216	3726	4583
15.43.1.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	111	288	3773	4173
	Note:- The value of a, b and c may be taken as applicable i.e. either using concrete mixer or batching plant.						
15.43.2	**RCC Grade M25**						
15.43.2.1	Using Concrete Mixer		cum	641	216	4064	4922
15.43.2.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	111	294	4124	4528
15.43.3	**RCC Grade M30**						
15.43.3.1	Case I: Using Concrete Mixer		cum	641	216	4107	4964
15.43.3.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	111	288	4168	4567
15.43.4	**RCC Grade M35**						

15.43.4.1	Using Concrete Mixer		cum	641	216	4197	5054
15.43.4.2	Using Batching Plant, Transit Mixer and Concrete Pump		cum	111	294	4097	4501
15.44	**Levelling Course for Pile cap**	1100&1700					
	Providing and laying of PCC M15 levelling course 100mm thick below the pile cap.		cum	613	216	3179	4008
15.45	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.	1600	per tonne	3458	0	59980	63438
15.46	Supplying, fitting and placing un-coated Mild steel reinforcement complete in foundation as per drawing and technical specification	1600	per tonne	3780	0	58787	62568

CHAPTER NO.16

RIVER
AND
CANAL PROTECTION WORKS

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CHAPTER 16.0 - RIVER AND CANAL PROTECTION WORKS

Notes:

1. The rate of Item No.16.5 for making pilchi, farash or sarkanda rolls, excludes supply of materials. This item is only to be paid if pilchi, farash and sarkanda are supplied in loose form according to item No.16.1. When supply of this material is taken as compacted in rolls of required diameter and length, no payment over and above Item No.16.1 (b) shall be made. Items 16.8, 16.9 and 16.10 involve the use of pilchi, farash and sarkanda, made into rolls, of 15 cm diameter, and 1.5 meters long. These rates include the cost of making rolls of pilchi farash and sarkanda. No payment for making rolls shall be made over and above the rate of these items, as given in this chapter.

2. The through rates, of item No.16.38, include the cost of stone, at site of work, irrespective of the distance from the source. Variations in actual lead, in such cases, will be taken care of premium / abatement over the scheduled rates. Where, however, stone is not available within the lead specified, but has to be brought from long distance, extra provision for carriage of stone shall be made in the estimates and for calculating the financial implications on tenders. This difference, however, is not payable to the contractor.

3. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 16.0 - RIVER AND CANAL PROTECTION WORKS							
16.1	Cutting pilchi, farash and sarkanda, and carriage to work site, lead 2 Km including loading and unloading.							
	16.1.1	Loose		cum	117	0	0	117
	16.1.2	Compacted in rolls of required diameter and length		cum	486	0	0	486
16.2	Loading pilchi, farash and sarkanda in boats within 15 metres							
	16.2.1	Loose		cum	26	0	0	26
	16.2.2	Compacted in rolls		cum	58	0	0	58
16.3	Carriage of pilchi farash and sarkanda by boats including loading and unloading							
	16.3.1	Loose						
		16.3.1.1	1 Km	cum	57	0	0	57
		16.3.1.2	2 Km	cum	108	0	0	108
		16.3.1.3	3 Km	cum	154	0	0	154
		16.3.1.4	4 Km	cum	194	0	0	194
		16.3.1.5	5 Km	cum	228	0	0	228
		16.3.1.6	subsequent Km (per Km)	cum	29	0	0	29
	16.3.2	Compacted						
		16.3.2.1	1 Km	cum	143	0	0	143
		16.3.2.2	2 Km	cum	271	0	0	271
		16.3.2.3	3 Km	cum	385	0	0	385
		16.3.2.4	4 Km	cum	485	0	0	485
		16.3.2.5	5 Km	cum	571	0	0	571
		16.3.2.6	subsequent Km (per Km)	cum	71	0	0	71
16.4	Unloading pilchi, farash and and sarkanda from boats, and carriage to yard up to 1 Km-							
	16.4.1	loose		cum	72	0	0	72
	16.4.2	Compacted		cum	175	0	0	175
16.5	Making pilchi, farash or sarkanda rolls, excluding supply of materials-							
	16.5.1	20 cm or 23 cm dia and 9 m long		each	102	0	0	102
	16.5.2	15 cm dia and 9 m long		each	68	0	0	68
	16.5.3	15 cm dia and 1.5 m long		each	8	0	0	8
	Note: The payment under item No. 16.5 is not to be made, in addition to those of Item No. 16.1(b), 16.8, 16.9 and 16.10							
16.6	Making 0.75 m dia and 5.5 m long pilachi rolls for permeable spurs			each	460	0	0	460
16.7	lanchinhing the above and placing position			each	327	0	0	327
16.8	Pilchi, farash or sarkanda pitching on slope, with rolls 15 cm dia, and 1.5 m long including supply of pilchi, involving carriage within 2 Km and labour for making rolls			sqm	419	0	0	419
	Note: For above item, pitching shall be of 15 cm dia, layers of pitching, laid as a header, and 1.5 m in length alternating with 15 cm covering of earth for consolidation, including pegs and tying with wire (cost of wire ia to be paid extra).							
16.9	Extra for carriage, beyond 2 Km of pilchi rolls, 15 cm dia and 1.5 long							
	16.9.1	3rd Km		sqm of	0	0	86	86
	16.9.2	Subsequent Km (per Km)		sqm of	0	0	57	57
16.10	Pilachi, farash or sarkanda pitching (1 metre depth)			sqm of pitching surface	80%	0	0	80%
	Note: Rate: 80%of rates of item no 16.8 and 16.9							
16.11	Pilchi revetment including carriage up to 2 Km			sqm	184	0	0	184
16.12	Surface protection with pilachi mattress; lead up to 2 Km			sqm	136	0	0	136
16.13	Weaving mattresses of pilchi, 30 cm thick			sqm	83	0	0	83
16.14	Rolling pilchi mattress to river edge and floating after unrolling-							
	16.14.1	area of mattress up to 200 sqm		sqm	38	0	0	38
	16.14.2	area of mattress exceeding 200 sqm but up to 250 sqm		sqm	52	0	0	52
	16.14.3	area of mattress above 250 sqm		sqm	58	0	0	58
16.15	laying kahi mattress, lead upto 2 Km			sqm	136	0	0	136
16.16	Special kahi revetment double, lead up to 2 Km			sqm	253	0	0	253
16.17	Gachi pitching with average thickness of 30 cm (joints to be broken)			sqm	123	0	0	123
16.18	Gachi pitchi (done with silt clearance and berm dressing) with thickness of 30 cm (joints to be broken)			sqm	117	0	0	117
16.19	Fixing floating spurs, in channels, with material from canal plantation, with in 2 Km							
	16.19.1	F.S. depth up to 0.5 m		each	3	0	0	3
	16.19.2	F.S. depth exceeding 0.5 m but up to 1.00 m		each	6	0	0	6
	16.19.3	F.S. depth exceeding 1.0 m but up to 1.25 m		each	9	0	0	9
	16.19.4	above 1.25 m F.S. depth		each	11	0	0	11
16.20	Stacking and bushing with canal plantation with in 1 Km							
	16.20.1	Pegs 1 m long						
		16.20.1.1	Pegs 1 m long, 5 cm dia	100 Nos.	307	0	0	307
		16.20.1.2	Driving Pegs 1 m long 5 cm dia	100 Nos.	204	0	0	204
		16.20.1.3	Wattling brush-wood between stakes and interwinning	metre of one row	5	0	0	5
	16.20.2	Pegs 1 m long						
		16.20.2.1	pegs 1.25 m long, 7.5 cm dia sharpened at one end	100 Nos.	292	0	0	292
		16.20.2.2	Driving page 1.25 m long 7.5 cm dia	100 Nos.	273	0	0	273
		16.20.2.3	Wattling brush wood between stakes and interwinning	metre of one row	5	0	0	5
	16.20.3	Pegs 1 m long						
		16.20.3.1	pegs 1.5 m long, 7.5 cm dia sharpened at one end	100 Nos.	307	0	0	307
		16.20.3.2	Driving pegs 1.5 m long 7.5 cm dia	100 Nos.	292	0	0	292
		16.20.3.3	Wattling brush wood between stakes and interwinning	metre of one row	7	0	0	7
	16.20.4	Pegs 1 m long						
		16.20.4.1	pegs 2 m long, 7.5 cm dia sharpened at one end	100 Nos.	438	0	0	438
		16.20.4.2	Driving page 1.5 m long 7.5 cm dia	100 Nos.	363	0	0	363
		16.20.4.3	Wattling brush-wood between stakes and interwinning	metre of one row	9	0	0	9
16.21	Filling brush wood only			cum	33	0	0	33

16.22	Filling cement bags with sand or earth, and sewing, including cost of strings		each	4	0	0	4
16.23	Loading cement bags filled with sand or earth, into trucks or boats within 3 chains lead (per chain of 30 metres)		each	7	0	0	7
16.24	Carriage of sand, filled in bags, by boats-						
	16.24.1	1st chain of 30 metres	100 Nos.	0	0	86	86
	16.24.2	2nd to 4th chain (per chain of 30 metres)	100 Nos.	0	0	46	46
	16.24.3	5th and subsequent chains (per chain of 30 metres)	100 Nos.	0	0	29	29
16.25	Unloading from boats, bags filled with sand and-						
	16.25.1	Placing in dry	100 Nos.	511	0	0	511
	16.25.2	Placing in water	100 Nos.	1022	0	0	1022
16.26	Filling cement bags with sand, sewing and laying in position within 30 metres, in dry including cost of strings		each	9	0	0	9
16.27	Filling cement bags with sand, sewing and laying in position within 30 metres in water including cost of strings		each	14	0	0	14
16.28	Sewing empty cement bags in to sheets		100 Nos.	289	0	0	289
16.29	Weaving wire-netting for wire crates, including binding sides, and partition to make crate of 15 cm x 15 cm, or 25 cm x 7.5 cm mesh		sqm	37	0	0	37
16.30	Filling brick-bats in crates, and hand-packing		cum	96	0	0	96
16.31	Filling bricks in crates and hand-packing		cum	182	0	0	182
16.32	Filing stones or spalls into crates, and hand-packing		cum	252	0	0	252
16.33	Tipping wire crates including equipment		cum	182	0	0	182
16.34	Opening out old wire crates, and remaking after filling		sqm	17	0	0	17
16.35	Labour for dismantling existing portion of old protection work, including cutting old trangger and stacking old stones for re-use		cum	204	0	0	204
16.36	Filling spaces and foundations with old stones, obtained from dismantling, including labour for dismantling		cum	491	0	0	491
16.37	Spreading wire crates over pitching, connecting with side protective walls, inclusive of wire, etc		sqm	46	0	0	46
16.38	Wire Crates 1.20 m x1.20 m from all directions of G.I. Wire, filled with boulders with square-cut faces, against the wire-						
	16.38.1	4mm dia G.I. Wire, 25 cm x 7.5 cm mesh (diagonal wise)	cum	362	0	1769	2131
	16.38.2	4.00 mm dia G.I. wire 15 cm x 15 cm mesh (diagonal wise)	cum	362	0	1451	1814
	16.38.3	4.75 mm, dia G.1. wire, 25 cm. x 7.5 cm mesh (diagonal wise)	cum	362	0	2140	2502
	16.38.4	4.75 mm, dia. G.I. wire 15 cm x 15 cm mesh (diagonal wise)	cum	362	0	1702	2064
	16.38.5	3.25 mm dia G.I. wire 25 cm x 7.5 cm mesh (diagonal wise)	cum	362	0	1432	1795
	16.38.6	3.25 mm dia G.I. wire. 15 cm. x 15 cm mesh (diagonal wise)	cum	362	0	1229	1592
16.39	Dumping stone		cum	131	0	0	131
16.40	Extra for anchoring boat for dumping in position		cum	57	0	0	57
16.41	Dismantling brush-wood boulder bund		cum	363	0	0	363
16.42	Stone or kankar block pitching-						
	16.42.1	horizontal	cum	446	0	0	446
	16.42.2	On slopes of guide banks and protection works	cum	584	0	0	584
16.43	Stone pitching, top coping only		cum	914	0	0	914
16.44	Filling stone or spalls-						
	16.44.1	on level	cum	131	0	0	131
	16.44.2	On side slopes behind pitching	cum	144	0	0	144
16.45	Grouting stone filling or pitching-						
	16.45.1	with bajri or shingle	sqm	58	0	0	58
	16.45.2	With mortar	sqm	92	0	0	92
16.46	Grouting masonry joints of floors, including finishing						
	16.46.1	When stones are upto 23 cm square	sqm	43	0	0	43
	16.46.2	When stones are more than 23 cm square but under 45 cm square	sqm	28	0	0	28
16.47	Sand grouting stone apron sqm with high pressure hose		sqm	23	0	0	23
16.48	Providing, laying & filling Geo Bags of size 0.55mx0.65m(130 GSM woven geo bag made upof VT 1300) Weight 90 gm, volume of filled bags 1.1cft, weight of filled Geo bag 46 kg with local sand including stitching four lines by approved Nylon thread with stichin machine and generator, Stacking and placing after loading, unloading and carriage with the help of trolley within 150 meter lead and boat all complete as per specification and direction of Engineer-in-charge (Where boat is used)		per bag	46	0	97	143
	(a) Stitching, filling and stacking of bags						
	(b)Charge for placing and dumping with the help of power boat of 40 Qtl.						
16.49	Providing, laying & filling Geo Bags of size 0.55mx0.65m(130 GSM woven geo bag made upof VT 1300) Weight 90 gm, volume of filled bags 1.1cft, weight of filled Geo bag 46 kg with local sand including stitching four lines by approved Nylon thread with stichin machine and generator, Stacking and placing after loading, unloading and carriage with the help of trolley within 150 meter lead and boat all complete as per specification and direction of Engineer-in-charge		per bag	17	0	100	117
16.50	Providing, laying & filling Geo Bags of size 0.762mx0.508m(130 GSM woven geo bag made upof VT 1300) Weight 95 gm, volume of filled bags 1.2cft, weight of filled Geo bag 50 kg with local sand including stitching four lines by approved Nylon thread with stichin machine and generator, Stacking and placing after loading, unloading and carriage with the help of trolley within 150 meter lead and boat all complete as per specification and direction of Engineer-in-charge (Where boat is used)		per bag	52	0	106	158
16.51	Providing, laying & filling Geo Bags of size 0.762mx0.508m(130 GSM woven geo bag made upof VT 1300) Weight 95 gm, volume of filled bags 1.2cft, weight of filled Geo bag 50 kg with local sand including stitching four lines by approved Nylon thread with stichin machine and generator, Stacking and placing after loading, unloading and carriage with the help of trolley within 150 meter lead and boat all complete as per specification and direction of Engineer-in-charge		per bag	17	0	109	126
16.52	Providing, laying & filling Geo Bags of size 1.09mx0.69m(200 GSM PPMFwoven geo bag made upof VT 2000 Weight 310 gm, volume of filled bags 0.07cum, weight of filled Geo bag 130 kg with local sand including stitching four lines by approved Nylon thread with stichin machine and generator, Stacking and placing after loading, unloading and carriage with the help of trolley within 150 meter lead and boat all complete as per specification and direction of Engineer-in-charge (Where boat is used)		per bag	62	0	183	245
16.53	Providing, laying & filling Geo Bags of size 1.09mx0.69m(200 GSM PPMFwoven geo bag made upof VT 2000 Weight 310 gm, volume of filled bags 0.07cum, weight of filled Geo bag 130 kg with local sand including stitching four lines by approved Nylon thread with stichin machine and generator, Stacking and placing after loading, unloading and carriage with the help of trolley within 150 meter lead and boat all complete as per specification and direction of Engineer-in-charge		per bag	27	0	186	212
16.54	Providing, laying, & filling Geo Textile Tube of VT-3300, size 20 mx3.0m dia (cubic content 60 cum) made up of woven poly prpylene multifilament, stacking and placing after loading, unloading and carriage with the help of trolley within 150 m lead and boat all complete as per specifications and direction of Engineer-in-charge.		each	46442	0	214432	260874
	Specifications: Polymer: Polypropylene, woven with multifilament yarn in both Warp and weft direction, mass 330gm/sqm, tensile strength 80 KN/m, Elongation 25%, Trapezoidal Tearing strength 1600 N, Puncture strength 600N, permeability 18 l/sqm/s, Filling Port Length 2m and dia 0.50 m, Filling spacing 5 m						

	Alternative: Providing laying and placing in position segment of a/b/c diameter UV Resistance Geotextile tubes as per design and drawing of High strength woven Geotextile made from polypropylene multifilament woven in both warf and weft directions, with cover of UV protective pp tape woven Geotextile with pore size less than 0.075 millimetre and permeability greater than 9.00 litre/square metre/second conforming specification IS:1969 and ASTM standards placed parallel to high water line and duly filled with sea sand mechanically by sand dredging machine so as to act as main burnt and toe burm at offshore to hold accumulated sand on beach including all labour, plant, equipment and machinery required including shuttering and scaffolding as directed by Engineer-in-Charge of the work etc. complete. (Maharastra PWD 2018-19)[Practical Manual for use of Technical Textiles in water resources works, Ministry of water Resources, River development and ganga Rejuvenation R& D Division]					
	Note: Earthwork for seating of Geo-textile Tube, Supply and dumping of Boulders, Turfing etc if required are not included, and would be paid as per relevant items					
16.55	Providing, laying, & filling P.P.Rope Gabbian (1.8mx1.2mx0.5) 150x150 mm mesh, 9 mm dia, 4 strands, made up of woven Rope poly propylene multifilament, (42 gm/meter+8%) Woven Rope poly propylene multifilament, as per IS 5175-1992 (reaffirmed 1997), Tensile strength A' Rope 1560 kg breaking strength (Min) as per IS 7071 (Part 4): 1986 reaffirmed-1999, 'B' Rope NET 10000 kg/m breaking strengthstacking and placing after loading, unloading and carriage with the help of trolley within 150 m lead and boat all complete as per specifications and direction of Engineer-in-charge	each	543	0	1713	2256
16.56	Providing, laying, & filling P.P.Rope Gabbian (1.8mx1.8mx0.5) 150x150 mm mess size, made up of 9 mm x 4 strands (42 gm/meter+8%) Woven Rope poly propylene multifilament, as per IS 5175-1992 (reaffirmed 1997), Tensile strength A' Rope 1560 kg breaking strength (Min) as per IS 7071 (Part 4): 1986 reaffirmed-1999, 'B' Rope NET 10000 kg/m breaking strength stacking and placing after loading, unloading and carriage with the help of trolley within 150 m lead and boat all complete as per specifications and direction of Engineer-in-charge	each	1030	0	2855	3885
	Note:Filling material like boulders or bricks will be paid extra as per relevant item					
	Note: Alternative specifications and rates: Similar item from USoR of West Bengal: Supplying at site 9 mm polypropylene (PP) rope gabion (4-strand and mesh size 75mm x 75mm) of size 2.0mx1mx1m with intermediate partition at every 1 mas per specification, laying along sea/riverside toe of embanKment , closing and locking the gabions, inter locking the adjoining gabions, after placement of full bricks/boulders inside, including cost of all materials (excluding bricks/boulders), labours, transportation to site by all means, all leads and lifts complete as per direction of the Engineer-in-charge. Note: Paragraph 2.9 under the Chapter of “Specification for Works” in the USoR shall be reproduced and included in the tender document as “Specification and Special Terms & Conditions for Polypropylene (PP) Rope Gabion”, in case of use of this item in the estimate.” ['Unified Schedule of Rates' (USoR) of Irrigation & Waterways Department. (W.B)] 2018	each	0	0	4760	4760

CHAPTER NO. 17

ROAD WORKS

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CHAPTER 17.0 - DEEP FOUNDATIONS
(Open, Wells and Piles)

NOTES:

1. The clauses of MORT&H Specifications,which have been mentioned, may be referred for detailed specifications and construction procedures. The rate mention only brief description of work.

2. The rates include the cost of working of road machinery including cost of fuels, lubricants, stores, establishment, depreciation and intrest chrages. In case the machinery is provided by the department, the working cost as mentioned shall be recovered from the contractor at the rates fixed by the department.

3. Average leads , as shown in analysis has been considered for all items.

4. Lead from Mix Plant to site has been considered as 1 km.

5. All type of Bituminous products have been considered to be taken from Panipat Refinery

6. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

CHAPTER 17.0 - ROAD WORK							
Item No.	Description	Ref. MORTH (Specifications	Unit	Labour Rate	Machinery Rate	Material Rate	Through Rate
	Clearing Grass and Removal of Rubbish						
17.1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area, as per technical clause 201 of MORT&H specifications.	201					
	By Manual Means		hectare	21152	0	0	21152
	Clearing and Grubbing Road Land .						
17.2	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness, as per technical clause 201 of MORT&H specifications.	201					
17.2.1	In area of light jungle (By Manual Means)		hectare	63457	193	0	63650
17.2.2	In area of thorny jungle (By Manual Means)		hectare	92745	386	0	93132
17.2.3	In area of light jungle (By Mechanical Means)		hectare	1692	17237	0	18929
17.2.4	In area of thorny jungle (By Mechanical Means)		hectare	2538	20742	0	23281
17.3	Dismantling of flexible pavement by Mechanical Means						
	Bituminous course		cum	126	78	0	204
17.4	**Scarifying Existing Bituminous Surface to a depth of 50 mm by Mechanical Means**						
	Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material with in all lifts and lead upto 1000 metres, as per technical clause 202 of MORT&H specifications		sqm	1	3	0	4
17.5	**Compacting Original Ground**	305					
17.5.1	**Compacting original ground below road crust**						
	Loosening of the ground upto a level of 500 mm below the road crust, watered, graded and compacted at OMC in layers to meet requirement of table 300-2 for embankment construction as per technical clause 305 of MORT&H specifications		cum	2	42	2	46
17.5.2	**Compacting original ground below embankment**						
	Loosening, leveling and Compacting original ground supporting embankment to facilitate placement of first layer of embankment, scarified to a depth of 150 mm, mixed with water at OMC and then compacted by rolling so as to achieve minimum dry density as given in Table 300-2 for embankment construction as per technical clause 305 of MORTH specifications		cum	1	12	2	16
	Excavation for Roadway in Soil by Manual Means .						
17.9	Excavation for roadway in soil using manual means including carrying of cut earth to embankment site with all lifts and lead upto 50 m, as per technical clause 301 of MORT&H specifications	301	cum	159	0	0	159
	Note:- In case there is a situation where the cross-section is of cut and fill and cut earth is required to be used in embankment in the immediate vicinity, the item of carriage in the truck shall be omitted.						
	Excavation For Roadway in Ordinary Rock by Manual Means						
17.9	Excavation in ordinary rock using manual means including loading in a truck and carrying of excavated material to embankment site with in all lifts and leads upto 1000 metres as per technical clause 301 of MORT&H specifications	301	cum	247	24	0	270
	Note:- In case there is a situation where the cross-section is of cut and fill and cut earth is required to be used in embankment in the immediate vicinity, the item of carriage in the truck shall be omitted.						
	Excavation for Roadway in Soil by Mechanical means and Tippers with Disposal upto 1000 metres.						
17.1	Excavation for roadwork in soil by mechanical means including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m as per technical clause 301 of MORT&H specifications	301	cum	2	27	0	30
	Excavation for Roadway in Ordinary Rock by Mechanical means and Tippers with Disposal upto 1000 metres.						

17.10	Excavation for roadway in ordinary rock with hydraulic excavator including cutting and loading in tippers, transporting to embankment site within all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.	301	cum	4	36	0	39
17.60	**Construction of Embankment with Material obtained from Borrowpits**						
	Construction of Embankment with approved material obtained from borrow pits, including compensation of earth, with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2, as per technical clause 305 of MORT&H specifications	305	cum	4	71	48	123
	Note:- Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.						
	Construction of Embankment with Material Deposited from Roadway Cutting or						
17.70	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.as per technical clause 305 of MORT&H specifications	305	cum	2	49	14	65
	Note: In case the earth cutting is done by dozer and pushed for filling in the embankment, the input of dozer in the cost of embankment shall be deleted as the same is already provided in the cost of excavation. However, if the earth is dumped by tippers from roadway cutting, the input of dozer for spreading is required to be provided.						
	Turfing with Sods						
17.11	Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other locations shown on the drawing or as directed by the engineer including preparation of ground, fetching of sods and watering as per technical clause 308 of MORT&H specifications	307	sqm	13	5	8	25
	Seeding and Mulching						
17.12	Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of 0.23 litres per sqm and laying and fixing jute netting, including watering for 3 months all as per technical clause 308 of MORT&H specifications	308	sqm	18	10	69	97
	Granular Sub-Base with Close Graded Material - (Table:- 400-1) Plant mix method						
17.14	Construction of granular sub-base by providing Material as per Grading III (Table 400-I of MORT&H 5th revision) mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per technical clause 401 of MORT&H specifications	401					
17.14.1	Grading I material		cum	19	180	1716	1915
17.14.2	Grading II material		cum	19	180	1734	1933
17.14.3	Grading III material		cum	19	180	1752	1951
	Granular Sub-Base with Coarse Graded Material - Grading-I or II or III (Table:- 400-2)						
17.15	Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.of MORT&H specifications	401					
17.15.1	Grading I material		cum	14	71	1701	1786
17.15.2	Grading II material		cum	14	71	1708	1793
17.15.3	Grading III material		cum	14	71	1708	1793
	Note:- Any one of the grading for material may be adopted as per design						
17.16	**Lime Stabilisation for Improving Sub-grade**	402					
	Laying and spreading available soil in the sub-grade on a prepared surface, pulverising, mixing the spreading soil in place with rotavator with 3 per cent slaked lime having minimum content of 70 per cent of CaO with motor grader and compacting with the road roller at OMC to achieve a desired dry density to form a layer of improved sub grade as per technical clause 402 of MORT&T specifications.						

17.16.1	By Mechanical Means		cum	13	82	193	287
	Note:- Though vibratory roller is required only for 3 hours as per norms, but the same has to be available at site for 6 hours as other machines for spreading and mixing will take 6 hours. The usage rates of roller have been multiplied with a factor of 0.65.						
17.16.2	By Manual Means		cum	102	17	195	314
17.17	**Lime Treated Soil for Sub- Base**	402					
	Providing, laying and spreading soil on a prepared sub grade, pulverising, mixing the spread soil in place with rotavator with 3 per cent slaked lime with minimum content of 70 per cent of CaO, grading with motor grader and compacting with the road roller at OMC to achieve at least 98 per cent of the max dry density to form a layer of sub base as per technical clause 402 of MORT&H specifications		cum	17	111	193	320
17.18	**Cement Treated Soil Sub Base/ Base**	403					
	Providing, laying and spreading soil on a prepared sub grade, pulverising, adding the designed quantity of cement to the spread soil, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.as per technical clause 403 of MORT&H specifications		cum	17	111	407	534
17.19	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base**	403					
	Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base as per technical clause 403 of MORT&H specifications						
17.19.1	For Sub-Base course		cum	17	83	2129	2229
17.19.2	For Base course		cum	**17**	**83**	**2129**	**2229**
	Note:- Quantities of aggregates provided under 'c' above are uncompacted quantities.						
17.2	**Making 50 mm x 50 mm Furrows**	404.3.1					
	Making 50 mm x 50 mm furrows, 45 degree to the center line of the road and at one metre interval in the existing thin bituminous wearing coarse including sweeping and disposal of excavated material within 1000 metres lead as per technical clause 404 of MORT&H specifications						
17.20.1	25mm deep furrow cutting		sqm	4	0	0	4
17.20.2	50mm deep furrow cutting		sqm	8	0	0	8
	Inverted Choke						
17.21	Construction of inverted choke by providing, laying, spreading and compacting screening B type/ coarse sand of specified grade in uniform layer on a prepared surface with motor grader and compacting with power roller complete as per technical clause 404 of MORT&H specifications.	404.3.2	cum	16	39	1237	1293
	Water Bound Macadam Grading I with screening Type 'A'						
17.22.2	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with 3 wheeled steel/ vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.complete as per technical clause 404 of MORT&H specifications	0					
	Grading-I						
	Without screenings		cum	20	70	2035	2125
	using Screening Type-A (13.2 mm agggregates)		cum	20	70	1683	1773
17.23	Grading-II						
	without screenings		cum	20	70	1891	1981
17.23.1	**using Screening Type-A (13.2 mm agggregates)**		cum	20	70	1683	1773
	Wet Mix Macadam						

17.24	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.as per technical clause 406 of MORT&H specifications	406	cum	23	137	1770	1930
	Prime Coat @ 0.85kg per sqm						
17.25	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.85 kg/sqm using mechanical means as per technical clause 503 of MORT&H specifications	502	sqm	0	1	25	26
	Tack Coat @0.25 kg per sqm						
17.26	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.25 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom as per technical clause 503 of MORT&H specifications	503	sqm	0	1	7	9
17.26	**Tack Coat @0.40 kg per sqm**	503					
	Providing and applying tack coat with penetration grade bitumen VG - 10 using bitumen pressure distributor at the rate of 0.40 kg per sqm on the prepared bituminous/ granular surface cleaned with mechanical broom as per technical clause 503 of MORT&H specifications		sqm	0	1	15	16
17.26	**Tack Coat @ 1.0 kg per sqm (for WBM patches where surface dressing is not applied**	503.00					
	Providing and applying tack coat with penetration grade bitumen VG-10 pressure distributor at the rate of 1.0 kg per sqm on the prepared granular surface cleaned with mechanical broom as per technical clause 503 of MORT&H specifications		sqm	0	1	36	38
17.27	**Bituminous Macadam 80 to 100 mm thickness (grading I) with batch type hot mix plant 100-120 TPH**						
17.27.1	Providing and laying bituminous macadam 80-100 mm thick with Batch type hot mix plant 100-120 TPH using crushed aggregates of specified grading premixed with bituminous binder VG -30 @3.3% transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction complete as per technical clause 504 of MORT&H specifications	504					
	Grading I (40 mm nominal size)		cum	43	659	4602	5304
	Grading II (19 mm nominal size)		cum	43	659	4686	5388
	Note: -*1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65.						
	2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula.						
	3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor.						
	4. In case BM is laid over freshly laid tack coat, provision of Mechanical broom and 2 mazdoors for the same shall be deleted as the same has been included in the cost of tack coat.						
	Bituminous Penetration Macadam						
17.28	Construction of penetration macadam over prepared Base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with a smooth wheeled steel roller 8-10 tonne capacity to achieve the desired degree of compaction as per technical clause 505 of MORT&H specifications	505					
17.28.1	50 mm thick		sqm	1	7	288	296
17.28.2	75 mm thick		sqm	1	7	400	408
	Note:-2 tippers and 2 rollers will be needed to match the capacity of chip spreader and front end loader.						
	Built-up-Spray Grout						
17.29	Providing, laying and rolling of built-up-spray grout layer over prepared base consisting of a two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates. key stone chips spreader may be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a Base conforming to the line, grades and cross-section specified, the compacted layer thickness being 75 mm	506	sqm	1	11	262	274

	Note: - 2 tippers will be needed to match the capacity of hydraulic chip spreader and front end loader.						
17.30	**Dense Graded Bituminous Macadam with Batch Type HMP**	505					
17.30.1	**Dense Graded Bituminous Macadam 80 mm to 100 mm thickness (Grading I)**						
	Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction complete, as per technical clause No. 505 of MORT&H specifications		cum	46	598	5546	6190
17.30.2	**Dense Graded Bituminous Macadam 50 mm to 75 mm thickness (Grading II)**						
	Providing and laying dense graded bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5% by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction complete, as per technical clause No. 505 of MORT&H specifications		cum	46	598	5985	6629
17.31	**Bituminous Concrete with Batch type HMP**	509					
	Bituminous Concrete 50 mm to 65 mm thickness (grading I) with 100-120 TPH batch type HMP						
17.31.1	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder VG - 30 @ 5.2% per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction complete in all respects as per technical clause 507 of MORT&H specificationsas per MORTH specification		cum	47	700	6724	7470
17.31.2	**Bituminous Concrete 30 mm to 45 mm thickness (grading II) with 100-120 TPH batch type HMP**						
	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder VG - 30 @ 5.4% per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction complete as per technical clause 507 of per MORTH specifications		cum	47	700	6903	7649
17.32	**Surface Dressing**	510					
	Providing and laying surface dressing as wearing course in single coat using crushed stone aggregates of specified size on a layer of bituminous binder VG - 10 laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller complete as per technical clause 509 of MORT&H specifications						
17.32.1	19 mm nominal chipping size, with bitumen		sqm	1	4	65	70
17.32.2	19 mm nominal chipping size, with Bituminous emulsion		sqm	1	4	72	77
	Note:- 1.Where the proposed aggregate fails to pass the stripping test, an approved adhesion agent may be added to the binder as per clause 510.2.4. Alternatively, chips may be pre-coated as per clause 510.2.5						
	2.Input for the second coat, where required, will be the same as per the lst coat mentioned above						
17.33	**Open - Graded Premix Surfacing 20 mm thickness**	511					
17.33.1	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of crushed stone aggregates of specified grading premixed in a continuous type of hot mix plant of appropriate capacity not less not less than 75 tonne per hour, with bituminous binder VG - 10 @ 1.46 kg per sqm, laid with Paver Finisher Mechanical and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades complete as per technical clause 510 of MORT&H specifications.		sqm	1	14	88	104

17.33.2	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of crushed stone aggregates of specified grading premixed in a continuous type of hot mix plant of appropriate capacity not less not less than 75 tonne per hour, with bituminous binder VG - 30 @ 1.46 kg per sqm, laid with Paver Finisher Mechanical and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades complete as per technical clause 510 of MORT&H specifications.		sqm	1	14	91	106
17.34	**Close Graded Premix Surfacing/Mixed Seal Surfacing Surfacing 20 mm thickness**	512					
17.34.1	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness Type A composed of crushed stone aggregates of specified grading premixed in a continuous type of hot mix plant of appropriate capacity not less not less than 75 tonne per hour, with bituminous binder VG - 30 @ 2.2 kg per sqm, laid with Paver Finisher Mechanical and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades complete as per technical clause 508 of MORT&H specifications.		sqm	1	14	119	134
17.34.2	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness Type A composed of crushed stone aggregates of specified grading premixed in a continuous type of hot mix plant of appropriate capacity not less not less than 75 tonne per hour, with bituminous binder VG - 10 @ 2.2 kg per sqm, laid with Paver Finisher Mechanical and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades complete as per technical clause 508 of MORT&H specifications.		sqm	1	14	115	130
17.35	**Close Graded Premix Surfacing/Mixed Seal Surfacing Surfacing 20 mm thickness (Type B) with VG-30**	512					
17.35.1	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness Type B composed of crushed stone aggregates of specified grading premixed in a continuous type of hot mix plant of appropriate capacity not less not less than 75 tonne per hour, with bituminous binder VG - 30 @ 1.9 kg per sqm, laid with Paver Finisher Mechanical and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades complete as per technical clause 508 of MORT&H specifications.		sqm	1	14	108	123
17.35.2	Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness Type B composed of crushed stone aggregates of specified grading premixed in a continuous type of hot mix plant of appropriate capacity not less not less than 75 tonne per hour, with bituminous binder VG - 10 @ 1.9 kg per sqm, laid with Paver Finisher Mechanical and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades complete as per technical clause 508 of MORT&H specifications.		sqm	1	14	104	119
17.36	**Seal Coat**	513					
17.36.1	**Seal Coat Type A with VG -10**						
	Providing and laying seal coat Type A (liquid Seal Caot) sealing the voids in a bituminous surface using crushed stone aggregates and penetration grade bitumen VG-10 @ 0.98 kg/sqm laid to the specified levels, grade and cross fall complete as per technical clause 511 of MORT&H specifications.		sqm	0	3	49	53
17.36.2	**Seal Coat Type A with VG -30**						
	Providing and laying seal coat Type A (liquid Seal Caot) sealing the voids in a bituminous surface using crushed stone aggregates and penetration grade bitumen VG-30 @ 0.98 kg/sqm laid to the specified levels, grade and cross fall complete as per technical clause 511 of MORT&H specifications.		sqm	0	4	54	58
17.36.3	**Type B with VG - 10 bituminous binder**		sqm	0	3	33	36
	Providing and laying of premix sand seal coat premixed in continuous type HMP of appropriate capacity not less than 75 tonnes/ hours using specified fine aggregates and penetration grade bitumen @0.68 kg/sqm laid to specified leve;s, grade and cross fall complete as per technical clause 511 of MORT&H specifications.						
17.36.4	**Type B with VG - 30 bituminous binder**		sqm	0	3	34	38
	Providing and laying of premix sand seal coat premixed in continuous type HMP of appropriate capacity not less than 75 tonnes/ hours using specified fine aggregates and penetration grade bitumen @0.68 kg/sqm laid to specified leve;s, grade and cross fall complete as per technical clause 511 of MORT&H specifications.						
	Note:- Since seal coat is required to be provided over the premix carpet on the same day, out of the 6 working hours of the HMP, 4.00 hours are proposed to be utilised for the premix carpet and the balance 2.00 hours for the seal coat. Hence 2.00 hours have been considered for this case. This may be linked to rate analysis worked out under clause 511.						
	Mastic Asphalt						

17.37	Providing and laying 25 mm thick mastic asphalt wearing course with paving grade bitumen 85/25 or VG - 30/40 @ 10.2%, fine aggregates, course aggregates, lime filler @ 17.92% of total, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated finegrained hard stone chipping at an approximate spacing of 10 cm center to center in	515	sqm	133	190	295	618
	Note:- 1.The rates for 50 mm & 40 mm thick layers may be worked out on pro-rata basis.						
	2.Where tack coat is required to be provided before laying mastic asphalt, the same is required to be measured and paid separately.						
	3.The quantities of binder, filler and aggregates are for estimating purpose. Exact quantities shall be as per mix design.						
	4.This rate analysis is based on design made by CRRI for a specific case and is meant for estimating purposes only. Actual design is required to be done for each case.						
17.39	**Slurry Seal Type I (2-3 mm thickness)**	516					
17.39.1	Providing and laying slurry seal Type I 2-3 mm thickness consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion SS2 @ 10.50% and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface complete as per technical clause 512 of MORT&H specifications.		sqm	0	2	43	44
17.39	**Slurry Seal Type II (4-6 mm thickness)**						
17.39.2	Providing and laying slurry seal Type II 4-6 mm thickness consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion SS2 @ 10.50% and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface complete as per technical clause 512 of MORT&H specifications.		sqm	0	1	31	32
17.39.3	Providing and laying slurry seal Type II 6-8 mm thickness consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion SS2 @ 10.50% and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface complete as per technical clause 512 of MORT&H specifications.		sqm	0	2	56	58
	Fog Spray						
17.40	Providing and applying low viscosity bitumen emulsion SS-I @ 0.75 kg/sqm for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing complete as per technical clause 513 of MORT&H specifications	518	sqm	0	1	22	23
17.41	**Crack Prevention Courses**						
17.41.1	**Stress absorbing membrane (SAM) crack width less than 6 mm**	517	sqm	0	3	48	52
	Providing and laying of a stress absorbing membrane over a cracked road surface, after cleaning the road using modified binder CRMB-55 complying with clause 517, sprayed at the rate of 0.9 kg per sqm and spreading crushed stone aggregates of specified grading, spraying binder and spreading crushed stone aggregates, sweeping the surface for uniform spread of aggregates complete as per technical clause 517 of MORT&H specifications.						
17.41.2	**Stress absorbing membrane (SAM) with crack width 6 mm to 9 mm**		sqm	0	3	56	59
	Providing and laying of a stress absorbing membrane over a cracked road surface, after cleaning the road using modified binder CRMB-55 complying with clause 517, sprayed at the rate of 1.1 kg per sqm and spreading crushed stone aggregates of specified grading, spraying binder and spreading crushed stone aggregates, sweeping the surface for uniform spread of aggregates complete as per technical clause 517 of MORT&H specifications.						
17.41.3	**Stress absorbing membrane (SAM) crack width above 9 mm and cracked area above 50 per cent**		sqm	0	3	74	78
	Providing and laying of a stress absorbing membrane over a cracked road surface, after cleaning the road using modified binder CRMB-55 complying with clause 517, sprayed at the rate of 1.5 kg per sqm and spreading crushed stone aggregates of specified grading, spraying binder and spreading crushed stone aggregates, sweeping the surface for uniform spread of aggregates complete as per technical clause 517 of MORT&H specifications.						
	Note:- In case 2nd coat is also required to be provided, material provided for the 2nd coat shall be as per table 500-47.						
17.42	**Crack Prevention Courses (Bitumen impregnated geotextile)**						
	Providing and laying a bitumen impregnated geotextile layer after cleaning the road surface, laid over a tack coat of paving grade bitumen VG - 10 @1.05 kg per sqm complete as per technical clause 517 & 702 of MORT&H specifications.		sqm	2	2	88	92

	Note:- As bitumen overlay construction shall follow closely the fabric placement on the same day, an output of 3500 sqm only has been considered for the analysis which will cover a length of 500 m, of 7 m wide carriagway. This can be conveniently overlaid by a bitumenious course in a day						
17.37	**Laying of recycled Bituminous Pavement with Central Recycling Plant**	517					
	Laying of reclaimed material after adding fresh material including rejuvenators as required, mixing in a hot mix plant, transporting and laying at site and compacting to the required grade, level and thickness, all as specified in MORT&H clause 517.		cum	42	543	2096	2681
	CEMENT CONCRETE PAVEMENTS						
17.44	**Dry Lean Cement Concrete Sub- base**	601					
	Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing, as per clause 601 of MORT&H specifications		cum	26	103	2482	2612
	Note:- Quantity provided for aggregate is for estimating purpose. Exact quantity shall be as per mix design.						
17.45	**Cement Concrete Pavement**	602					
	Construction of un-reinforced M-40 grade concrete pavement with dowel jointed, over a prepared sub base with 43 grade OPC cement concrete coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a fully computerised batching and mixing plant as per approved mix design, transported to site in transit mixer with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing, complete as per clause 602 of MORT&H specifications		cum	174	357	5075	5606
17.46	**Rolled Cement Concrete Base**	603					
	Construction of rolled cement concrete base course with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm with minimum, aggregate cement ratio15:1 and minimum cement content of 200 kg/cum, aggregate gradation to be as per table 600-4 after blending, mixing in batching plant at optimum moisture content, transporting to site, laying with a paver with electronic sensor, compacting with 8-10 tonnes smooth wheeled vibratory roller to achieve, the designed flexural strength, finishing and curing as per technical clause 603 of MORT&H specifications		cum	28	104	2763	2895
	Notes: - The quantities for cement, coarse aggregate and fine aggregates are for estimating only .The exact quantities will be as per mix design.						
	MAINTENANCE OF ROADS						
17.49	**Restoration of Rain Cuts**	3002					
	Restoration of rain cuts with soil, moorum, gravel or a mixture of these, clearing the loose soil, benching for 300 mm width, laying fresh material in layers not exceeding 250 mm and compacting with plate compactor or power rammers to restore the original alignment, levels and slopes, as per clause 3002 of MORT&H specifications		cum	85	23	0	107
	Note: - Only 75 per cent of fresh material has been provided as 25 per cent can be retrieved at site from earth that is flown down the slope in the form of slurry and deposited at the foot of there in cuts						
17.50	**Maintenance of Earthen Shoulder (filling with fresh soil)**	3003					
	Making up loss of material/ irregularities on shoulder to the design level by adding fresh approved soil and compacting it with appropriate equipment as per technical clause 3003 of MORT&H specifications		cum	127	104	0	231
17.51	**Maintenance of Earth Shoulder (stripping excess soil)**	3003	cum	141	55	0	196
	Stripping excess soil from the shoulder surface to achieve the approved level and compacting with plate compactor, as per clause 3003 of MORT&H specifications						
	Note: - The earth stripped from earthen shoulders to be dumped on the side slopes locally for disposal.						
17.52	**Patch Work with close graded Premix Surfacing/Mixed seal Surfacing 20 mm thickness (Type B)**	3004.2					

	Providing and laying patch work with close graded premixed surfacing material of 20 mm thickness Type B using penetration grade Bitumen VG - 10 @ 1.9 kg per sqm and crushed aggregates of specified grading after trimming the pot holes, removal of failed material, including mixing in a continuous type of HMP, carriage of mixed material and rolling with a smooth wheeled roller to match the adjoining surface complete as per technical clause 508 of MORT&H specifications		sqm	1	17	95	114
17.56	**Filling Pot-holes and Patch Repairs with Bituminous concrete, 40mm.**	3004.2					
	Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2 of MORT&H specifications						
	Grading I - 19mm(Nominal size)		sqm	2	40	264	307
	Grading-II 13mm (Nominal size)		sqm	2	40	272	314
	Note: - For detailed working of quantities of aggregates, refer item 5.8 of chapter 5						
17.57	**Crack Filling**	3004.3.3					
	Filling of crack using slow - curing bitumen emulsion and applying crusher dust in case crack are wider than 3mm as per clause 3004.3.3 of MORT&H specifications		per metre	1	0	2	3
17.58	**Dusting**	3004.4					
	Applying crusher dust to areas of road where bleeding of excess bitumen has occurred as per clause 3004.4 of MORT&H specifications		sqm	0	0	3	3
17.59	**Repair of Joint Grooves with Epoxy Mortar**	3005.1					
	Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete as per clause 3005. of MORT&H specifications		per metre	42	1	487	530
17.60	**Repair of old Joints Sealant**	3005.20					
	Removal of existing sealant and re sealing of contraction, longitudinal or expansion joints in concrete pavement with fresh sealant material, as per technical clause 3005 of MORT&H specifications		per metre	22	1	22	45
17.61	**Hill Side Drain Clearance**	3000					
	Removal of earth from the choked hill side drain and disposing it on the valley side manually, as per tchnical clause 3000 of MORT&H specifications		per metre	44	0	0	44
17.62	**Land Slide Clearance in soil**	3000					
	Clearance of land slides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side, as per technical clause 3000 of MORT&H specifications		cum	4	28	0	33
	Note: - Land Slide clearance involves pushing of loose earth slided on the road surface from hill face on the valley side. Since no cutting of original ground is involved, the output of dozer has been taken as 60 cum per hour for soil, ordinary rock and blasted hard rock. However, if there are objection to disposing of earth on valley side, additional resources for its disposal shall be considered as per site conditions.						
	PIPE CULVERTS						
17.63	**Laying 600 mm dia Reinforced Cement Concrete Pipe NP3 / NP-4P /prestressed Concrete Pipe on First Class Bedding in Single Row**	2900					
17.63.1	Laying Reinforced cement concrete pipe NP3 /NP-4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets 1000 mm dia, as per clause 2900 of MORT&H specifications		metre	97	0	2899	2997
17.63	**Laying 600 mm dia Reinforced Cement Concrete Pipe NP3 / NP-4P /prestressed Concrete Pipe on First Class Bedding in Double Row**	2900					
17.63.2	Laying Reinforced cement concrete pipe NP3 /NP-4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets 1000 mm dia, as per clause 2900 of MORT&H specifications		metre	183	0	5876	6059
17.64	**Laying 1000 mm dia Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row**	2900					

	Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets 1000 mm dia, as per clause 2900 of MORT&H specifications		metre	157	0	6082	6239
17.64	**Laying 1200 mm Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Single Row .**						
	Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets 1200 mm dia, as per clause 2900 of MORT&h specifications		metre	246	0	7270	7516
17.65	**Laying 1000 mm dia Reinforced Cement Concrete Pipe NP3/ Prestressed Concrete Pipe on First Class Bedding in Single Row .**	2900					
	Laying Reinforced cement concrete pipe NP3/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets 1000 mm dia as per clause 2900 of MORT&H specifications		metre	157	0	6082	6239
17.65	**Laying 1200 mm dia Reinforced Cement Concrete Pipe NP3/ Prestressed Concrete Pipe on First Class Bedding in Single Row .**						
	Laying Reinforced cement concrete pipe NP3/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets 1200 mm dia, as per clause 2900 of MORT&H specifications		metre	246	0	7270	7516
17.66	**Laying 1000 mm dia Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**	2900					
	Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per clause 2900 of MORT&H specifications		metre	314	0	12453	12767
17.66	**Laying 1200 mm dia Reinforced Cement Concrete Pipe NP4 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**						
	Laying Reinforced cement concrete pipe NP4 / prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapet as per clause 2900 of MORT&H specifications		metre	492	0	14850	15342
17.67	**Laying 1000 mm dia Reinforced Cement Concrete Pipe NP3 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**	2900					
17.67.1	Laying Reinforced cement concrete pipe NP3/ prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per clause 2900 of MORT&H specifications		metre	314	0	12453	12767
17.67	**Laying 1200 mm dia Reinforced Cement Concrete Pipe NP3 / Prestressed Concrete Pipe on First Class Bedding in Double Row .**						
17.67.2	Laying Reinforced cement concrete pipe NP3/ prestressed concrete pipe for culverts on first class bedding of granular material in double row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets as per clause 2900 of MORT&H specifications		metre	492	0	14850	15342
	Notes: For item no. 17.63 to 17.67						
	1. In case of cement craddle bedding, quantity of PCC M15 is to be calculated as per design and priced separately and added .						
	2. The rate analysis does not include excavation, cement /masonry works in head walls, backfilling, protection works and parapet walls. The same are to be calculated as per approved design and drawings and priced separately on rates available under respective sections						
17.68	Relaying C.C. Block M-30 Size 450x300x150m minimum cement 360 Kg. Per Cum.		cum	0	0	80	80
17.69	Analysis of Rate for Pdg. & laying of 100 mm thick Interlocking Paver Block M-40		cum	110	0	6394	6504
17.70	Analysis of Rate for Pdg. & laying of 80 mm thick Interlocking Paver Block M-40		cum	110	0	7132	7242

17.71	Dismantling CC Block		cum	169	52	0	221
17.72	Dismantling of IPB by manual means and disposal of dismantled material with all lifts and upto a lead of 1000 m as per technical specification clause 202.3		cum	437	0	4498	4935
17.73	**Rectangular Concrete Block Pavement (Relaying)**	1500					
17.73.1	Relaying of cement concrete blocks of size 0.450 m x 0.300 m x 0.15 m of cement concrete (C.C) M30 grade and spreading 25 mm thick sand under neath filling joints with sand on existing W.B.M. base as per technical specification clause 1503		sqm	495	199	687	1381
17.74	**Interlocking Concrete Block Pavement**	1500					
17.74.1	Providing and Laying of Interlocking Concrete Block Pavement having thickness 80 mm as per drawings and Technical Specification Clause 1504		sqm	49	1	700	751
17.74.2	Providing and Laying of Interlocking Concrete Block Pavement having thickness 60 mm as per drawings and Technical Specification Clause 1504		sqm	43	1	692	737
17.75	**Interlocking Concrete Block Pavement (Relaying)**	1500					
17.75.1	Providing and Laying of Interlocking Concrete Block Pavement having thickness 80 mm as per drawings and Technical Specification Clause 1504		sqm	49	1	670	720

CHAPTER NO. 18

MISCELLANEOUS (Buildings)

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	CHAPTER 18.0 - MISCELLANEOUS (BUILDINGS)						
	BRICK MASONRY						
18.1	Brick work with common burnt clay bricks of class designation 7.5 in mud mortar		cum	775	0	3936	4712
	STONE MASONRY						
18.2	Extra for stone work (veneer work) curved on plan with a mean radius not exceeding 6 m.		cum	685	0	0	685
18.3	Providing and fixing stone dowels 10x5x2.50 cm cut to double wedge shape as per design in cement mortar 1:2 (1 cement : 2 coarse sand), including making the necessary chases.		each	5	0	12	17
	ROOFING						
18.4	Providing, erecting, laying and fixing in position in 3.5 to 4 mm thick bamboo mat corrugated sheet (BMCS) as per IS: 15476-2004 in roofing with self drilling screws along with EPDM washers complete or with galvanized iron J or L hooks 8mm dia G.I. plain and bitumen washers etc, all complete as per direction of Engineer-in-Charge.		sqm	24	0	4319	4343
18.5	Providing and fixing in position ridges of 3.5 to 4 mm thick bamboo mat ridge cap (BMRC) as per IS: 15476-2004 in roofing with self drilling screws along with EPDM washers complete or with galvanized iron J or L hooks 8mm dia G.I. plain and bitumen washers etc, all complete as per direction of Engineer-in-Charge.		metre	16	0	3499	3515
18.6	Providing and fixing at all height false ceiling of 4mm thick phenol bonded Bamboo Mat board (595x595mm) conforming to IS:13958-1994 including providing and fixing of frame work made of GI angle 25x25x0.4 mm thick all around suitably fixed to wall with the help of dash fastener and hanger frame (600x600 c/c) made GI slotted Tee having powder coating on bottom side (30x25x0.3 mm thick for main member & 25x25x0.3 mm for cross member) connected to ceiling with 2.64mm GI wire and anchor fastener at every junction and also including cost of making openings for light fittings, grills, diffusers, cut outs made with frame of perimeter channels suitably fixed all complete as per direction of Engineer-in-charge.		sqm	161	0	2425	2586
	FLOORING & DADOS						
18.7	Providing & fixing in position Phenol bonded Bamboowood flooring with planks of sizes 14mm thick, 1800mm length (minimum) and 130 mm wide(minimum), in approved colour, texture and finish, having Performance Appraisal Certificate (PAC) issued by Building Materials & Technology Promotion Council (BMTPC). The flooring shall be fixed with tongue and groove interlocking system, with underlayment of 4mm thick expanded polyethylene foam sheets having density 40kg/cum, over prepared surface with necessary quarter round planks of size 1900mm x 18mm and door reducer of size 1900mm x 44mm, wherever required. The bamboowood planks shall have minimum density of 1000 kg/cum & minimum Hardness 1000 kgf. with Eco friendly UV coating, all complete as per direction of the Engineer in-charge.		sqm	20	0	4459	4479
18.8	Providing & fixing in position Phenol bonded Bamboo wood in wall skirting with planks of sizes 14mm thick, 1900mm length (minimum) and 85mm wide(minimum), in approved colour, texture and finish, having Performance Appraisal Certificate (PAC) issued by Building Materials & Technology Promotion Council (BMTPC). The skirting shall be fixed with SS screws & rawl plugs, over underlayment of 4mm thick, expanded polyethylene foam sheets having 40kg/cum density over prepared surface. The bamboowood planks shall have minimum density of 1000kg/cum & minimum Hardness 1000 kgf. with Eco friendly UV coating, all complete as per direction of the Engineer in-charge.		sqm	65	0	4254	4319
	WOOD WORK						
18.9	Providing beams including hoisting, fixing in position and applying wood preservative for the unexposed surfaces, etc. complete						
	18.9.1	Sal wood	cum	4705	0	70081	74786
	18.9.2	Hollock wood	cum	4705	0	40956	45661
18.10	Providing and fixing panelling or paneling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (area of opening for panel inserts excluding portion inside grooves or rebated to be measured). Panelling for panelled and glazed shutters 25mm to 40mm thick: Pre-laminated with decorative lamination on both side exterior Grade - I MDF Board 12 mm thick confirming to IS:14587		sqm	376	0	638	1014
18.11	Providing and fixing Pre -laminated medium density fibre board exterior grade (Grade-I) IS:14587:1998 marked, to frame, backing or studding with screws etc. complete (Frames, backing or studding to be paid separately).						
	18.11.1	Pre-laminated with decorative lamination on both side exterior Grade - I MDF Board 12 mm thick confirming to IS:14587	sqm	82	0	556	638
	18.11.2	Pre-laminated with decorative lamination on both side exterior Grade - I MDF Board 18 mm thick confirming to IS:14587	sqm	82	0	721	802
18.12	Providing and fixing Pre-laminated medium density fibre board IS: 14587:1998 marked, with one side decorative lamination other side balancing lamination Grade-I(exterior grade) in shelves with screws and fittings wherever required, edges to be sealed with PVC edge bending tape 2.00 mm thick of approved brand (fittings to be paid separately).						
	18.12.1	Pre-laminated with decorative lamination one side and other side balancing lamination exterior Grade - I MDF Board 18 mm thick confirming to IS:14587	sqm	105	0	794	898
	18.12.2	Pre-laminated with decorative lamination one side and other side balancing lamination exterior Grade - I MDF Board 25 mm thick confirming to IS:14587	sqm	105	0	1147	1252
18.13	Providing and fixing in wall lining medium density fibre board IS: 14587:1998 marked, Pre-laminated one side decorative lamination and other side balancing lamination, with necessary fixing arrangement and screws etc. complete.						
	18.13.1	12 mm thick.	sqm	239	0	543	782
	18.13.2	18 mm thick.	sqm	239	0	713	952
	18.13.3	25 mm thick.	sqm	185	0	1083	1268
18.14	Providing and fixing 25mm thick pre-laminated medium density fibre board exterior grade (Grade-I) IS:14587:1998 marked with one side decorative and other side balancing lamination for cupboard shutters edges to be sealed with PVC edge bending tape 2.00 mm thick of approved brand including ISI marked nickel plated bright finishing M.S. piano hinges conforming to IS:3818 marked with necessary screw etc all complete.		sqm	154	0	1170	1325
18.15	Providing and fixing skirting with Pre-laminated medium density fibre board exterior grade (Grade-I) conforming to IS: 14587:1998 marked, with (one side decorative and other side balancing lamination and edges to be sealed with PVC edge bending tape 2.00 mm thick of approved brand with necessary fixing arrangements and screws, including drilling necessary holes for rawl plugs etc. all complete.						
	18.15.1	18 mm thick.	sqm	89	0	1327	1415
	18.15.2	25 mm thick.	sqm	89	0	1697	1786
	DOORS & WINDOWS						
18.16	Providing & fixing in position Phenol bonded Bamboowood panelled or panelled and glazed shutters for doors windows, clerestorey windows with pre-molded 30mm thick planks, in approved colours, texture & finishe. It shall have 10mm wide, 25mm deep grove to fit in panels.The bamboo wood shall have minimum density of 1000 kg/cum, minimum Hardness 1000 kgf. All styles and rails shall have profiled interlocking system locked in place by bamboo pins, all complete as per direction of Engineer in charge. (The panelling will be paid for separately).		sqm	96	0	4433	4529
18.17	Providing & fixing in position Phenol bonded Bamboo wood panelling of 10mm thick, in 25 to 40 mm thick panelled or panelled & glazed shutters for doors, windows, clerestorey windows, in approved colour, texture & finish. The bamboowood planks shall have minimum density of 1000 kg/cum & minimum Hardness 1000 kgf. The panels shall have profiled interlocking system locked in place with bamboo pins all complete as per direction of the Engineer in-charge. (area of opening for panel inserts excluding portion inside grooves or rebates to be measured)		sqm	358	0	2325	2684
18.18	Providing & fixing in position 65 mm thick factory made door frame of Phenol bonded Bamboo wood (superior class, interior use), in approved colour, texture and finish.The bamboo wood shall have minimum density of 1000 kg/cum, minimum hardness 1000 kgf. The door frame shall have tenon & mortise interlocking system, to be fixed to the wall with 100 mm size G.I screws all a complete as per direction of Engineer-in charge.		cudm	10	0	197	207
18.19	Providing and fixing concealed hinge of approved quality for 19-20mm thick door with stainless steel screws complete :		each	8	0	73	80
	PARTITIONS						
18.20	Providing and laying Gypsum panel partitions 100 mm thick with water proof Gypsum panels of size 666x500x100 mm, made of calcite phosphor Gypsum fixed with tongue and groove, jointed with bonding plaster as per manufacturer's specifications in superstructure above plinth level up to floor IV level. Gypsum blocks will have a minimum compressive strength of 9.3 kg/cm2		sqm	67	0	621	688

18.21	Extra for Gypsum panel Partitions in superstructure above floor IV level for every three floors or part thereof.		sqm	35	0	0	35
18.22	Providing and fixing at Bamboo Mat board conforming to IS:13958-1994 for partition to frame by bucking or studding with screws etc. complete (Frames, backing or studding to be paid separately)						
	18.22.1	3mm thickness	sqm	82	0	1849	1930
	18.22.2	4mm thickness	sqm	82	0	2143	2225
	18.22.3	6mm thickness	sqm	82	0	2594	2675
	18.22.4	9mm thickness	sqm	82	0	3338	3420
	18.22.5	12mm thickness	sqm	82	0	3869	3951
18.23	Providing and fixing at all height wall panelling with phenol bonded Bamboo Mat board conforming to IS:13958-1994 including providing and fixing to frame work made of 50mm x 50mm hardwood plugs including cutting brick work and fixing in cement mortar and making good the wall etc. and also providing and fixing wooden moulded corner beading of triangular shape to the junction of panelling etc. with iron screws all complete as per direction of Engineer-in-Charge.						
	18.23.1	9mm thickness	sqm	61	0	3649	3711
	18.23.2	12mm thickness	sqm	61	0	4181	4242
	CLADDING						
18.24	Providing & fixing in position Phenol bonded Bamboowood wall cladding at all height with planks of sizes 10mm thick, 1800mm length (minimum) and 130 mm wide (minimum), in approved colour, texture and finish, having Performance Appraisal Certificate (PAC) issued by Building Materials & Technology Promotion Council (BMTPC), with necesasary profiled edges fixed with 40mm SS screws 5 Nos. in each tile to frame work made of second class teak wood of size 20x15 mm in centre of each tile and bottom and top of work height, 40x15mm placed at ends of each tile. The cladding shall be laid over backlayment of 1.00 mm thick expanded polyethylene foam of density 40kg/cum in two layers, first layer on wall surface before fixing wooden frame and second layer on frame under cladding. The bamboowood planks shall have minimum density of 1000 kg/cum & minimum Hardness 1000 kgf. with Eco friendly UV coating, all complete as per direction of the Engineer in-charge.		sqm	56	0	4624	4679
	uPVC PROFILED PRODUCTS						
18.25	Providing and fixing factory made solid Foam uPVC profile for kitchen cabinet frame (45 x 20 mm) of approved shade, quality and make. The profile shall be laminated on both sides, made from rigid foam sheets (Single extruded) having density 600 kg/cum and the exposed edges sealed with PVC edge beading of same shade and colour. The frame shall be fire retardent with necessary screw holding capacity. Frame shall be fixed to wall using Expendable Fastner with necesary stainless steel screws, all complete as per direction of Engineer-in-charge.		metre	30	0	252	282
18.26	Providing and fixing factory made Kitchen Cabinet Shutter/Partition 20 mm nominal thickness of approved shade, quality and make, made from rigid foam sheets (Single extruded) having density 600 kg/cum and laminated on both side by laminate Sheet/PVC foil lamination. The exposed edges shall be sealed with PVC edge beading of same shade and colour. The shutter shall be fire retardent having necessary screw holding capacity. Shutter shall be fixed to frame using approved hinges with necessary stainless steel screws, all complete as per direction of Engineer-in-charge.		sqm	451	0	2712	3163
	PE-AL-PE COMPOSITE PRESSURE PIPE						
18.27	Providing and fixing Polyethelene-Aluminium-Polyethelene PE-AL-PE Composite Pressure Pipes conforming to IS - 15450, U.V. stabilized with carbon black having thermal stability for hot & cold water supply, capable to withstand temperature up to 80°C, including all special fittings of composite material (engineering plastic blend and brass inserts wherever required) e.g. elbows, tees, reducers, couplers & connectors etc., with clamps at 1.00 metre spacing. This includes testing of joints complete as per direction of the Engineer-in-charge.						
	INTERNAL WORK - EXPOSED ON WALL						
	18.27.1	1216 (16 mm OD) pipe	metre	62	0	92	154
	18.27.2	1620 (20 mm OD) pipe	metre	61	0	116	177
	18.27.3	2025 (25 mm OD) pipe	metre	68	0	164	231
	18.27.4	2532 (32 mm OD) pipe	metre	74	0	233	308
	18.27.5	3240 (40 mm OD) pipe	metre	95	0	349	444
	18.27.6	4050 (50 mm OD) pipe	metre	95	0	490	585
18.28	Providing and fixing Polyethelene-Aluminium- Polyethelene PE-AL-PE Composite Pressure Pipes conforming to IS - 15450, U.V. stabilized with carbon black having thermal stability for hot & cold water supply, capable to withstand temperature up to 80°C, including all special fittings of composite material (engineering plastic blend and brass inserts wherever required) e.g. elbows, tees, reducers, couplers & connectors etc., with clamps at 1.00 metre spacing. This includes the costs of cutting chases and including testing of joints complete as per direction of the engineer in charge.						
	Concealed work, including cutting chases and making good the wall etc.						
	18.28.1	1216 (16 mm OD) pipe	metre	104	0	135	239
	18.28.2	1620 (20 mm OD) pipe	metre	104	0	167	271
	18.28.3	2025 (25 mm OD) pipe	metre	104	0	231	335
	18.28.4	2532 (32 mm OD) pipe	metre	104	0	325	429
18.29	Providing and fixing Polyethelene-Aluminium- Polyethelene PE-AL-PE Composite Pressure Pipes conforming to IS - 15450, U.V. stabilized with carbon black having thermal stability for hot & cold water supply, capable to withstand temperature up to 80°C, including all special fittings of composite material (engineering plastic blend and brass inserts wherever required) e.g. elbows, tees, reducers, couplers & connectors etc., with trenching, refilling and testing of joints complete as per direction of the engineer in charge.						
	External work						
	18.29.1	1216 (16 mm OD) pipe	metre	34	0	92	126
	18.29.2	1620 (20 mm OD) pipe	metre	34	0	116	149
	18.29.3	2025 (25 mm OD) pipe	metre	34	0	163	197
	18.29.4	2532 (32 mm OD) pipe	metre	34	0	233	267
	18.29.5	3240 (40 mm OD) pipe	metre	41	0	349	389
	18.29.6	4050 (50 mm OD) pipe	metre	41	0	490	530
	PP-R PIPES						
18.30	Providing and fixing 3 layer PP-R (Poly propylene Random copolymer) pipes confirming to IS 15801, UV stabilized & anti - microbial fusion welded, having thermal stability for hot & cold water supply, including all PP - R plain & brass threaded polypropylene random fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes testing of joints complete as per direction of Engineer-in-Charge.						
	Internal Exposed on walls						
	18.30.1	PN - 16 Pipe, 20mm OD (SDR-7.4)	metre	61	0	64	125
	18.30.2	PN - 16 Pipe, 25mm OD (SDR-7.4)	metre	68	0	100	167
	18.30.3	PN - 16 Pipe, 32mm OD (SDR-7.4)	metre	68	0	147	215
	18.30.4	PN - 16 Pipe, 40mm OD (SDR-7.4)	metre	95	0	212	306
	18.30.5	PN - 10 Pipe, 50mm OD (SDR-11)	metre	95	0	331	426
18.31	Providing and fixing 3 layer PP-R (Poly propylene Random copolymer) pipes confirming to IS:15801, UV stabilized & anti - microbial fusion welded, having thermal stability for hot & cold water supply, including all PP - R plain & brass threaded polypropylene random fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge.						
	Concealed work,including cutting chases and making good the wall etc.						
	18.31.1	PN - 16 Pipe, 20mm OD (SDR-7.4)	metre	104	0	97	201
	18.31.2	PN - 16 Pipe, 25mm OD (SDR-7.4)	metre	104	0	145	249
	18.31.3	PN - 16 Pipe, 32mm OD (SDR-7.4)	metre	104	0	194	299

18.32	Providing and fixing 3 layer PP-R (Poly propylene Random copolymer) pipes confirming to IS:15801 UV stabilized & anti - microbial fusion welded, having thermal stability for hot & cold water supply, including all PP - R plain & brass threaded polypropylene random fittings, including trenching, refilling & testing of joints complete as per direction of Engineer-in-Charge.							
	External work							
	18.32.1	PN - 16 Pipe, 20mm OD (SDR-7.4)		metre	47	0	59	106
	18.32.2	PN - 16 Pipe, 25 mm OD (SDR-7.4)		metre	51	0	92	143
	18.32.3	PN - 16 Pipe, 32 mm OD (SDR-7.4)		metre	51	0	147	197
	18.32.4	PN - 16 Pipe, 40 mm OD (SDR-7.4)		metre	54	0	221	275
	18.32.5	PN - 10 Pipe, 50 mm OD (SDR-11)		metre	54	0	345	399
	18.32.6	PN - 10 Pipe, 63 mm OD (SDR-11)		metre	65	0	386	451
	18.32.7	PN - 10 Pipe, 75 mm OD (SDR-11)		metre	65	0	573	637
	18.32.8	PN - 10 Pipe, 90 mm OD (SDR-11)		metre	85	0	819	904
18.33	Providing and fixing PPR Unions							
	18.33.1	PPR Union 20mm		each	70	0	56	126
	18.33.2	PPR Union 25mm		each	70	0	112	182
	18.33.3	PPR Union 32mm		each	70	0	158	228
	18.33.4	PPR Union 40mm		each	70	0	212	282
	18.33.5	PPR Union 50mm		each	70	0	404	474
	18.33.6	PPR Union 63mm		each	70	0	553	623
	18.33.7	PPR Union 75mm		each	70	0	1067	1136
	WATER PROOFING							
18.34	Water proofing treatment of Vertical joints (of external side and internal side) between door frame, window & ventilator frames (on all four sides) of outer wall over the Zycosil/equivalent & Zycoprime/equivalent solution already applied (before the installation of door / window / ventilator frames in position) and fine finish with Grout RW/equivalent.			sqm	16	0	8	24
18.35	Water proofing treatment of RCC sunshade with Zycosil/equivalent water proofing Solution (1 litre of Zycosil/equivalent & 20 litres of water stirred first & 2 litres of Zycoprime/equivalent added and stirred (total 23 litres)) till it meets the saturation level and testing as per RILEM or by water drops test in which water drops do not absorb but drops remain or rolls.			sqm	27	0	64	90
18.36	In-filling / sealing of joint between RCC lintel cum sunshade and wall (on external side) in all floors by pushing in Grout RW/equivalent in paste form and coving 20 mm x 20 mm after applying a coat of Zycosil/equivalent & zycoprime/equivalent solution before cement plastering of top, bottom and sides of RCC sunshade.			sqm	16	0	8	24
	OTHER USEFUL BUILDING CONSTRUCTION ITEMS							
18.37	Supplying and installation of moisture resistant/fire resistant 6 mm thick Heavy duty fiber cement board (High pressure steam cured) conforming to IS 14862:2000 of category III type B as per standard sizes fixed with self-drilling / taping screws. Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm.			sqm	122	0	690	811
18.38	Providing and fixing Scaffolding net of required width made of high density Polyethylene UV stabilized knitted on warp knitting machines having density 100grams/sqm and shading coefficient minimum 75% around the construction site/ for vertical extension as per requirement including fastening/tying with building/scaffolding pipes or with any other fixtures etc. complete as per direction of Engineer-in-Charge. (One time payment shall be made for providing Scaffolding net from start of work till completion of work including shifting if any. The Scaffolding net shall be the property of the contractor on completion of the work)			sqm	1	0	18	19
18.39	Providing and fixing in all exterior face panels breathable vapour barrier underneath the cement fiber board as per National Building Code 2009 complete as per direction of Engineer-in-charge.			sqm	13	0	220	233
18.40	Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canals etc. Geocomposite for planar drainage, realized by thermobonding a draining core in extruded monofilaments with two filtering nonwoven geotextiles that may also be working as separation or protecting layers. The draining three dimensional core will have a “W” configuration as longitudinal parallel channels. Minimum thickness to be 7.2mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75mm charecteristic opening size (O90) of 110 micron and tensile strength of 8.0 kN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.1 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure and tensile strength of 18 kN/m , with mass per unit area of 740 gsm, supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge.			sqm	9	0	666	674
18.41	Supplying & laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canals etc. having thermobonding a draining core - HDPE geonet comprises of two sets of parallel overlayed ribs integrally connected to have a rhomboidal shape with a polyethylene film and a nonwoven geotextile having mass per unit area 130 gsm and tensile strength of 8.0 kN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 0.7 L / (m.s) at hydraulic gradient of 1.0 & 20 kPa pressure and tensile strength of 13.5 kN/m , with mass per unit area of 830 gsm, at easily accessible location including top and bottom, with all leads and lifts, manpower and machinery, materials, labour etc. complete and as directed by Engineer - In - Charge.			sqm	800	0	0	800
18.42	Mud mortar made with local clay good earth.			cum	199	0	203	402
	SECURITY GUARDS							
18.43	Providing round the clock security guard without gun for watch & ward of Government premises and its all belongings by deploying neatly dressed security guards in 8 hour's shift including necessary T&P like torch, lathi and uniform etc.complete,as per the direction of Engineer-in-charge. (One job means 8 hour's duty).			per day	506	0	0	506
18.44	Providing round the clock security guard with gun for watch & ward of Government premises and its all belongings by deploying neatly dressed security guards in 8 hour's shift including necessary T&P like torch, lathi and uniform etc.complete, as per the direction of Engineer-in-charge.(One job means 8 hour's duty).			per day	531	0	0	531
18.45	Cutting Girders with Hack-saw.							
	18.45.1	Upto 300 mm depth.		per cut	180	0	0	180
	18.45.2	Above 300mm to 450mm depth.		per cut	210	0	0	210
18.46	Drilling holes in girders.			each	20	0	0	20
18.47	Cutting/Fixing of copper sheets							
	18.47.1	Cutting of copper sheets 15mm, thick flashing.		metre	68	0	0	68
	18.47.2	Fixing copper flashing into position.		metre	27	0	0	27
18.48	Assembling 40 mm. pressure pipes.			metre	15	0	0	15
18.49	Boring and fixing 40 mm pressure pipes.			metre	75	0	0	75
18.50	Boring for hand-pump in clay fitting strainer and pipe.							
	18.50.1	Upto 75mm dia bore.						
		18.50.1.1	From 0 to 15 m.	metre	90	0	0	90
		18.50.1.2	Exceeding 15 m but upto 30 m.	metre	228	0	0	228
		18.50.1.3	Exceeding 30 m.	metre	338	0	0	338
	18.50.2	Above 75mm dia bore but not exceeding 100mm.						
		18.50.2.1	From 0 to 15 m.	metre	120	0	0	120
		18.50.2.2	Exceeding 15 m but upto 30 m.	metre	283	0	0	283
		18.50.2.3	Exceeding 30 m.	metre	338	0	0	338
18.51	Boring hand-pump in soil with admixture of shingle.							
	18.51.1	Upto 75mm dia bore.						

		18.51.1.1	From 0 to 15 m.	metre	159	0	0	159
		18.51.1.2	Exceeding 15 m but upto 30 m.	metre	283	0	0	283
		18.51.1.3	Exceeding 30 m.	metre	338	0	0	338
	18.51.2	Above 75mm dia bore but not exceeding 100mm.						
		18.51.2.1	From 0 to 15 m.	metre	179	0	0	179
		18.51.2.2	Exceeding 15 m but upto 30 m.	metre	338	0	0	338
		18.51.2.3	Exceeding 30 m.	metre	397	0	0	397
18.52	Hand pumps							
	18.52.1	Pulling out pipe and filters.		metre	28	0	0	28
	18.52.2	Lowering pipe in the hole up to 40mm dia.		metre	28	0	0	28
	18.52.3	fixing head including clamps and handle.		each	138	0	0	138
18.53	Fixing F.I gauges flush with masonry including cost of hooks.			metre	111	0	0	111
18.54	Fixing handles to iron rammers including cost of handles.			each	50	0	0	50
18.55	Cutting down trees, filling holes and levelling of ground, lopping branches trimming, removal not exceeding 100 m stacking clearing site.							
	18.55.1	girth up to 60 cm		each	170	0	0	170
	18.55.2	girth more than 60 cm. but up to 120 cm.		each	303	0	0	303
	18.55.3	girth more than 120 cm. but up to 180 cm.		each	605	0	0	605
	18.55.4	girth more than 180 cm. but up to 250 cm.		each	1010	0	0	1010
	Notes :-							
	(i) The girth is to be measured 1.25 m above ground level.							
	(ii) When stumps are grubbed up in addition, take rates as double the above rates for trees cut and grubbed. payment for grubbing will only be made when specially ordered by the Sub- Divisional officer in cases where it is essential to remove the stumps.							
	(iii) Trees requiring to be cut will normally be sold as they stand, the purchase price including the purchasers liability to cut or grub and remove the tree from Govt. Land.							
	(iv) Where these have not been sold, the trees cut and removed will be the property of the Govt.							
18.56	Felling trees, cutting and stacking fuel wood from plantation.			quintal	70	0	0	70
18.57	Splitting fuel wood.			quintal	100	0	0	100
18.58	Supply of wooden pegs for levelling work from canal or road plantation 40 mm to 50mm dia and 15cm to 23 cm long.			100 nos	170	0	0	170
18.59	Supply of wooden pegs for alignment work, 40 cm long 75mm dia from canal or road plantation.			100 nos	675	0	0	675
18.60	Supply of bamboo jhandies 3 m to 3.5 m including iron shoes and flags 40 cm Square painted black and white.			each	170	0	0	170
18.61	Fixing glass pieces on top of walls.			metre	44	0	0	44
18.62	Water allowance.							
	18.62.1	for concrete, brick masonry in lime or cement mortar						
		18.62.1.1	Where lead involved is 800m to 1.6 km	cum	24	0	0	24
		18.62.1.2	Where lead involved is above 1.6Km to 2.4 Km	cum	48	0	0	48
	18.62.2	For plastering in lime or cement mortar, pointing, flooring :-						
		18.62.2.1	Where lead involved is 800 m to 1.6Km	sqm	4	0	0	4
		18.62.2.2	Where lead involved is above 1.6Km to 2.4 Km	sqm	7	0	0	7
18.63	Digging pits and fixing distance marks or boundary stones.			each	50	0	0	50
18.64	Supplying manure or compost, including carriage of 100 m.			cum	430	0	0	430
18.65	Ploughing two times.			hectare	3000	0	0	3000
18.66	Filling 200 litres drums with diesel oil (not payable to diesel dealer)			each	14	0	0	14
18.67	Jungle clearance.			hectare	1076 to 5283	0	0	1076 to 5283
	Notes for Item No.18.65 to 18.67							
	(i) The rates are applicable to areas acquired for new canals, and drains, extension of channels and for construction of							
	(ii) The rate is to be decided by the Executive Engineer according to density of jungle to be cleared.							
18.68	Ordinary jungle clearance of both banks of running distributaries, minors and drains with discharge upto 9cum/s including boundary road :-							
	18.68.1	Discharge upto 1.5 cum/s		km	1398 to 2151	0	0	1398 to 2151
	18.68.2	Discharge exceeding 1.5 cum/s but upto 4.5 cum/s		km	2151 to 2796	0	0	2151 to 2796
	18.68.3	Discharge exceeding 4.5 cum/s.		km	2796 to 3549	0	0	2796 to 3549
18.69	Jungle clearance on running canals and branches, and drains with discharge more than 9 cum/s.							
	18.69.1	Light		km	8606	0	0	8606
	18.69.2	Medium		km	10752	0	0	10752
	18.69.3	Heavy		km	21504	0	0	21504
18.70	Filling loose cement bags in empty cement bags weighing, sewing and stacking with in 30m.			per bag	9	0	0	9
18.71	Filling cement bags with steam coal or kankar lime, sewing including cost of string.			cum	98	0	0	98
18.72	Stencilling and bundling empty cement bags.			100 nos	41	0	0	41
18.73	Tempering of Kassies, Belchas, Khurpas and pick axes.			each	50	0	0	50

CHAPTER NO. 19

QUANTITY
OF
MATERIALS

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CHAPTER 19.0 - QUANTITY OF MATERIALS

Item No.	CONCRETE WORK			Materials						
				OPC 43	Stone Aggregate			Fine Aggregates		Plasticizer
					40 mm	20 mm	10 mm	Coarse sand	Fly Ash	
	Description	Unit	Quantity	tonne	cum	cum	cum	cum	cum	kg
6.1	**Cement Concrete**									
6.1.1	1:1½:3 (1 Cement: 1½ coarse sand : 3 stone aggregate 20 mm)	cum	1	0.40		0.57	0.28	0.425		
6.1.2	1:2:4 (1 Cement : 2 coarse sand : 4 stone aggregate 20 mm)	cum	1	0.32		0.67	0.22	0.445		
6.1.3	1:2:4 (1 Cement : 2 coarse sand : 4 stone aggregate 40 mm)	cum	1	0.32	0.52	0.22	0.11	0.445		
6.1.4	1:3:6 (1 Cement : 3 coarse sand : 6 stone aggregate 20 mm)	cum	1	0.22		0.70	0.24	0.47		
6.1.5	1:3:6 (1 Cement : 3 coarse sand : 6 stone aggregate 40 mm)	cum	1	0.22	0.65	0.24		0.47		
6.1.6	1:4:8 (1 Cement : 4 coarse sand : 8 stone aggregate 40 mm)	cum	1	0.17	0.65	0.24		0.47		
6.1.7	1:5:10 (1 Cement : 5 coarse sand : 10 stone aggregate 40 mm)	cum	1	0.13	0.65	0.24		0.47		
	Cement Concrete with Flyash									
6.1.9	1:2:3½:9 (1 Cement : 2 Fly ash : 3½ coarse sand : 9 stone aggregate 40 mm)	cum	1	0.17	0.65	0.24		0.37	0.21	
6.1.10	1:2½:4:11 (1 Cement : 2½ fly ash : 4 coarse sand : 11 stone aggregate 40 mm)	cum	1	0.13	0.65	0.24		0.34	0.21	
6.11	12 mm thick cement plaster damp-proof course 1:3 with 2 coats of bitumen at 1.65 kg. per SqM, laid hot and sanded:									
6.11.1	Vertical	SqM	1	0.0075				0.0150		
6.11.2	Horizontal	SqM	1	0.0075				0.0150		
6.12	20 mm thick cement plaster damp-proof course 1:3 with 2 coats of bitumen at 1.65 kg. per SqM, laid hot and sanded:									
6.12.1	Vertical	SqM	1	0.0125				0.0250		
6.12.2	Horizontal	SqM	1	0.0125				0.0250		
6.13	**Ready Mix Plain Cement Concrete**									

6.22.1.1	M-20 grade plain cement concrete (cement content considered @ 300 kg/cum)	cum	1	0.3	0.65	0.24		0.47		1.5
6.22.1.2	M-15 grade plain cement concrete (cement content considered @ 240 kg/cum)	cum	1	0.24	0.65	0.24		0.47		1.20
6.22.1.3	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	cum	1	0.22	0.65	0.24		0.47		1.10
6.23	**Ready Mix Concrete with Fly Ash**									
6.23.1.1	M-15 grade plain cement concrete (cement content considered @ 240 kg/cum)	cum	1	0.24	0.65	0.24		0.37	0.21	1.20
6.23.1.2	M-10 grade plain cement concrete (cement content considered @ 220 kg/cum)	cum	1	0.22	0.65	0.24		0.37	0.21	1.10

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Item No.	REINFORCED CEMENT CONCRETE			Materials						
				OPC 43	Stone Aggregate			Fine Aggregates		Plasticizer
					40 mm	20 mm	10 mm	Coarse sand	Flyash	
	Description	Unit	Quantity	tonne	cum	cum	cum	cum	cum	kg
6.25	**DESIGN MIX**									
6.25.1	M-25 (Cement content 330 kg/cum)	cum	1	0.33		0.57	0.28	0.425		1.65
6.25.2	M-30 (Cement content 340 kg/cum)	cum	1	0.34						1.70
6.26.2	M-35 (Cement content 350 kg/cum)	cum	1	0.35						1.75
6.26.3	M-40 (Cement content 360 kg/cum)	cum	1	0.36						1.80
6.28	**DESIGN MIX WITH FLY ASH**									
6.28.1	M-25 (Cement content 330 kg/cum)	cum	1	0.33	0.65	0.24		0.37	0.21	1.65

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Item No.	MORTARS			Materials		
				OPC 43	Fine Sand	Coarse sand
	Description	Unit	Quantity	tonne	cum	cum
7.1	Cement mortar 1:1 (1 cement : 1 fine sand)	cum	1	1.02	0.71	
7.2	Cement mortar 1:2 (1 cement : 2 fine sand).	cum	1	0.68	0.95	
7.3	Cement mortar 1:3 (1 cement : 3 fine sand).	cum	1	0.51	1.07	
7.4	Cement mortar 1:4 (1 cement : 4 fine sand).	cum	1	0.38	1.07	
7.5	Cement mortar 1:5 (1 cement : 5 fine sand).	cum	1	0.31	1.07	
7.6	Cement mortar 1:6 (1 cement : 6 fine sand).	cum	1	0.25	1.07	
7.7	Cement mortar 1:2 (1 cement : 2 coarse sand).	cum	1	0.68		0.95
7.8	Cement mortar 1:3 (1 cement : 3 coarse sand).	cum	1	0.51		1.07
7.9	Cement mortar 1:4 (1 cement : 4 coarse sand).	cum	1	0.38		1.07
7.10	Cement mortar 1:5 (1 cement : 5 coarse sand).	cum	1	0.31		1.07
7.11	Cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1	0.25		1.07

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Item No.	BRICK WORK			Materials					
				OPC 43	Fire cement (fire clay)	Stone Aggregate 20 mm	Stone Aggregate 06 mm	Coarse Sand	Fine sand
	Description	Unit	Quantity	tonne	tonne	cum	cum	cum	cum
7.20	Brick work with common burnt clay modular bricks								
7.20.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1						
7.20.2	Cement Mortar 1:6 (1 cement : 6 coarse sand).	cum	1						
7.21	Brick work with common burnt clay non-modular bricks								
7.21.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1						
7.21.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1						
7.26	Brick work 7 cm thick with common burnt clay non-modular brick in cement mortar 1:3 (1 cement : 3 coarse sand)	sqm	10						
7.27	Half brick masonry with common burnt clay non-modular bricks								
7.27.1	Cement mortar 1:3 (1 cement : 3 coarse sand)	sqm	10						
7.27.2	cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	10						
7.32	Tile brick masonry with common burnt clay non-modular tile bricks								
7.32.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1						
7.32.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1						
7.33	Tile brick masonry with common burnt clay machine moulded tile bricks in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1						
7.39	Brick work with common burnt clay selected non-modular bricks in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1						

7.40	Brick work with common burnt clay machine moulded non-modular bricks in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1						
7.41	Brick work with common burnt clay modular bricks in exposed brick work including making horizontal and vertical grooves 10mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1						
7.42	Brick work with common burnt clay machine moulded modular bricks in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6	cum	1						
7.55	Brick edging 7cm wide 11.4 cm deep to plinth protection with common burnt clay non-modular bricks of class designation 7.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand).	metre	10						
7.61	Maroo-corners making from first class bricks, and fixing in position, with cement mortar 1:4	each	1						
7.67	Fire brick work in lining of fire places flues, etc. (excepting chimney shafts)	cum	1		0.173			0.240	

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Item No.	MASONRY WORK			Materials						
				Common burnt clay non-modular bricks	Common burnt clay /machine moulded modular bricks	Common burnt clay /machine moulded non-modular tiles	Fire bricks	Cement mortar 1:3	Cement mortar 1 : 4	Cement mortar 1:6
	Description	Unit	Quantity	nos.	nos.	nos.	nos.	cum	cum	cum
7.20	Brick work with common burnt clay modular bricks									
7.20.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1		487				0.22	
7.20.2	Cement Mortar 1:6 (1 cement : 6 coarse sand).	cum	1		487					0.22
7.21	Brick work with common burnt clay non-modular bricks									
7.21.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1	494					0.25	
7.21.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1	494						0.25
7.26	Brick work 7 cm thick with common burnt clay non-modular brick in cement mortar 1:3 (1 cement : 3 coarse sand)	sqm	10	377				0.181		
7.27	Half brick masonry with common burnt clay non-modular bricks									
7.27.1	Cement mortar 1:3 (1 cement : 3 coarse sand)	sqm	10	565				0.28		
7.27.2	cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	10	565					0.28	
7.32	Tile brick masonry with common burnt clay non-modular tile bricks									
7.32.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	cum	1			777			0.40	
7.32.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1			777				0.40
7.33	Tile brick masonry with common burnt clay machine moulded tile bricks in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1			777				0.40
7.39	Brick work with common burnt clay selected non-modular bricks in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1	494						0.26
7.40	Brick work with common burnt clay machine moulded non-modular bricks in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1			494				0.25

7.41	Brick work with common burnt clay modular bricks in exposed brick work including making horizontal and vertical grooves 10mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1		487					0.22
7.42	Brick work with common burnt clay machine moulded modular bricks in exposed brick work including making horizontal and vertical grooves 10 mm wide 12 mm deep complete in cement mortar 1:6 (1 cement : 6 coarse sand).	cum	1		487					0.22
7.55	Brick edging 7cm wide 11.4 cm deep to plinth protection with common burnt clay non-modular bricks of class designation 7.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand).	metre	10	46					0.0036	
7.61	Maroo-corners making from first class bricks, and fixing in position, with cement mortar 1:4	each	1	6.000						
7.67	Fire brick work in lining of fire places flues, etc. (excepting chimney shafts)	cum	1				480.000			

Item No.	STONE MASONRY			Materials					
				Stone for masonry work	Through and bond stone	Cement mortar 1 : 6	Stone Aggregate 06 mm	Coarse Sand	Fine sand
	Description	Unit	Quantity	cum	nos.	cum	cum	cum	cum
7.83	Random rubble masonry with hard stone with :								
7.83.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1	1.00	7	0.33			
7.86	Extra for random rubble masonry with hard stone curved on plan for a mean radius not exceeding 6m.	cum	1	0.10					
7.87	Coursed rubble masonry (first sort) with hard stone with :								
7.87.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1	1.21	7	0.30			
7.88	Coursed rubble masonry (second sort) with hard stone with :								
7.88.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1	1.10	7	0.30			
7.91	Extra for coursed rubble masonry with hard stone (first or second sort) curved on plan for a mean radius not exceeding 6 m.	cum	1	0.11					
	PRECAST STONE BLOCK MASONRY								
7.92	Stone block masonry (including quoin-blocks,jamb blocks, closer etc.) with precast solid concrete blocks of approved size laid in cement sand mortar 1:6 (1 cement : 6 fine sand) in foundation and plinth								
7.92.1	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:4:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.	cum	1	0.095		0.520	0.300		0.260

7.92.2.	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:5:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.	cum	1	0.089		0.500	0.300		0.310
7.92.3	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:5:10 (with stone aggregate of 20 mm and down gauge) 65% in volume.	cum	1	0.078		0.540	0.300		0.270
7.93	Stone block masonry 15 cm thick (including quoin-blocks, jamb blocks, closer etc.) with precast solid concrete blocks of approved size laid in cement sand mortar 1 : 6 (1 cement : 6 finesand) in foundation and plinth.								
7.93.1	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1 :4:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.	sqm	10	0.143		0.800	0.450		0.400
7.93.2	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1 :5:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.	sqm	10	0.134		0.740	0.450		0.460
7.93.3	precast cement concrete block made from medium size stone 15 to 20 cm, 35% in volume at the face and cement concrete 1:5:10 (with stone aggregate of 20 mm and down gauge) 65% in volume.	sqm	10	0.118		0.820	0.450		0.410
7.94	Stone block masonry 10 cm thick (including quoin-blocks, jamb blocks, closer etc.) with precast solid concrete blocks of approved size laid in cement sand mortar 1 : 6 (1 cement: 6 finesand) in foundation and plinth.								

7.94.1	precast cement concrete block made from medium size stone 15 to 20 cm, 35% by volume at the face and cement concrete 1:4:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.	sqm	10	0.100		0.560	0.320		0.280
7.94.2	precast cement concrete block made from medium size stone 15 to 20 cm, 35% by volume at the face and cement concrete 1:5:8 (with stone aggregate of 20 mm and down gauge) 65% in volume.	sqm	10	0.094		0.510	0.320		0.320
7.94.3	Precast cement concrete block made from medium size stone 15 to 20 cm, 35% by volume at the face and cement concrete 1:5:10 (with stone aggregate of 20 mm and down gauge) 65% in volume.	sqm	10	0.082		0.580	0.320		0.290

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Item No.	CLADDING WORK				Materials			
				OPC 43	Raj nagar plain white marble/ granite/ Italian marble	8 mm thick marble tiles- Raj Nagar/ granite	White Cement Slurry	Red sand stone block
	Description	Unit	Quantity	tonne	sqm	sqm	tonne	10 cudm
8.4	Marble work for wall lining (veneer work), backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust)							
8.4.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble.							
8.4.1.1	Area of slab upto 0.50 sqm	sqm	0.50		0.60			
8.4.1.2	Area of slab over 0.50 sqm	sqm	1		1.20			
8.8	Stone tile (polished) work for wall lining over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry @ 3.3 kg/sqm including pointing in white cement complete.							
8.8.1	8mm thick							
8.8.1.1	Raj nagar plain white marble/ Udaipur green marble/ Zebra black marble	sqm	1	0.0033		1.025		
8.8.1.2	Granite of any colour and shade	sqm	1	0.0033		1.025		

8.9	Stone work (machine cut edges) for wall lining etc. (veneer work) upto 10 metre height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade							
8.9.1	Red sand stone - exposed face fine dressed with							
8.9.1.1	70 mm thick	sqm	1					9.333
8.9.1.2	60 mm thick	sqm	1					8.00
8.9.1.3	50 mm thick	sqm	1					6.67
8.9.1.4	40 mm thick	sqm	1					5.333
8.9.1.5	30 mm thick	sqm	1					3.999
8.13	Stone work (machine cut edges Veneer work) for wall lining upto 10 m height, backing filled with a grout of 12 mm thick cement mortar 1:3 (1 Cement : 3 coarse sand) and jointed with Cement mortar 1:2 (1 cement : 2 stone dust), including rubbing and polishing complete.							
8.13.1	Kota stone slabs exposed face dressed and							
8.13.1.1	25 mm thick	sqm	10					
8.15	Providing and fixing machine cut, mirror/ eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.							
8.15.1	18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	0.5		0.60		0.00165	

8.26	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all							
8.26.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble							
8.26.1.1	Area of slab upto 0.50 sqm	sqm	0.50		0.525			
8.26.1.2	Area of slab over 0.50 sqm	sqm	1		1.05			
8.26.2	Granite of any colour and shade							
8.26.2.1	Area of slab upto 0.50 sqm	sqm	0.50		0.525			
8.26.2.2	Area of slab over 0.50 sqm	sqm	2.10		2.10			
7.103.1	Stone tile work for wall lining upto 10 m height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.							
7.103.1	8mm thick (mirror polished and machine cut edge)							
7.103.1.1	Granite stone of any colour and shade	sqm	10		10.25		0.033	
7.103.1.2	Raj Nagar plain white marble/ Udaipur green marble/ Zebra black marble	sqm	10		10.25		0.033	

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Item No.	**CLADDING WORK**			**Kota stone slab**	**Cement mortar 1:3**	**White cement mortar 1:2**	**Cement mortar 1:4**
	Description	**Unit**	**Quantity**	**sqm**	**cum**	**cum**	**cum**
8.4	Marble work for wall lining (veneer work), backing filled with a grout of average 12 mm thick in cement mortar 1:3 (1 cement : 3 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust)						
8.4.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble.				0.008	0.0012	
8.4.1.1	Area of slab upto 0.50 sqm	sqm	0.50		0.0144	0.0025	
8.4.1.2	Area of slab over 0.50 sqm	sqm	1				
8.8	Stone tile (polished) work for wall lining over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry @ 3.3 kg/sqm including pointing in white cement complete.						
8.8.1	8mm thick				0.014		
8.8.1.1	Raj nagar plain white marble/ Udaipur green marble/ Zebra black marble	sqm	1		0.014		
8.8.1.2	Granite of any colour and shade	sqm	1				
8.9	Stone work (machine cut edges) for wall lining etc. (veneer work) upto 10 metre height, backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade						
8.9.1	Red sand stone - exposed face fine dressed with rough backing.				0.018		
8.9.1.1	70 mm thick	sqm	1				
8.9.1.2	60 mm thick	sqm	1				
8.9.1.3	50 mm thick	sqm	1				
8.9.1.4	40 mm thick	sqm	1				
8.9.1.5	30 mm thick	sqm	1				

8.13	Stone work (machine cut edges Veneer work) for wall lining upto 10 m height, backing filled with a grout of 12 mm thick cement mortar 1:3 (1 Cement : 3 coarse sand) and jointed with Cement mortar 1:2 (1 cement : 2 stone dust), including rubbing and polishing complete.						
8.13.1	Kota stone slabs exposed face dressed and rubbed.			11.50	0.144		
8.13.1.1	25 mm thick	sqm	10				
8.15	Providing and fixing machine cut, mirror/ eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.				0.008		
8.15.1	18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	0.5				
8.26	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.						

8.26.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble						0.012
8.26.1.1	Area of slab upto 0.50 sqm	sqm	0.50				0.024
8.26.1.2	Area of slab over 0.50 sqm	sqm	1				
8.26.2	Granite of any colour and shade						0.012
8.26.2.1	Area of slab upto 0.50 sqm	sqm	0.50				0.048
8.26.2.2	Area of slab over 0.50 sqm	sqm	2.10				
7.103.1	Stone tile work for wall lining upto 10 m height with special adhesive over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand), including pointing in white cement with an admixture of pigment to match the stone shade.						
7.103.1	8mm thick (mirror polished and machine cut edge)				0.14		
7.103.1.1	Granite stone of any colour and shade	sqm	10		0.14		
7.103.1.2	Raj Nagar plain white marble/ Udaipur green marble/ Zebra black marble	sqm	10				

Item No.	ROOFING			Materials					
				OPC 43	20mm Stone Aggregate	10mm Stone Aggregate	Coarse sand	Red sand stone slab	Common burnt clay non-modular brick tiles
	Description	Unit	Quantity	tonne	cum	cum	cum	sqm	nos.
9.10	Painting top of roofs with bitumen of approved quality @ 17kg per 10 sqm impregnated with a coat of coarse sand at 60 cudm per 10 sqm, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete :								
9.10.1	With residual type petroleum bitumen of grade VG - 10	sqm	10				0.060		
9.11	10 cm thick (average) mud phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25 mm thick mud mortar mixed with bhusa @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cow dung) and covered with flat tile bricks, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement and finished neat:								
9.11.1	With common burnt clay F.P.S.(non modular) brick tile	sqm	10						380.000
9.14	Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat:								
9.14.1	With common burnt clay non-modular brick tiles	sqm	10						380.000

9.15	Providing and laying pressed clay tiles (as per approved pattern 20 mm nominal thickness of approved size) on roofs jointed with cement mortar 1:4 (1 cement : 4 coarse sand) mixed with 2% integral water proofing compound, laid over a bed	sqm	10						
9.16	Providing and fixing pressed clay tile (Manglore tiles) of size 200mm x 125mm x 10mm on slopping roof top/ window projections with 12mm thick cement, coarse sand mortar 1:3 including cost of ridge wherever required as per approved design complete in all respect up to 4 storey or 15 Meter Height.	SqM	1	0.0125			0.025		
9.17	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :								
9.17.1	In 75x75 mm deep chase	metre	10	0.030		0.084	0.042		
9.18	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	Each	1	0.004	0.007	0.002	0.004		
9.19	Providing sand stone slab for roofing and laying them in cement mortar 1 : 4 (1 cement : 4 coarse sand) over wooden karries or R.C.C. battens or structural steel sections (Karries or battens or structural steel sections to be paid separately), including pointing the ceiling joints with cement mortar 1:3 (1 cement : 3 fine sand) complete :								
9.19.1.1	40 to 50 mm thick	sqm	10					11.000	

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Item No.	ROOFING			Materials					
				Paving Bitumen VG-10	Tiles	Mud (dry)	Mud mortar	Cement mortar 1 : 4	Cement mortar 1:3
	Description	Unit	Quantity	tonne	nos.	cum	cum	cum	cum
9.10	Painting top of roofs with bitumen of approved quality @ 17kg per 10 sqm impregnated with a coat of coarse sand at 60 cudm per 10 sqm, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete :								
9.10.1	With residual type petroleum bitumen of grade VG - 10	sqm	10	0.017					
9.11	10 cm thick (average) mud phaska of damped brick earth on roofs laid to slope consolidated and plastered with 25 mm thick mud mortar mixed with bhusa @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cow dung) and covered with flat tile bricks, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement and finished neat:								
9.11.1	With common burnt clay F.P.S.(non modular) brick tile	sqm	10			1.257	0.263		0.061
9.14	Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat:								
9.14.1	With common burnt clay non-modular brick tiles	sqm	10						0.179

9.15	Providing and laying pressed clay tiles (as per approved pattern 20 mm nominal thickness of approved size) on roofs jointed with cement mortar 1:4 (1 cement : 4 coarse sand) mixed with 2% integral water proofing compound, laid over a bed of 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and finished neat complete.	sqm	10					0.261	
9.16	Providing and fixing pressed clay tile (Manglore tiles) of size 200mm x 125mm x 10mm on slopping roof top/ window projections with 12mm thick cement, coarse sand mortar 1:3 including cost of ridge wherever required as per approved design complete in all respect up to 4 storey or 15 Meter Height.	SqM	1		55				
9.17	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :								
9.17.1	In 75x75 mm deep chase	metre	10						0.009
9.18	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	Each	1						0.004
9.19	Providing sand stone slab for roofing and laying them in cement mortar 1 : 4 (1 cement : 4 coarse sand) over wooden karries or R.C.C. battens or structural steel sections (Karries or battens or structural steel sections to be paid separately), including pointing the ceiling joints with cement mortar 1:3 (1 cement : 3 fine sand) complete :								
9.19.1.1	40 to 50 mm thick	sqm	10					0.010	0.008

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Item No.	FLOORING			Materials								
				Cement			Common burnt clay non-modular bricks	Tiles			Marble/ Granite/ Kota Stone/ sand stone	Timber
				OPC 43	White	Acid Proof		Precast terrazo / Chequered	Acid/Alkali resistant & border	Ceramic Glazed/ Rectified Ceramic/ Vitrified		
	Description	Unit	Quantity	tonne	tonne	tonne	1000 Nos	sqm	nos.	sqm	sqm	10 cudm
10.1	Base course of floors consisting of 100 mm thick cement 1:8:16 and 100 mm sand or stone filling.	sqm	10	0.090								
10.9	Conglomerate floor 25 mm thick cement concrete 1:2:4 on 100 mm cement concrete 1:8:16 and 100 mm sand or stone filling.	sqm	1									
10.10	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry											
10.10.1	40 mm thick with 20 mm nominal size stone aggregate	sqm	10	0.17								
10.11	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications including cement slurry.	sqm	10	0.231								
10.12	62 mm thick cement concrete flooring with concrete hardener topping, under layer 50 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate, 6mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacture's specifications including cement slurry.	sqm	10	0.263								
10.13	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.											
10.13.1	18 mm thick	sqm	10	0.02								

10.14	Floating coat of 1.50 mm thick neat cement laid in one operation to the topping.	sqm	90	0.202								
10.19	40 mm thick marble chips flooring rubbed and polished to granolithic finish, under layer 34 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 6mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 1 mm to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume, including cement slurry etc. complete :											
10.19.1	Dark/Light shade pigment with ordinary cement	sqm	10	0.170								
10.19.2	Light shade pigment with white cement	sqm	10	0.129								
10.19.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.150								
10.19.4	White cement without any pigment	sqm	10	0.129	0.0405							
10.19.5	Ordinary cement without any pigment	sqm	10	0.170								
10.20	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 31 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 9 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 4 mm to 7 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder : 7 marble chips) by volume, including cement slurry etc. complete.											
10.20.1	Dark shade pigment with Ordinary cement	sqm	10	0.1783								
10.20.2	Light shade pigment with white cement	sqm	10	0.1205	0.0578							
10.20.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.1583	0.0289							
10.20.4	White cement without any pigment	sqm	10	0.1205	0.0578							
10.20.5	Light shade pigment with ordinary cement	sqm	10	0.1783								
10.20.6	Ordinary cement without any pigment	sqm	10	0.1783								

10.21	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 28 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 12 mm thick with white, black, chocolate, grey yellow or green marble chips of sizes from 7 mm to 10 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 2:3 (2 cement marble powder mix : 3 marble chips) by volume, including cement slurry etc. complete :											
10.21.1	Dark shade pigment with ordinary cement	sqm	10	0.1907								
10.21.2	Light shade pigment with white cement	sqm	10	0.1097	0.081							
10.21.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.1502	0.0405							
10.21.4	White cement without any pigment	sqm	10	0.1097	0.081							
10.21.5	Light shade pigment with ordinary cement	sqm	10	0.1907								
10.21.6	Ordinary cement without any pigment	sqm	10	0.1907								
10.25	Marble chips skirting up to 30 cm height, rubbed and polished to granolithic finish, top layer 6 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from smallest to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume :											
10.25.1	18 mm thick with under layer 12 mm thick in cement plaster 1:3 (1 cement : 3 coarse sand) :											
10.25.1.1	Dark shade pigment with ordinary cement	sqm	10	0.0405								
10.25.1.2	Light shade pigment with white cement	sqm	10		0.0405							
10.25.1.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.0202	0.0203							
10.25.1.4	White cement without any pigment	sqm	10		0.0405							
10.25.1.5	Light shade pigment with ordinary cement	sqm	10	0.0405								
10.25.1.6	Ordinary cement without any pigment	sqm	10	0.0405								
10.26	Precast terrazo tiles 22 mm thick with graded marble chips of size upto 12 mm, laid in floors, and landings, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement:4 coarse sand) :											
10.26.1	Light shade pigment using white cement	sqm	10	0.044	0.044			11.000				
10.26.2	Medium shade pigment using 50% white cement and 50% ordinary cement	sqm	10	0.066	0.044			11.000				
10.26.3	Dark shade pigment using ordinary cement	sqm	10	0.088				11.000				

10.26.4	Ordinary cement without any pigment	sqm	10	0.088				11.000				
10.28	Precast terrazo tiles 22 mm thick with graded marble chips of sizes upto 12 mm, in skirting and risers of steps not exceeding 30 cm in height, on 12 mm thick cement plaster 1:3 (1 cement : 3 coarse sand), jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete with tiles of :											
10.28.1	Light shade pigment using white cement	sqm	10		0.066			11.000				
10.28.2	Medium shades pigment using 50% white cement and 50% ordinary cement	sqm	10	0.033	0.033			11.000				
10.28.3	Dark shade pigment using ordinary cement	sqm	10	0.066				11.000				
10.28.4	Ordinary cement without any pigment	sqm	10	0.066				11.000				
10.29	Chequered terrazo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :											
10.29.1	Light shade pigment using white cement	sqm	10	0.044	0.044			11.000				
10.29.2	Medium shade pigment using 50% white cement, 50% ordinary cement	sqm	10	0.066	0.022			11.000				
10.29.3	Dark shade pigment using ordinary cement	sqm	10	0.088				11.000				
10.29.4	Ordinary cement without any pigment	sqm	10	0.088				11.000				
10.30	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).											
10.30.1	Light shade pigment using white cement	sqm	10	0.044	0.048			11.000				
10.30.2	Medium shade pigment using 50% white cement 50% Grey cement	sqm	10	0.068	0.024			11.000				
10.30.3	Dark shade pigment using ordinary cement	sqm	10	0.092				11.000				
10.30.4	Ordinary cement without any pigment	sqm	10	0.092				11.000				
10.31	Providing and fixing 10 mm thick acid and/or alkali resistant tiles of approved make and colour using acid and/or alkali resisting mortar bedding, and joints filled with acid and/or alkali resisting cement as per IS : 4457, complete as per the direction of Engineer-in- Charge.											
10.31.1	In flooring on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)											
10.31.1.1	Acid and alkali resistant tile	sqm	1	-0.005		0.0079			12.000			

10.31.2	In dado/skirting on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)											
10.31.2.1	Acid and alkali resistant tile	sqm	1	-0.009		0.0119			12.000			
10.32	Tile work in skirting, risers of steps and dado up to 2 m height over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm, including pointing in white cement mixed with pigment of matching shade complete.											
10.32.1.1	8 mm thick Marble tiles (polished) Raj Nagar	sqm	1	0.0033						1.061		
10.33	Brick on edge flooring with common burnt clay non modular bricks on a bed of 12 mm cement mortar, including filling the joints with same mortar											
10.33.1	1:4 (1 cement : 4 coarse sand)	sqm	10	0.02			0.565					
10.33.2	1:6 (1cement : 6 coarse sand)	sqm	10	0.02			0.565					
10.34	Dry brick on edge flooring in required pattern with common burnt clay non modular bricks on a bed of 12 mm mud mortar including filling joints with fine sand	sqm	10				0.645					
10.36	Flat brick on tile flooring with bricks of class designation 7.5 laid dry over a bed of 6 mm thick cement sand mortar 1:6 grouted with cement sand mortar 1:4 and top surface to be left clean after wire brushing.	sqm	1	0.0035			40.000					
10.37	25mm thick kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :	sqm	10	0.064							11.500	
10.38	20mm thick kota stone slabs in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	10	0.064							11.500	
10.39	40 mm thick fine dressed sand stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush.	sqm	10								11.000	
10.40	40 mm thick fine dressed sand stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand), including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone.	sqm	10								11.000	

10.44	Marble stone flooring with 18 mm thick marble stone (all types), as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :	sqm	10	0.05						11.500		
10.49	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge :											
10.49.1	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	10	0.05							11.500	
10.50	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.											
10.50.1	Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	10	0.05							11.500	
10.52	Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.											
10.52.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	10		0.05						11.500	

10.53	Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm, including pointing with white cement slurry admixed with pigment to match the marble shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.											
10.53.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	10		0.050						12.000	
10.54	25 mm wooden planking, tongued and grooved in flooring, including fixing with iron screws complete with :											
10.54.1	Second class teak wood/ Second class deodar	sqm	10									29.810
10.55	38 mm thick wood block flooring of first class teak wood laid over 25 mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm nominal size) to be paid separately, coated with a thin layer of hot bitumen penetration 80/25 (blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) up to half depth, planed, levelled smooth and finished complete.	sqm	1									4.180
10.57	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.	sqm	1	0.0033						1.025		

10.58	Providing and fixing 1st quality ceramic glazed floor tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	sqm	1	0.0033						1.025		
10.62	Providing and fixing Ist quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	sqm	1	0.0033						1.025		
10.63	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	sqm	1	0.0033						1.025		
10.67	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.	sqm	1	0.0033						1.025		

10.68	Providing and fixing glazed screen printed border tile 75mm wide having thickness 5mm, of approved quality & make, in all shades, design and prints, in dado, over 12mm thick bed of cement mortar 1:3 (1 Cement : 3 Coarse sand) and jointing with grey cement slurry @ 3.3 kg/sqm including pointing with white cement mixed with pigment of matching shade, all complete as approved by Engineer - in - Charge	sqm	1	0.0033					68.000			
10.75	Providing and laying 50 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-30 over a bed of25mrn thick fine sand complete in all respect.	sqm	1									
10.76	Providing and laying 60 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 25mm thick fine sand complete in all respect	sqm	1									
10.77	Providing and laying 80 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 30mm thick fine sand complete in all respect	sqm	1									
10.95	Providing and laying 500x500x40 mm thick Turf paver (Turfpave XD) on 150 mm thick sub grade of compacted bed of 20 mm thick nominal size stone aggregate and base course and filling with 150 mm thick jamuna sand, including spreading, well ramming, consolidating and finishing smooth etc. all complete as per direction of Engineer-in-charge.	sqm	10									
10.98	Providing and fixing Grass paver block of required strength and thickness on 25 mm thick compacted bed of sand and filling the joint with sand complete in all respect	sqm	10									

Item No.	FLOORING			Materials									
				Coarse & Fine Aggregates								Pigment	Marble dust/ powder
				40mm stone	20mm stone	12.5mm stone	10mm stone	6mm stone chips	Coarse sand	Fine sand	Brick		
	Description	Unit	Quantity	cum	cum	cum	cum	cum	cum	cum	cum	kg	cum
10.1	Base course of floors consisting of 100 mm thick cement 1:8:16 and 100 mm sand or stone filling.	sqm	10						0.500	1.000	1.000		
10.9	Conglomerate floor 25 mm thick cement concrete 1:2:4 on 100 mm cement concrete 1:8:16 and 100 mm sand or stone filling.	sqm	1							1.000			
10.10	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry												
10.10.1	40 mm thick with 20 mm nominal size stone aggregate	sqm	10		0.267		0.089		0.178				
10.11	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications including cement slurry.	sqm	10		0.267		0.089	0.115	0.178				
10.12	62 mm thick cement concrete flooring with concrete hardener topping, under layer 50 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate, 6mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacture's specifications including cement slurry.	sqm	10		0.334		0.111	0.115	0.222				
10.13	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.												
10.13.1	18 mm thick	sqm	10										

10.14	Floating coat of 1.50 mm thick neat cement laid in one operation to the topping.	sqm	90										
10.19	40 mm thick marble chips flooring rubbed and polished to granolithic finish, under layer 34 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 6mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 1 mm to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume, including cement slurry etc. complete :												
10.19.1	Dark/Light shade pigment with ordinary cement	sqm	10	0.303		0.227	0.076		0.151			2.840	0.007
10.19.2	Light shade pigment with white cement	sqm	10	0.303		0.227	0.076		0.151			2.840	0.007
10.19.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.303		0.227	0.076		0.151			2.840	0.007
10.19.4	White cement without any pigment	sqm	10	0.303		0.227	0.076		0.151				0.007
10.19.5	Ordinary cement without any pigment	sqm	10	0.303		0.227	0.076		0.151				0.007
10.20	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 31 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 9 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 4 mm to 7 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder : 7 marble chips) by volume, including cement slurry etc. complete.												
10.20.1	Dark shade pigment with Ordinary cement	sqm	10			0.21	0.07		0.140			4.050	0.012
10.20.2	Light shade pigment with white cement	sqm	10			0.21	0.07		0.140			4.050	0.012
10.20.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10			0.21	0.07		0.140			4.050	0.012
10.20.4	White cement without any pigment	sqm	10			0.21	0.07		0.140				0.012
10.20.5	Light shade pigment with ordinary cement	sqm	10			0.21	0.07		0.140			4.050	0.012
10.20.6	Ordinary cement without any pigment	sqm	10			0.21	0.07		0.140				0.012

10.21	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 28 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 12 mm thick with white, black, chocolate, grey yellow or green marble chips of sizes from 7 mm to 10 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 2:3 (2 cement marble powder mix : 3 marble chips) by volume, including cement slurry etc. complete :												
10.21.1	Dark shade pigment with ordinary cement	sqm	10	0.25		0.19	0.06		0.125			5.670	0.017
10.21.2	Light shade pigment with white cement	sqm	10	0.25		0.19	0.06		0.125			5.670	0.017
10.21.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.25		0.19	0.06		0.125			5.670	0.017
10.21.4	White cement without any pigment	sqm	10	0.25		0.19	0.06		0.125				0.017
10.21.5	Light shade pigment with ordinary cement	sqm	10	0.25		0.19	0.06		0.125			5.670	0.017
10.21.6	Ordinary cement without any pigment	sqm	10	0.25		0.19	0.06		0.125				0.017
10.25	Marble chips skirting up to 30 cm height, rubbed and polished to granolithic finish, top layer 6 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from smallest to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume :												
10.25.1	18 mm thick with under layer 12 mm thick in cement plaster 1:3 (1 cement : 3 coarse sand) :												
10.25.1.1	Dark shade pigment with ordinary cement	sqm	10									2.840	0.007
10.25.1.2	Light shade pigment with white cement	sqm	10									2.840	0.007
10.25.1.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10									2.840	0.007
10.25.1.4	White cement without any pigment	sqm	10										0.007
10.25.1.5	Light shade pigment with ordinary cement	sqm	10									2.840	0.007
10.25.1.6	Ordinary cement without any pigment	sqm	10										0.007
10.26	Precast terrazo tiles 22 mm thick with graded marble chips of size upto 12 mm, laid in floors, and landings, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement:4 coarse sand) :												
10.26.1	Light shade pigment using white cement	sqm	10									3.080	
10.26.2	Medium shade pigment using 50% white cement and 50% ordinary cement	sqm	10									3.080	
10.26.3	Dark shade pigment using ordinary cement	sqm	10									3.080	

10.26.4	Ordinary cement without any pigment	sqm	10										
10.28	Precast terrazo tiles 22 mm thick with graded marble chips of sizes upto 12 mm, in skirting and risers of steps not exceeding 30 cm in height, on 12 mm thick cement plaster 1:3 (1 cement : 3 coarse sand), jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete with tiles of :												
10.28.1	Light shade pigment using white cement	sqm	10									4.620	
10.28.2	Medium shades pigment using 50% white cement and 50% ordinary cement	sqm	10									4.620	
10.28.3	Dark shade pigment using ordinary cement	sqm	10									4.620	
10.28.4	Ordinary cement without any pigment	sqm	10										
10.29	Chequered terrazo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :												
10.29.1	Light shade pigment using white cement	sqm	10									3.080	
10.29.2	Medium shade pigment using 50% white cement, 50% ordinary cement	sqm	10									3.080	
10.29.3	Dark shade pigment using ordinary cement	sqm	10									3.080	
10.29.4	Ordinary cement without any pigment	sqm	10										
10.30	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).												
10.30.1	Light shade pigment using white cement	sqm	10									3.080	
10.30.2	Medium shade pigment using 50% white cement 50% Grey cement	sqm	10									3.080	
10.30.3	Dark shade pigment using ordinary cement	sqm	10									3.080	
10.30.4	Ordinary cement without any pigment	sqm	10										
10.31	Providing and fixing 10 mm thick acid and/or alkali resistant tiles of approved make and colour using acid and/or alkali resisting mortar bedding, and joints filled with acid and/or alkali resisting cement as per IS : 4457, complete as per the direction of Engineer-in- Charge.												
10.31.1	In flooring on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)												
10.31.1.1	Acid and alkali resistant tile	sqm	1										

10.31.2	In dado/skirting on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)												
10.31.2.1	Acid and alkali resistant tile	sqm	1										
10.32	Tile work in skirting, risers of steps and dado up to 2 m height over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm, including pointing in white cement mixed with pigment of matching shade complete.												
10.32.1.1	8 mm thick Marble tiles (polished) Raj Nagar	sqm	1										
10.33	Brick on edge flooring with common burnt clay non modular bricks on a bed of 12 mm cement mortar, including filling the joints with same mortar												
10.33.1	1:4 (1 cement : 4 coarse sand)	sqm	10										
10.33.2	1:6 (1cement : 6 coarse sand)	sqm	10										
10.34	Dry brick on edge flooring in required pattern with common burnt clay non modular bricks on a bed of 12 mm mud mortar including filling joints with fine sand	sqm	10							0.150			
10.36	Flat brick on tile flooring with bricks of class designation 7.5 laid dry over a bed of 6 mm thick cement sand mortar 1:6 grouted with cement sand mortar 1:4 and top surface to be left clean after wire brushing.	sqm	1						0.013				
10.37	25mm thick kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :	sqm	10									4.500	
10.38	20mm thick kota stone slabs in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	10									4.500	
10.39	40 mm thick fine dressed sand stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush.	sqm	10										
10.40	40 mm thick fine dressed sand stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand), including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone.	sqm	10										

10.44	Marble stone flooring with 18 mm thick marble stone (all types), as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :	sqm	10										
10.49	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge :												
10.49.1	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	10									4.500	
10.50	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.												
10.50.1	Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	10									4.500	
10.52	Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.												
10.52.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	10										

10.53	Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm, including pointing with white cement slurry admixed with pigment to match the marble shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.												
10.53.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	10										
10.54	25 mm wooden planking, tongued and grooved in flooring, including fixing with iron screws complete with :												
10.54.1	Second class teak wood/ Second class deodar	sqm	10										
10.55	38 mm thick wood block flooring of first class teak wood laid over 25 mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm nominal size) to be paid separately, coated with a thin layer of hot bitumen penetration 80/25 (blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) up to half depth, planed, levelled smooth and finished complete.	sqm	1										
10.57	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.	sqm	1										

10.58	Providing and fixing 1st quality ceramic glazed floor tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	sqm	1										
10.62	Providing and fixing Ist quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	sqm	1										
10.63	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	sqm	1										
10.67	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.	sqm	1										

10.68	Providing and fixing glazed screen printed border tile 75mm wide having thickness 5mm, of approved quality & make, in all shades, design and prints, in dado, over 12mm thick bed of cement mortar 1:3 (1 Cement : 3 Coarse sand) and jointing with grey cement slurry @ 3.3 kg/sqm including pointing with white cement mixed with pigment of matching shade, all complete as approved by Engineer - in - Charge	sqm	1										
10.75	Providing and laying 50 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-30 over a bed of25mrn thick fine sand complete in all respect.	sqm	1						0.50	0.125			
10.76	Providing and laying 60 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 25mm thick fine sand complete in all respect	sqm	1						0.50	0.150			
10.77	Providing and laying 80 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 30mm thick fine sand complete in all respect	sqm	1						0.60	0.200			
10.95	Providing and laying 500x500x40 mm thick Turf paver (Turfpave XD) on 150 mm thick sub grade of compacted bed of 20 mm thick nominal size stone aggregate and base course and filling with 150 mm thick jamuna sand, including spreading, well ramming, consolidating and finishing smooth etc. all complete as per direction of Engineer-in-charge.	sqm	10	1.5	1.5					1.500			
10.98	Providing and fixing Grass paver block of required strength and thickness on 25 mm thick compacted bed of sand and filling the joint with sand complete in all respect	sqm	10							0.25			

CHAPTER 19.0 - QUANTITY OF MATERIALS

Item No.	FLOORING			Marble chips	Turf Paver (500 x 500 x 40 mm)	Mortars						
						CM 1:6	CM 1:5	CM 1:4	CM 1:3	CM 1:2	White	Mud
	Description	Unit	Quantity	quintal	sqm	cum	cum	cum	cum	cum	cum	cum
10.1	Base course of floors consisting of 100 mm thick cement 1:8:16 and 100 mm sand or stone filling.	sqm	10									
10.9	Conglomerate floor 25 mm thick cement concrete 1:2:4 on 100 mm cement concrete 1:8:16 and 100 mm sand or stone filling.	sqm	1									
10.10	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry											
10.10.1	40 mm thick with 20 mm nominal size stone aggregate	sqm	10									
10.11	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications including cement slurry.	sqm	10									
10.12	62 mm thick cement concrete flooring with concrete hardener topping, under layer 50 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate, 6mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacture's specifications including cement slurry.	sqm	10									
10.13	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement.											
10.13.1	18 mm thick	sqm	10						0.235			

10.14	Floating coat of 1.50 mm thick neat cement laid in one operation to the topping.	sqm	90									
10.19	40 mm thick marble chips flooring rubbed and polished to granolithic finish, under layer 34 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 6mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 1 mm to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume, including cement slurry etc. complete :											
10.19.1	Dark/Light shade pigment with ordinary cement	sqm	10	0.872								
10.19.2	Light shade pigment with white cement	sqm	10	0.872								
10.19.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.872								
10.19.4	White cement without any pigment	sqm	10	0.958								
10.19.5	Ordinary cement without any pigment	sqm	10	0.872								
10.20	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 31 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 9 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from 4 mm to 7 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder : 7 marble chips) by volume, including cement slurry etc. complete.											
10.20.1	Dark shade pigment with Ordinary cement	sqm	10	1.400								
10.20.2	Light shade pigment with white cement	sqm	10	1.400								
10.20.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	1.400								
10.20.4	White cement without any pigment	sqm	10	1.400								
10.20.5	Light shade pigment with ordinary cement	sqm	10	1.400								
10.20.6	Ordinary cement without any pigment	sqm	10	1.400								

10.21	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 28 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5 mm nominal size) and top layer 12 mm thick with white, black, chocolate, grey yellow or green marble chips of sizes from 7 mm to 10 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 2:3 (2 cement marble powder mix : 3 marble chips) by volume, including cement slurry etc. complete :											
10.21.1	Dark shade pigment with ordinary cement	sqm	10	1.734								
10.21.2	Light shade pigment with white cement	sqm	10	1.734								
10.21.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	1.734								
10.21.4	White cement without any pigment	sqm	10	1.916								
10.21.5	Light shade pigment with ordinary cement	sqm	10	1.734								
10.21.6	Ordinary cement without any pigment	sqm	10	1.734								
10.25	Marble chips skirting up to 30 cm height, rubbed and polished to granolithic finish, top layer 6 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from smallest to 4 mm nominal size, laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume :											
10.25.1	18 mm thick with under layer 12 mm thick in cement plaster 1:3 (1 cement : 3 coarse sand) :											
10.25.1.1	Dark shade pigment with ordinary cement	sqm	10	0.872					0.174			
10.25.1.2	Light shade pigment with white cement	sqm	10	0.872					0.174			
10.25.1.3	Medium shade pigment with 50% white cement and 50% ordinary cement	sqm	10	0.872					0.174			
10.25.1.4	White cement without any pigment	sqm	10	0.958					0.174			
10.25.1.5	Light shade pigment with ordinary cement	sqm	10	0.872					0.174			
10.25.1.6	Ordinary cement without any pigment	sqm	10	0.872					0.174			
10.26	Precast terrazo tiles 22 mm thick with graded marble chips of size upto 12 mm, laid in floors, and landings, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement:4 coarse sand) :											
10.26.1	Light shade pigment using white cement	sqm	10					0.224				
10.26.2	Medium shade pigment using 50% white cement and 50% ordinary cement	sqm	10					0.224				
10.26.3	Dark shade pigment using ordinary cement	sqm	10					0.224				

10.26.4	Ordinary cement without any pigment	sqm	10					0.224				
10.28	Precast terrazo tiles 22 mm thick with graded marble chips of sizes upto 12 mm, in skirting and risers of steps not exceeding 30 cm in height, on 12 mm thick cement plaster 1:3 (1 cement : 3 coarse sand), jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete with tiles of :											
10.28.1	Light shade pigment using white cement	sqm	10						0.144			
10.28.2	Medium shades pigment using 50% white cement and 50% ordinary cement	sqm	10						0.144			
10.28.3	Dark shade pigment using ordinary cement	sqm	10						0.144			
10.28.4	Ordinary cement without any pigment	sqm	10						0.144			
10.29	Chequered terrazo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :											
10.29.1	Light shade pigment using white cement	sqm	10					0.224				
10.29.2	Medium shade pigment using 50% white cement, 50% ordinary cement	sqm	10					0.224				
10.29.3	Dark shade pigment using ordinary cement	sqm	10					0.224				
10.29.4	Ordinary cement without any pigment	sqm	10					0.224				
10.30	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).											
10.30.1	Light shade pigment using white cement	sqm	10					0.220				
10.30.2	Medium shade pigment using 50% white cement 50% Grey cement	sqm	10					0.220				
10.30.3	Dark shade pigment using ordinary cement	sqm	10					0.220				
10.30.4	Ordinary cement without any pigment	sqm	10					0.220				
10.31	Providing and fixing 10 mm thick acid and/or alkali resistant tiles of approved make and colour using acid and/or alkali resisting mortar bedding, and joints filled with acid and/or alkali resisting cement as per IS : 4457, complete as per the direction of Engineer-in- Charge.											
10.31.1	In flooring on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)											
10.31.1.1	Acid and alkali resistant tile	sqm	1					0.012				

10.31.2	In dado/skirting on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand)											
10.31.2.1	Acid and alkali resistant tile	sqm	1					0.014				
10.32	Tile work in skirting, risers of steps and dado up to 2 m height over 12 mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm, including pointing in white cement mixed with pigment of matching shade complete.											
10.32.1.1	8 mm thick Marble tiles (polished) Raj Nagar	sqm	1						0.014			
10.33	Brick on edge flooring with common burnt clay non modular bricks on a bed of 12 mm cement mortar, including filling the joints with same mortar											
10.33.1	1:4 (1 cement : 4 coarse sand)	sqm	10					0.434				
10.33.2	1:6 (1cement : 6 coarse sand)	sqm	10			0.434						
10.34	Dry brick on edge flooring in required pattern with common burnt clay non modular bricks on a bed of 12 mm mud mortar including filling joints with fine sand	sqm	10									0.150
10.36	Flat brick on tile flooring with bricks of class designation 7.5 laid dry over a bed of 6 mm thick cement sand mortar 1:6 grouted with cement sand mortar 1:4 and top surface to be left clean after wire brushing.	sqm	1									
10.37	25mm thick kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :	sqm	10					0.224				
10.38	20mm thick kota stone slabs in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	10						0.144			
10.39	40 mm thick fine dressed sand stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush.	sqm	10				0.250					
10.40	40 mm thick fine dressed sand stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand), including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone.	sqm	10				0.250			0.023		

10.44	Marble stone flooring with 18 mm thick marble stone (all types), as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :	sqm	10					0.224				
10.49	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge :											
10.49.1	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	10					0.224				
10.50	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.											
10.50.1	Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	10					0.224				
10.52	Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.											
10.52.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	10					0.224				

10.53	Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm, including pointing with white cement slurry admixed with pigment to match the marble shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.											
10.53.1	18 mm thick Italian Marble stone slab, Perlato, Rosso verona, Fire Red or Dark Emperadore etc.	sqm	10					0.224				
10.54	25 mm wooden planking, tongued and grooved in flooring, including fixing with iron screws complete with :											
10.54.1	Second class teak wood/ Second class deodar	sqm	10									
10.55	38 mm thick wood block flooring of first class teak wood laid over 25 mm thick leveling layer of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 10 mm nominal size) to be paid separately, coated with a thin layer of hot bitumen penetration 80/25 (blown type) @ 2.45 kg per sqm, including fixing blocks in position after dipping in hot bitumen (blown type) up to half depth, planed, levelled smooth and finished complete.	sqm	1									
10.57	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.	sqm	1								0.024	

10.58	Providing and fixing 1st quality ceramic glazed floor tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	sqm	1						0.014			
10.62	Providing and fixing Ist quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.	sqm	1						0.014			
10.63	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	sqm	1					0.024				
10.67	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.	sqm	1						0.014			

10.68	Providing and fixing glazed screen printed border tile 75mm wide having thickness 5mm, of approved quality & make, in all shades, design and prints, in dado, over 12mm thick bed of cement mortar 1:3 (1 Cement : 3 Coarse sand) and jointing with grey cement slurry @ 3.3 kg/sqm including pointing with white cement mixed with pigment of matching shade, all complete as approved by Engineer - in - Charge	sqm	1						0.014			
10.75	Providing and laying 50 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-30 over a bed of25mrn thick fine sand complete in all respect.	sqm	1									
10.76	Providing and laying 60 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 25mm thick fine sand complete in all respect	sqm	1									
10.77	Providing and laying 80 mm thick interlocking paver blocks of all shapes and colours in design mix cement M-35 over a bed of 30mm thick fine sand complete in all respect	sqm	1									
10.95	Providing and laying 500x500x40 mm thick Turf paver (Turfpave XD) on 150 mm thick sub grade of compacted bed of 20 mm thick nominal size stone aggregate and base course and filling with 150 mm thick jamuna sand, including spreading, well ramming, consolidating and finishing smooth etc. all complete as per direction of Engineer-in-charge.	sqm	10		10							
10.98	Providing and fixing Grass paver block of required strength and thickness on 25 mm thick compacted bed of sand and filling the joint with sand complete in all respect	sqm	10									

Item No.	FINISHING WORKS			Materials								
				Cement	Mortars					Lime	Distemper	
				OPC 43	C.M 1:6	C.M 1:5	C.M 1:4	C.M 1:3	C.M 1:2	Dehradun white/ Satna lime	Dry	Acrylic 1st quality/ OBD
	Description	Unit	Quantity	tonne	cum	cum	cum	cum	cum	quintal	kg	kg
11.1	6 mm cement plaster of mix :											
11.1.1	1:3 (1 cement : 3 fine sand)							0.072				
11.2	6 mm cement plaster 1:3 (1 cement : 3 fine sand) finished with a floating coat of neat cement and thick coat of Lime wash on top of walls when dry for bearing of R.C.C. slabs and beams.	sqm	10	0.02				0.072		0.01		
11.3	Neat cement punning.	sqm	10	0.022								
11.4	10 mm thick cement plaster											
11.4.1	1:2 (1 cement: 2 fine sand)	sqm	1						0.12			
11.4.2	1:3 (1 cement: 3 fine sand)	sqm	1					0.12				
11.5	12 mm cement plaster of mix :											
11.5.1	1:2 (1 cement: 2 fine sand)	sqm	10						0.144			
11.5.2	1:3 (1 cement: 3 fine sand)	sqm	10					0.144				
11.5.3	1:4 (1 cement: 4 fine sand)	sqm	10				0.144					
11.5.4	1:6 (1 cement: 6 fine sand)	sqm	10		0.144							
11.6	15 mm cement plaster on the rough side of single or half brick wall of mix :											
11.6.1	1:4 (1 cement: 4 fine sand)	sqm	10				0.172					
11.6.2	1:6 (1 cement: 6 fine sand)	sqm	10		0.172							
11.7	20 mm cement plaster of mix :											
11.7.1	1:4 (1 cement: 4 fine sand)	sqm	10				0.224					
11.7.2	1:6 (1 cement: 6 fine sand)	sqm	10		0.224							
11.8	12 mm cement plaster of mix :											
11.8.1	1:4 (1 cement: 4 coarse sand)	sqm	10				0.144					
11.8.2	1:6 (1 cement: 6 coarse sand)	sqm	10		0.144							
11.9	15 mm cement plaster on rough side of single or half brick wall of mix:											
11.9.1	1:4 (1 cement: 4 coarse sand)	sqm	10				0.172					
11.9.2	1:6 (1 cement: 6 coarse sand)	sqm	10		0.172							
11.10	20 mm cement plaster of mix :											
11.10.1	1:4 (1 cement: 4 coarse sand)	sqm	10				0.224					
11.10.2	1:6 (1 cement: 6 coarse sand)	sqm	10		0.224							
11.11	12 mm cement plaster finished with a floating coat of neat cement of mix :											

11.11.1	1:3 (1 cement: 3 fine sand)	sqm	10	0.02				0.144				
11.11.2	1:4 (1 cement: 4 fine sand)	sqm	10	0.02			0.144					
11.12	15 mm cement plaster on rough side of single or half brick wall finished with a floating coat of neat cement of mix :											
11.12.1	1:3 (1 cement: 3 fine sand)	sqm	10	0.02				0.172				
11.12.2	1:4 (1 cement: 4 fine sand)	sqm	10	0.02			0.172					
11.13	Cement plaster 1:3 (1 cement: 3 coarse sand)											
11.13.1	12 mm cement plaster	sqm	10	0.02				0.144				
11.13.2	20 mm cement plaster	sqm	10	0.02				0.224				
11.14	15 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.	sqm	10	0.02				0.172				
11.18	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand).					0.144						
11.20	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster 1:3 (1 cement : 3 coarse sand) finished rough with sponge.					0.144						
11.21	12 mm cement plaster 1:2 (1 cement : 2 stone								0.144			
11.22	15 mm cement plaster 1:2 (1 cement : 2 stone dust) on the rough side of single or half brick wall.								0.172			
11.23	20 mm cement plaster 1:2 (1 cement : 2 stone								0.224			
11.25	Pointing on brick work or brick flooring with cement mortar 1:3 (1 cement : 3 fine sand):											
11.25.1	Flush / Ruled/ Struck or weathered pointing	sqm	10					0.03				
11.25.2	Raised and cut pointing	sqm	10					0.046				
11.26	Pointing on tile brick work with cement mortar 1:3 (1 cement : 3 fine sand):											
11.26.1	Flush/ Ruled/ Struck or weathered pointing	sqm	10					0.046				
11.27	Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) :											
11.27.1	Flush/ Ruled pointing	sqm	10					0.023				
11.27.2	Raised and cut pointing	sqm	10					0.038				
11.28	Raised and cut pointing on stone work in white cement mortar 1:3 (1 white cement : 3 marble dust).	sqm	10					0.038				
11.29	Pointing on stone slab ceiling with cement mortar 1:2 (1 cement : 2 fine sand):											
11.29.1	Flush/ Ruled pointing	sqm	10						0.015			

11.48	18 mm thick plain cement mortar band in cement mortar 1:4 (1 cement : 4 fine sand):											
11.48.1	Flush/ Sunk/ Raised Band	per me	100				0.02					
11.48.4	Moulded Band	per me	100				0.024					
11.50	Platering on under side of ceiling with 10 mm thick cement plaster 1:3 (1 cement: 3 fine sand)	sqm	1					0.12				
11.51	Platering on under side of ceiling with 10 mm thick cement plaster 1:4 (1 cement: 4 fine sand)	sqm	1				0.12					
11.52	Cement rendering on plaster 1 mm thick	sqm	1	0.0012								
11.61	White washing with lime to give an even shade :											
11.61.1	New work (three or more coats)	sqm	10							0.03		
11.62	Colour washing such as green, blue or buff to give an even shade :											
11.62.1	New work (two or more coats) with a base coat of white washing with lime	sqm	10							0.03		
11.62.2	New work (two or more coats) with a base coat of	sqm	10							0.03		
11.63	Distempering with dry distemper of approved brand and manufacture (two or more coats) of required shade on new work, over and including water thinnable priming coat to give an even shade.	sqm	10								1.50	
11.64	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade :											
11.64.1	New work (two or more coats) over and including water thinnable priming coat with cement primer	sqm	10									1.50
11.65	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre, of approved manufacturer, of required shade and colour complete, as per manufacturer's specification.											
11.65.1	Two or more coats on new work	sqm	10									1.50
11.66	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.											
11.66.1	One coat	sqm	10									0.62
11.66.2	Two coats	sqm	10									0.99
11.71	Wall painting with acrylic emulsion paint of											
11.71.1	Two or more coats on new work	sqm	10									

11.73	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.											
11.73.2	On concrete work	sqm	10									
11.74	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.											
11.74.1	One coat	sqm	10									
11.74.2	Two coats	sqm	10									
11.75	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.											
11.75.1	One coat	sqm	10									
11.75.2	Two coats	sqm	10									
11.82	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :											
11.82.1	Two or more coats on new work	sqm	10									
11.83	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :											
11.83.1	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture	sqm	10									
11.93	Finishing walls with water proofing cement paint of required shade :											
11.93.1	New work (Two or more coats applied @ 3.84 kg/10 sqm)	sqm	10									
11.94	Finishing walls with textured exterior paint of required shade :											
11.94.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	sqm	10									
11.95	Finishing walls with Acrylic Smooth exterior paint of required shade :											
11.95.1	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	10									

11.96	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:											
11.96.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	10									
11.98	Finishing walls with 100% Premium acrylic emulsion paint having VOC less than 50 gm/litre and UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives.											
11.98.1	New work (Two or more coats applied @ 1.43 litre/ 10 sqm. Over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm.	sqm	10									
11.99	Painting on G.S. sheet with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :											
11.99.1	New work (two or more coats) including a coat of approved steel primer but excluding a coat of mordant solution	sqm	10									
11.102	Painting (two or more coats) on rain water, soil waste and vent pipes and fittings with synthetic enamel paint of approved brand and manufacture and required colour over a priming coat of approved steel primer on new work.											
11.102.1	100 mm diameter pipes	metre	30									
11.102.2	150 mm diameter pipes	metre	30									
11.110	Satna lime wash on walls with one coat.	sqm	10							0.01		

Item No.	FINISHING WORKS			Materials								
				Emulsions		Primers			Synthetic Paints		Exterior paints	
				Premium acrylic/ Acrylic of interior grade	Plastic	Red Oxide Zinc Chromate /Pink primer	Exterior Primer	Water thinnable cement primer	Synthetic enamel paint	Epoxy paint	Water proofing cement paint	Premium acrylic Acrylic /dirt resistance /Textured
	Description	Unit	Quantity	litre	litre	litre	kg	litre	litre	litre	kg	litre
11.1	6 mm cement plaster of mix :											
11.1.1	1:3 (1 cement : 3 fine sand)											
11.2	6 mm cement plaster 1:3 (1 cement : 3 fine sand) finished with a floating coat of neat cement and thick coat of Lime wash on top of walls when dry for bearing of R.C.C. slabs and beams.	sqm	10									
11.3	Neat cement punning.	sqm	10									
11.4	10 mm thick cement plaster											
11.4.1	1:2 (1 cement: 2 fine sand)	sqm	1									
11.4.2	1:3 (1 cement: 3 fine sand)	sqm	1									
11.5	12 mm cement plaster of mix :											
11.5.1	1:2 (1 cement: 2 fine sand)	sqm	10									
11.5.2	1:3 (1 cement: 3 fine sand)	sqm	10									
11.5.3	1:4 (1 cement: 4 fine sand)	sqm	10									
11.5.4	1:6 (1 cement: 6 fine sand)	sqm	10									
11.6	15 mm cement plaster on the rough side of single or half brick wall of mix :											
11.6.1	1:4 (1 cement: 4 fine sand)	sqm	10									
11.6.2	1:6 (1 cement: 6 fine sand)	sqm	10									
11.7	20 mm cement plaster of mix :											
11.7.1	1:4 (1 cement: 4 fine sand)	sqm	10									
11.7.2	1:6 (1 cement: 6 fine sand)	sqm	10									
11.8	12 mm cement plaster of mix :											
11.8.1	1:4 (1 cement: 4 coarse sand)	sqm	10									
11.8.2	1:6 (1 cement: 6 coarse sand)	sqm	10									
11.9	15 mm cement plaster on rough side of single or half brick wall of mix:											
11.9.1	1:4 (1 cement: 4 coarse sand)	sqm	10									
11.9.2	1:6 (1 cement: 6 coarse sand)	sqm	10									
11.10	20 mm cement plaster of mix :											
11.10.1	1:4 (1 cement: 4 coarse sand)	sqm	10									
11.10.2	1:6 (1 cement: 6 coarse sand)	sqm	10									

11.11	12 mm cement plaster finished with a floating coat of neat cement of mix :											
11.11.1	1:3 (1 cement: 3 fine sand)	sqm	10									
11.11.2	1:4 (1 cement: 4 fine sand)	sqm	10									
11.12	15 mm cement plaster on rough side of single or half brick wall finished with a floating coat of neat cement of mix :											
11.12.1	1:3 (1 cement: 3 fine sand)	sqm	10									
11.12.2	1:4 (1 cement: 4 fine sand)	sqm	10									
11.13	Cement plaster 1:3 (1 cement: 3 coarse sand)											
11.13.1	12 mm cement plaster	sqm	10									
11.13.2	20 mm cement plaster	sqm	10									
11.14	15 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.	sqm	10									
11.18	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand).											
11.20	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster 1:3 (1 cement : 3 coarse sand) finished rough with sponge.											
11.21	12 mm cement plaster 1:2 (1 cement : 2 stone											
11.22	15 mm cement plaster 1:2 (1 cement : 2 stone dust) on the rough side of single or half brick wall.											
11.23	20 mm cement plaster 1:2 (1 cement : 2 stone											
11.25	Pointing on brick work or brick flooring with cement mortar 1:3 (1 cement : 3 fine sand):											
11.25.1	Flush / Ruled/ Struck or weathered pointing	sqm	10									
11.25.2	Raised and cut pointing	sqm	10									
11.26	Pointing on tile brick work with cement mortar 1:3 (1 cement : 3 fine sand):											
11.26.1	Flush/ Ruled/ Struck or weathered pointing	sqm	10									
11.27	Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) :											
11.27.1	Flush/ Ruled pointing	sqm	10									
11.27.2	Raised and cut pointing	sqm	10									
11.28	Raised and cut pointing on stone work in white cement mortar 1:3 (1 white cement : 3 marble dust).	sqm	10									

11.29	Pointing on stone slab ceiling with cement mortar 1:2 (1 cement : 2 fine sand):											
11.29.1	Flush/ Ruled pointing	sqm	10									
11.48	18 mm thick plain cement mortar band in cement mortar 1:4 (1 cement : 4 fine sand):											
11.48.1	Flush/ Sunk/ Raised Band	per me	100									
11.48.4	Moulded Band	per me	100									
11.50	Platering on under side of ceiling with 10 mm thick cement plaster 1:3 (1 cement: 3 fine sand)	sqm	1									
11.51	Platering on under side of ceiling with 10 mm thick cement plaster 1:4 (1 cement: 4 fine sand)	sqm	1									
11.52	Cement rendering on plaster 1 mm thick	sqm	1									
11.61	White washing with lime to give an even shade :											
11.61.1	New work (three or more coats)	sqm	10									
11.62	Colour washing such as green, blue or buff to give an even shade :											
11.62.1	New work (two or more coats) with a base coat of white washing with lime	sqm	10									
11.62.2	New work (two or more coats) with a base coat of	sqm	10									
11.63	Distempering with dry distemper of approved brand and manufacture (two or more coats) of required shade on new work, over and including water thinnable priming coat to give an even shade.	sqm	10					0.7				
11.64	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade :											
11.64.1	New work (two or more coats) over and including water thinnable priming coat with cement primer	sqm	10					0.7				
11.65	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre, of approved manufacturer, of required shade and colour complete, as per manufacturer's specification.											
11.65.1	Two or more coats on new work	sqm	10									
11.66	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.											
11.66.1	One coat	sqm	10									
11.66.2	Two coats	sqm	10									
11.71	Wall painting with acrylic emulsion paint of											

11.71.1	Two or more coats on new work	sqm	10		1.21							
11.73	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.											
11.73.2	On concrete work	sqm	10					0.84		1.21		
11.74	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.											
11.74.1	One coat	sqm	10	0.53								
11.74.2	Two coats	sqm	10	0.84								
11.75	Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.											
11.75.1	One coat	sqm	10	0.38								
11.75.2	Two coats	sqm	10	0.60								
11.82	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :											
11.82.1	Two or more coats on new work	sqm	10						1.16			
11.83	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :											
11.83.1	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture	sqm	10			0.75			1.16			
11.93	Finishing walls with water proofing cement paint of required shade :											
11.93.1	New work (Two or more coats applied @ 3.84 kg/10 sqm)	sqm	10								3.84	
11.94	Finishing walls with textured exterior paint of required shade :											
11.94.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	sqm	10				2.2					3.28
11.95	Finishing walls with Acrylic Smooth exterior paint of required shade :											

11.95.1	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	10				2.2					1.67
11.96	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:											
11.96.1	New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)	sqm	10				2.2					1.43
11.98	Finishing walls with 100% Premium acrylic emulsion paint having VOC less than 50 gm/litre and UV resistance as per IS 15489:2004, Alkali & fungal resistance, dirt resistance exterior paint of required shade (Company Depot Tinted) with silicon additives.											
11.98.1	New work (Two or more coats applied @ 1.43 litre/ 10 sqm. Over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm.	sqm	10				0.90					1.43
11.99	Painting on G.S. sheet with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :											
11.99.1	New work (two or more coats) including a coat of approved steel primer but excluding a coat of mordant solution	sqm	10			0.36			0.80			
11.102	Painting (two or more coats) on rain water, soil waste and vent pipes and fittings with synthetic enamel paint of approved brand and manufacture and required colour over a priming coat of approved steel primer on new work.											
11.102.1	100 mm diameter pipes	metre	30			0.54			1.16			
11.102.2	150 mm diameter pipes	metre	30			0.8			1.72			
11.110	Satna lime wash on walls with one coat.	sqm	10									

CHAPTER 19.0 - QUANTITY OF MATERIALS

Item No.	WOOD & PVC WORK			Materials	
				Timber in scantlings	Timber in planks
	Description	Unit	Quantity	10 cudm	10 cudm
12.1	Providing wood work in frames of doors, windows, clerestory windows and other frames				
12.1.1	Second class teak wood/ Sal wood/ hollock wood	cum	0.038	3.80	
12.3	Providing and fixing wooden moulded beading to door and window frames				
12.3.1	Second class teak wood/ Hollock wood				
12.3.1.1	50x12 mm	metre	5		0.33
12.3.2.2	50x20 mm	metre	5		0.55
12.4	Providing wood work in frames of false ceiling, partitions etc. sawn and fixed in position				
12.4.1	Sal wood/ hollock wood	cum	0.038	16.60	
12.7	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows				
12.7.1	Second class teak wood/ hollock wood/ Sheesham				
12.7.1.1	35 mm thick shutters	sqm	2.16		5.10
12.7.1.2	30 mm thick shutters	sqm	2.16		4.40
12.9	Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows				
12.9.1	Second class teak wood/ Hollock wood	sqm	2.16		1.29
12.10	Providing and fixing glazed shutters for doors, windows and clerestory windows				
12.10.1	Second class teak wood/ Hollock wood				
12.10.1.1	35 mm thick	sqm	2.16		5.80
12.10.1.2	30 mm thick	sqm	2.16		5.00

12.19	Providing and fixing wire gauge shutters for doors, windows and clerestory windows				
12.19.1.1.1	Second class teak wood/ Hollock wood/ Sheesham wood				
12.19.1	35 mm thick shutters	sqm	2.16		5.14
12.19.2	30 mm thick shutters	sqm	2.16		4.40
12.23	Kail wood planking planed on both sides, rebated and fixed in position including nails and screws etc.				
12.23.1	50 mm thick	sqm	1	6.5	
12.23.2	30 mm thick	sqm	1	4.000	
12.23.3	25 mm thick	sqm	1	3.25	
12.23.4	20 mm thick	sqm	1	2.5	
12.23.5	12.5 mm thick	sqm	1	1.6	
12.25	Providing and fixing 25 mm thick panelled or panelled & glazed shutters for cup board etc. :				
12.25.1.1	Second class teak wood	sqm	2.16		4.00
12.25.2	Providing and fixing 25 mm thick glazed shutters for cup board etc. :				
12.25.2.1	Second class teak wood	sqm	2.16		4.30
12.53	Providing and fixing fly proof galvanized M.S. wire gauge to windows and clerestory windows				
12.53.1	with second class teak wood beading 62X19 mm	sqm	1.54		0.60
12.113	Providing and fixing wooden handrail of required shape and design, with necessary screws, including labour, for rounding, vertical and horizontal bends and curves complete fixed in position.				
12.113.2	commercial hard wood, such as hollock, champ, chikrassy and chaplash, etc., (Non-coniferous timber other than teak, conforming to I.S.specification no.1003,kiln seasoned)	cum	0.225	29.7	
12.113.3	Teak wood/Deodar wood	cum	0.225	29.7	

Item No.	LINING AND OUTLETS			Materials							
				OPC 43	Aggregates						Timber
					20-40 mm Stone	5-20 mm Stone	10mm downsize stone	Bajri	Coarse sand	Fine sand	
	Description	Unit	Quantity	tonne	cum	cum	cum	cum	cum	cum	cum
14.7	Double layer tile lining for irrigation channels consisting of:										
	(i) 10 mm thick cement mortar 1 :5 in sub grade.										
	(ii) First layer of 5.08 cm thick tiles 30.48 cm X 15.24 cm laid in 1:5 cement mortar										
	(iii) Sand-wiched plaster 1:3 cement mortar 15 mm										
	(iv) Second layer of tiles, laid in 1:3 cement mortar, with 6 mm thick layer of mortar, over sand-wiched plaster-										
	The above gives total thickness of lining as 13.36 cm										
14.7.1	In bed/ side slopes for any height above bed level	sqm	1.00	0.0175					0.049		
14.8	Single layer tile lining in bed only, consisting of -	sqm	1.00	0.0135					0.040		
	(i) 10mm thick cement mortar 1:5 on Sub grade.										
	(ii) Single layer of 5.08 cm. thick tiles 30.48 cm. x 15.24 cm x 5.08 cm. laid in 1:5 cement sand mortar, mentioned above.										
	(iii) 20mm thick cement plaster 1:3 properly rendered and finished.										
14.9	Cement concrete lining 15cm thick or less for irrigation channels, using cement concrete 1:3:6 (M-10)										
14.9.1	Concrete lining in bed/ side slopes	Cum	1.00								
14.13	Putting 1:3 Cement sand slurry, 6mm thick on prepared bed and side slopes before laying concrete on bed and side slopes	sqm	1.00	0.0038					0.008		
14.14	Curing Lining for 28 days										
14.14.1	In bed	sqm	24000.00	0.63					3.000		
14.14.2	On Side slopes	sqm	6000.00	0.488					2.33		

14.15	Extra allowance for providing templates in curved portion of lining	sqm of									0.052
14.16	Extra allowance for form work in concrete lining										
14.16.1	In Bed/ side slopes	cum	1.35								0.054
14.17	Extra allowance for scaffolding, in tile and concrete lining for side slopes.	sqm	6000.00								1.01
14.18	Filling expansion joints, with speical impervious hot pour, 12.5 mm wide.	per metre	30.00							0.030	
14.20	Making temporary perforated French drain on top of coping of lining for curing consisting of two tiles, laid on edge in 1:7 mortar, on each side of the drain.	Metre	30.00	0.0235					0.113		
14.23	Cement pointing 1:2 on lining										
14.23.1	In bed / side slopes	sqm	1.00	0.00135					0.0023		
14.26	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregate 20 mm nominal size laid over 7.50 cm thick layer of cement concrete 1:6:12 using brick ballast 40 mm nominal size including dressing of sub-grade, curing form work and scaffolding, etc. complete in all respects.										
14.26.1	Concrete lining in bed/side slopes	sqm	1.00								
14.27	Double layer tile lining for water storage tanks, consisting of-										
14.27.1	In bed/side slopes	sqm	1.00	0.0175					0.049		
14.28	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregats 20 mm nominal size laid over 7.5 cm .thick layer of cement lime sand concrete 1:2:9:24 , (0.041 cum cement 0.082 cum ground hydrated lime 0.37 cum sand 1.00 cum stone blasst 20 mm nominal size) including dressing of sub-grade, curing of work and scaffolding, etc. complete in all respects.										
14.28.1	Concrete lining in bed/ side slopes	sqm	1.00								

14.29	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregats 20 mm nominal size laid over 7.5 cm .thick layer of cement lime sand concrete 1:2:9:24 , 0.041 cum cement 0.082 cum ground hydrated lime 0.37 cum sand 1.00 cum stone blasst 40 mm nominal size including dressing of sub-grade, curing of work and scaffolding, etc. complete in all respects.										
14.29.1	Concrete lining in bed/ side slopes	sqm	1.00								
14.30	Double layer brick lining for storage tanks										
	(i) 10 mm thick cement mortar 1:5 in sub grade										
	(ii) 22.86 cm x 11.11 cm size laid in 1:5 cement mortar										
	(iii) sand-wiched plaster in 1:3 cement mortar 12 mm thick										
	(iv) Second layer of brick laid in 1:3 cement mortar with 6 mm thick 1:3 cement mortar over sand-wiched plaster, including cost of dressing of sub-grade, scaffolding and curing etc. complete in all respects										
14.30.1	in Bed / side slopes	sqm	1.00	0.0175					0.042		
14.31	Single layer brick lining for irrigation channels for discharge upto 150 cusecs consisting of:										
	(i)10 mm thick cement plaster 1:6 on sub grade.										
	(ii)10 mm thick cement plaster 1:3 over first plaster										
	(iii)First layer of 6.83 mm thick brick layer (22.86x11.11 mm) laid in 1:3 mortar over 6 mm thick cement 1:3 the above cost										
14.31.1	In Bed/ side slopes	sqm	1.00	0.013					0.037		
14.32	Single layer brick lining for irrigation channels for discharge above 150 cusecs but upto 1000 cusecs, consisting of:										
	(i)10 mm thick cement plaster 1 :6 on sub grade.										
	(ii)12 mm thick cement plaster 1:3 over first plaster.										
	(iii) First layer of 68.3 mm thick brick layer (228.6x111.1 mm) laid in1:3 mortar over 6mm thick 1 :3 cement mortar.										
14.32.1	In bed / side slopes	sqm	1.00	0.0145					0.040		

14.33	Single layer brick lining for irrigation channels for discharge above 1000 cusecs, consisting of:										
	(i)10 mm thick cement plaster 1:6 on sub grade.										
	(ii)16 mm thick cement plaster 1:3 over first plaster.										
	(iii)First layer of 68.3 mm thick brick layer (228.6x111.1 mm) laid in 1:3 mortar over 6mm thick 1:3 cement mortar.										
14.33.1	In Bed / Side slopes	sqm	1.00	0.0175					0.050		
14.38	Providing and forming 610x610x975 mm deep filter drain pocket around pressure relief pipe consisting of 75 mm thick each layer with 20 - 40 mm graded gravel layer & 5-20 mm graded gravel and sand layer including cost of all materials, labour etc. complete with lead up to 50 m and all lifts.	Each	10.00		1.8	1.1			0.9		
14.45	Providing and forming 350 x 350 x 400 mm deep filter drain consisting of 75 mm thick 10 mm down coarse aggregate around pressure relief pipe and 75 mm thick sand around coarse aggregate filter including cost of all materials, labour, excavation of pit etc., complete with lead upto 50 m and all lifts	Each	10.00				0.15		0.35		
14.56	Making temporary A.P.M. Block and fixing at site-										
14.56.1	In case of new outlets, where no dismantling and reconstructing of gullet walls is involved	Each	1.00								
14.59	Extra for adjusting of crest levels of O.F. and A.P.M. outlets with 1:2:4 cement concrete when lowering of crest level is involved.	Each	0.60	0.0051				0.0142			
14.59.1	H' upto 0.6 m										
14.59.2	H' more than 0.6 m but upto 0.9 m	Each	0.90	0.0076				0.0212			
14.59.3	H' more than 0.9 m but upto 1.10 m	Each	1.10	0.0101				0.0212			
14.64	Repairing damaged reducing collar of hume pipe outlets	Each	1.00	0.0051							
14.66	Laying R.C.C. pipes for outlets and culverts including joining ends and fixing collar with cement mortar 1:2-										
14.66.1	upto 150 mm inside diameter	Metre	1.00	0.0021					0.003		
14.66.2	above 150 mm but upto 300 mm inside diameter	Metre	1.00	0.0041					0.01		
14.66.3	above 300 mm but upto 600 mm inside diameter	Metre	1.00	0.0117					0.016		
14.66.4	above 600mm but upto 900 mm inside diameter	Metre	1.00	0.0195					0.027		

CHAPTER 19.0 - QUANTITY OF MATERIALS

Item No.	LINING AND OUTLETS			Materials						
				Bricks	Tiles	Concrete				Bitumen
						CC 1:2:4	CC 1:3:6	CC 1:6:12	Cement Lime 1:2:9:24	
	Description	Unit	Quantity	nos.	nos.	cum	cum	cum	cum	quintal
14.7	Double layer tile lining for irrigation channels consisting of:									
	(i) 10 mm thick cement mortar 1 :5 in sub grade.									
	(ii) First layer of 5.08 cm thick tiles 30.48 cm X 15.24 cm laid in 1:5 cement mortar									
	(iii) Sand-wiched plaster 1:3 cement mortar 15 mm									
	(iv) Second layer of tiles, laid in 1:3 cement mortar, with 6 mm thick layer of mortar, over sand-wiched plaster-									
	The above gives total thickness of lining as 13.36 cm									
14.7.1	In bed/ side slopes for any height above bed level	sqm	1.00		44.00					
14.8	Single layer tile lining in bed only, consisting of -	sqm	1.00		22.00					
	(i) 10mm thick cement mortar 1:5 on Sub grade.									
	(ii) Single layer of 5.08 cm. thick tiles 30.48 cm. x 15.24 cm x 5.08 cm. laid in 1:5 cement sand mortar, mentioned above.									
	(iii) 20mm thick cement plaster 1:3 properly rendered and finished.									
14.9	Cement concrete lining 15cm thick or less for irrigation channels, using cement concrete 1:3:6 (M-10)									
14.9.1	Concrete lining in bed/ side slopes	Cum	1.00				1.00			
14.13	Putting 1:3 Cement sand slurry, 6mm thick on prepared bed and side slopes before laying concrete on bed and side slopes	sqm	1.00							
14.14	Curing Lining for 28 days									
14.14.1	In bed	sqm	24000.00		5160.00					
14.14.2	On Side slopes	sqm	6000.00		4000.00					

14.15	Extra allowance for providing templates in curved portion of lining	sqm of								
14.16	Extra allowance for form work in concrete lining									
14.16.1	In Bed/ side slopes	cum	1.35							
14.17	Extra allowance for scaffolding, in tile and concrete lining for side slopes.	sqm	6000.00							
14.18	Filling expansion joints, with speical impervious hot pour, 12.5 mm wide.	per metre	30.00							0.28
14.20	Making temporary perforated French drain on top of coping of lining for curing consisting of two tiles, laid on edge in 1:7 mortar, on each side of the drain.	Metre	30.00		200.00					
14.23	Cement pointing 1:2 on lining									
14.23.1	In bed / side slopes	sqm	1.00							
14.26	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregate 20 mm nominal size laid over 7.50 cm thick layer of cement concrete 1:6:12 using brick ballast 40 mm nominal size including dressing of sub-grade, curing form work and scaffolding, etc. complete in all respects.									
14.26.1	Concrete lining in bed/side slopes	sqm	1.00				0.05	0.075		
14.27	Double layer tile lining for water storage tanks, consisting of-									
14.27.1	In bed/side slopes	sqm	1.00		76.00					
14.28	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregats 20 mm nominal size laid over 7.5 cm .thick layer of cement lime sand concrete 1:2:9:24 , (0.041 cum cement 0.082 cum ground hydrated lime 0.37 cum sand 1.00 cum stone blasst 20 mm nominal size) including dressing of sub-grade, curing of work and scaffolding, etc. complete in all respects.									
14.28.1	Concrete lining in bed/ side slopes	sqm	1.00				0.05		0.075	

14.29	Lining of water storage tanks with 5 cm. thick cement concrete 1:3:6 using stone aggregats 20 mm nominal size laid over 7.5 cm .thick layer of cement lime sand concrete 1:2:9:24 , 0.041 cum cement 0.082 cum ground hydrated lime 0.37 cum sand 1.00 cum stone blasst 40 mm nominal size including dressing of sub-grade, curing of work and scaffolding, etc. complete in all respects.									
14.29.1	Concrete lining in bed/ side slopes	sqm	1.00				0.05		0.075	
14.30	Double layer brick lining for storage tanks									
	(i) 10 mm thick cement mortar 1:5 in sub grade									
	(ii) 22.86 cm x 11.11 cm size laid in 1:5 cement mortar									
	(iii) sand-wiched plaster in 1:3 cement mortar 12 mm thick									
	(iv) Second layer of brick laid in 1:3 cement mortar with 6 mm thick 1:3 cement mortar over sand-wiched plaster, including cost of dressing of sub-grade, scaffolding and curing etc. complete in all respects									
14.30.1	in Bed / side slopes	sqm	1.00	74.00						
14.31	Single layer brick lining for irrigation channels for discharge upto 150 cusecs consisting of:									
	(i)10 mm thick cement plaster 1:6 on sub grade.									
	(ii)10 mm thick cement plaster 1:3 over first plaster									
	(iii)First layer of 6.83 mm thick brick layer (22.86x11.11 mm) laid in 1:3 mortar over 6 mm thick cement 1:3 the above cost									
14.31.1	In Bed/ side slopes	sqm	1.00	37.00						
14.32	Single layer brick lining for irrigation channels for discharge above 150 cusecs but upto 1000 cusecs, consisting of:									
	(i)10 mm thick cement plaster 1 :6 on sub grade.									
	(ii)12 mm thick cement plaster 1:3 over first plaster.									
	(iii) First layer of 68.3 mm thick brick layer (228.6x111.1 mm) laid in1:3 mortar over 6mm thick 1 :3 cement mortar.									
14.32.1	In bed / side slopes	sqm	1.00	37.00						

14.33	Single layer brick lining for irrigation channels for discharge above 1000 cusecs, consisting of:									
	(i)10 mm thick cement plaster 1:6 on sub grade.									
	(ii)16 mm thick cement plaster 1:3 over first plaster.									
	(iii)First layer of 68.3 mm thick brick layer (228.6x111.1 mm) laid in 1:3 mortar over 6mm thick 1:3 cement mortar.									
14.33.1	In Bed / Side slopes	sqm	1.00	37.00						
14.38	Providing and forming 610x610x975 mm deep filter drain pocket around pressure relief pipe consisting of 75 mm thick each layer with 20 - 40 mm graded gravel layer & 5-20 mm graded gravel and sand layer including cost of all materials, labour etc. complete with lead up to 50 m and all lifts.	Each	10.00							
14.45	Providing and forming 350 x 350 x 400 mm deep filter drain consisting of 75 mm thick 10 mm down coarse aggregate around pressure relief pipe and 75 mm thick sand around coarse aggregate filter including cost of all materials, labour, excavation of pit etc., complete with lead upto 50 m and all lifts	Each	10.00							
14.56	Making temporary A.P.M. Block and fixing at site-									
14.56.1	In case of new outlets, where no dismantling and reconstructing of gullet walls is involved	Each	1.00			0.05				
14.59	Extra for adjusting of crest levels of O.F. and A.P.M. outlets with 1:2:4 cement concrete when lowering of crest level is involved.	Each	0.60							
14.59.1	H' upto 0.6 m									
14.59.2	H' more than 0.6 m but upto 0.9 m	Each	0.90							
14.59.3	H' more than 0.9 m but upto 1.10 m	Each	1.10							
14.64	Repairing damaged reducing collar of hume pipe outlets	Each	1.00							
14.66	Laying R.C.C. pipes for outlets and culverts including joining ends and fixing collar with cement mortar 1:2-									
14.66.1	upto 150 mm inside diameter	Metre	1.00							
14.66.2	above 150 mm but upto 300 mm inside diameter	Metre	1.00							
14.66.3	above 300 mm but upto 600 mm inside diameter	Metre	1.00							
14.66.4	above 600mm but upto 900 mm inside diameter	Metre	1.00							

Item No.	RIVER AND CANAL PROTECTION WORKS			Material			
				Stone for refilling	G.I. wire, 4 mm dia	G.I. wire, 4.75 mm dia	G.I. wire, 3.25 mm dia
	Description	Unit	Quantity	cum	quintal	quintal	quintal
16.38	Wire Crates 1.20 m x1.20 m from all directions of G.I. Wire, filled with boulders with square-cut faces, against the wire-						
16.38.1	4mm dia G.I. Wire, 25 cm x 7.5 cm mesh (diagonal wise)	Cum	1.728	1.728	0.300		
16.38.2	4.00 mm dia G.I. wire 15 cm x 15 cm mesh (diagonal wise)	Cum	1.728	1.728	0.200		
16.38.3	4.75 mm, dia G.1. wire, 25 cm. x 7.5 cm mesh (diagonal wise)	Cum	1.728	1.728		0.417	
16.38.4	4.75 mm, dia. G.I. wire 15 cm x 15 cm mesh (diagonal wise)	Cum	1.728	1.728		0.279	
16.38.5	3.25 mm dia G.I. wire 25 cm x 7.5 cm mesh (diagonal wise)	Cum	1.728	1.728			0.194
16.38.6	3.25 mm dia G.I. wire. 15 cm. x 15 cm mesh (diagonal wise)	Cum	1.728	1.728			0.130

CHAPTER NO: 20

WATER SUPPLY

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CHAPTER 20: WATER SUPPLY

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 554	Pipe threads where pressure tight joints are required on the threads- Dimensions, tolerances and designation.
2	IS 778	Specification for copper alloy gate, and check valves for water works purposes
3	IS 779	Water meters (domestic type) –Specification
4	IS 780	Specification for sluice valves for water works purposes (50 to 300 mm size)
5	IS 781	Specification for cast copper alloy screw down bib taps and stop valves for water services
6	IS 782	Specification for caulking lead
7	IS 909	Underground fire hydrant, sluice valve type-Specification
8	IS 1239 (Part 1)	Steel tubes tubular and other wrought steel fittings, Part 1- Steel tubes- Specification
9	IS 1239 (Part 2)	Specification for mild steel tubes tubular and other wrought steel fittings, Part 2-Mild street tubular and other wrought steel pipe fittings
10	IS 1536	Centrifugally cast (spun) iron pressure pipes for water gas and sewage- Specification
11	IS 1537	Specification for vertically cast iron pressure pipes for water, gas and sewage
12	IS 1538	Cast iron fittings for pressure pipes for water, gas and sewage – Specification
13	IS 1703	Water fittings - copper alloy float valves (horizontal plunger type) –Specification
14	IS 2692	Ferrules for water services- Specification
15	IS 3950	Specification for surface boxes for sluice valves
16	IS 4736	Specification for Hot-dip Zinc Coatings on mild steel tubes
17	IS 5312 (Part 1)	Swing type reflex (non return) valves for water works purposes. Part 1- Single door pattern
18	IS 5312 (Part 2)	Swing type reflex (non return) valves for water works purposes. Part 2- Multi door pattern
19	IS 5382	Rubber sealing rings for gas mains, water mains and sewers
20	IS 9762	Specification for polyethylene floats (spherical) for float valves
21	IS 9763	Plastic Bib taps and stop valves (rising spindle) for cold water services- specifications
22	IS 15450	PE-AL-PE Pipes for hot and cold water supplies-Specifications
23	IS 15778	Chlorinated Polyvinyl Chloride (CPVC) pipes for potable hot and cold water distribution supplies-specifications.
24	IS 15801	Polypropylene- Random Copolymer Pipes for hot and cold water supplies-Specifications

CHAPTER 20: WATER SUPPLY

NOTES:

1. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

2. The rates for stringing out cast iron, A.C., P.V.C. and hume pipes and their specials etc. provided under this chapter which are in the wider sense labour rates in case of which the material is generally issued to the constructions free of cost from the stores of the engineer-in-charge or the nearest Railway station include the carriage of material within a radious of 5 Km of the site of works.

3. The rates provided under this chapter include the wastage and breakage of various materials during construction.

	CHAPTER 20.0 - WATER SUPPLY						
	A. Laying of C.I. Pipes and Specials						
20.1	Stringing out C.I. pipes and specials castings along trenches and laying the same in trenches to correct, alignment and gradients including cartage from divisional stores or nearest railway station to site of works and return of pieces of pipes to stores						
	20.1.1	80mm internal diameter pipe line laid complete	10 metres	101	0	0	101
	20.1.2	100 mm internal diameter pipe line laid complete	10 metres	104	0	0	104
	20.1.3	125 mm internal diameter pipe line laid complete	10 metres	113	0	0	113
	20.1.4	150 mm internal diameter pipe line laid complete	10 metres	121	0	0	121
	20.1.5	200 mm internal diameter pipe line laid complete	10 metres	149	0	0	149
	20.1.6	250 mm internal diameter pipe line laid complete	10 metres	278	0	0	278
	20.1.7	300 mm internal diameter pipe line laid complete	10 metres	302	0	0	302
	20.1.8	350 mm internal diameter pipe line laid complete	10 metres	402	0	0	402
	20.1.9	400 mm internal diameter pipe line laid complete	10 metres	466	0	0	466
	20.1.10	450 mm internal diameter pipe line laid complete	10 metres	520	0	0	520
	20.1.11	500 mm internal diameter pipe line laid complete	10 metres	609	0	0	609
	20.1.12	600 mm internal diameter pipe line laid complete	10 metres	756	0	0	756
20.2	Extra for fixing cast iron socketted or flanged pipes, values and special castings in vertical position for overhead reservoirs and stand pipes etc. including cost of all special scaffolding derricks, jim poles, tools and plants, ropes, guys etc., complete.						
	20.2.1	80mm internal diameter pipe line lai/d complete	metre	59	0	0	59
	20.2.2	100mm internal diameter pipe line laid complete	metre	91	0	0	91
	20.2.3	125 mm internal diameter pipe line laid complete	metre	117	0	0	117
	20.2.4	150 mm internal diameter pipe line laid complete	metre	147	0	0	147
	20.2.5	200 mm internal diameter pipe line laid complete	metre	242	0	0	242
	20.2.6	250 mm internal diameter pipe line laid complete	metre	327	0	0	327
	20.2.7	300 mm internal diameter pipe line laid complete	metre	428	0	0	428
	20.2.8	350 mm internal diameter pipe line laid complete	metre	528	0	0	528
	20.2.9	400 mm internal diameter pipe line laid complete	metre	707	0	0	707
	20.2.10	450 mm internal diameter pipe line laid complete	metre	858	0	0	858
	20.2.11	500 mm internal diameter pipe line laid complete	metre	995	0	0	995
	20.2.12	600 mm internal diameter pipe line laid complete	metre	1327	0	0	1327
	Notes: (i) For pipes larger than 600mm internal diameter, special rates shall be fixed.						
	(ii) The contractor shall be liable to make good all damage caused by breakage from the moment pipes and fittings are handed over to his charge.						
	(iii) All measurements shall be taken along the centre line and axis of the pipe line throughout its length and shall inlude the overall laying length of sluice values, etc. fixed there in.						
20.3	Cutting cast iron pipes and specials and chipping or filing the surface to a uni-form finish .						
	20.3.1	80mm internal diameter pipe line	per cut	28	0	7	35
	20.3.2	100 mm internal diameter pipe line	per cut	34	0	9	43
	20.3.3	125 mm internal diameter pipe line	per cut	50	0	9	59
	20.3.4	150 mm internal diameter pipe line	per cut	56	0	9	65
	20.3.5	200 mm internal diameter pipe line	per cut	63	0	11	74
	20.3.6	250 mm internal diameter pipe line	per cut	75	0	11	87
	20.3.7	300 mm internal diameter pipe line	per cut	94	0	14	108
	20.3.8	350 mm internal diameter pipe line	per cut	125	0	16	141
	20.3.9	400 mm internal diameter pipe line	per cut	146	0	16	162
	20.3.10	450 mm internal diameter pipe line	per cut	167	0	18	185
	20.3.11	500 mm internal diameter pipe line	per cut	209	0	18	227
	20.3.12	600 mm internal diameter pipe line	per cut	229	0	27	256
20.4	Jointing cast iron socketted pipes, valuves and specials with run lead caulked joints excluding cost of lead and yarn but including cost of labour, fuel and tooles etc. Tested complete.						
	20.4.1	80 mm i/d pipe	per joint	63	0	11	74
	20.4.2	100 mm i/d pipe	per joint	78	0	14	92
	20.4.3	125 mm i/d pipe	per joint	94	0	18	112
	20.4.4	150 mm i/d pipe	per joint	94	0	21	115
	20.4.5	200 mm i/d pipe	per joint	115	0	27	142
	20.4.6	250 mm i/d pipe	per joint	146	0	34	180
	20.4.6	300 mm i/d pipe	per joint	124	0	41	165
	20.4.7	350 mm i/d pipe	per joint	177	0	50	227
	20.4.8	400 mm i/d pipe	per joint	229	0	57	286
	20.4.9	450 mm i/d pipe	per joint	249	0	70	319
	20.4.10	500 mm i/d pipe	per joint	271	0	84	355
	20.4.11	600 mm i/d pipe	per joint	355	0	111	466
20.5	Making flanged joints for cast iron pipes, valves or specials						
	20.5.1	80mm internal diameter of pipe, values or specials	each	42	0	0	42
	20.5.2	100 mm internal diameter of pipe, values or specials	each	47	0	0	47
	20.5.3	125 mm internal diameter of pipe, values or specials	each	52	0	0	52
	20.5.4	150 mm internal diameter of pipe, values or specials	each	70	0	0	70
	20.5.5	200 mm internal diameter of pipe, values or specials	each	93	0	0	93
	20.5.6	250 mm internal diameter of pipe, values or specials	each	168	0	0	168
	20.5.7	300 mm internal diameter of pipe, values or specials	each	210	0	0	210
	20.5.8	350 mm internal diameter of pipe, values or specials	each	279	0	0	279
	20.5.9	400 mm internal diameter of pipe, values or specials	each	335	0	0	335
	20.5.10	450 mm internal diameter of pipe, values or specials	each	419	0	0	419
	20.5.11	500 mm internal diameter of pipe, values or specials	each	503	0	0	503
	20.5.12	600 mm internal diameter of pipe, values or specials	each	559	0	0	559
	Notes: (i) The rubber insertion, 3mm thick required for making the joints will be issued in rectangular sheets or rolls at stock issue rates in force ex-divisional stores or F.O.R. nearest railway station.						
	(ii) All bolts, nuts and washers for flanged joints will be supplied without charge to the contractor ex-divisional stores or delivered F.O.R. nearest railway station. The contract at his own expenses and charges will take delivery of jointing materials i.e. bolts, nuts and washers and transport the same to the site of work.						

20.6	Jointing cast iron socketted pipes, valves and specials with rubber tyton joints fitted complete including cost of labour and tools etc., and tested complete.						
	20.6.1	Labour cost for 80 mm joints	each	73	0	0	73
	20.6.2	Labour cost for 100 mm joints	each	82	0	0	82
	20.6.3	Labour cost for 125 mm joints	each	94	0	0	94
	20.6.4	Labour cost for 150 mm joints	each	97	0	0	97
	20.6.5	Labour cost for 200 mm joints	each	101	0	0	101
	20.6.6	Labour cost for 250 mm joints	each	110	0	0	110
	20.6.7	Labour cost for 300 mm joints	each	132	0	0	132
	20.6.8	Labour cost for 350 mm joints	each	146	0	0	146
	20.6.9	Labour cost for 400 mm joints	each	175	0	0	175
	20.6.10	Labour cost for 450 mm joints	each	202	0	0	202
	20.6.11	Labour cost for 500 mm joints	each	219	0	0	219
	20.6.12	Labour cost for 600 mm joints	each	292	0	0	292
	B. LAYING OF AC / PVC PIPES AND SPECIALS						
20.7	Stringing out A.C./P.V.C pipes and specials casting along trenches and laying the same in trenches, to correct alignment and gradients including cartage from divisional stores or nearest railway station to site of works and return of pieces of pipes to stores.						
	20.7.1	50mm internal diameter of pipe line laid complete	10 metres	69	0	0	69
	20.7.2	80 mm internal diameter of pipe line laid complete	10 metres	97	0	0	97
	20.7.3	100 mm internal diameter of pipe line laid complete	10 metres	147	0	0	147
	20.7.4	125 mm internal diameter of pipe line laid complete	10 metres	173	0	0	173
	20.7.5	150 mm internal diameter of pipe line laid complete	10 metres	214	0	0	214
	20.7.6	200 mm internal diameter of pipe line laid complete	10 metres	361	0	0	361
	20.7.8	250 mm internal diameter of pipe line laid complete	10 metres	574	0	0	574
	20.7.9	300 mm internal diameter of pipe line laid complete	10 metres	839	0	0	839
20.8	Jointing A.C./P.V.C. pipes and specials with cast iron detachable joints/split coupler P.V.C. joints fitted with bolts and nuts excluding cost of detachable joints/ split coupler P.V.C. joints rubber rings, bolts and nuts but including cost of labour and tools etc. and tested complete.						
	20.8.1	50 mm i/d pipe	each	37	0	0	37
	20.8.2	80 mm i/d pipe	each	48	0	0	48
	20.8.3	100 mm i/d pipe	each	58	0	0	58
	20.8.4	125 mm i/d pipe	each	79	0	0	79
	20.8.5	150 mm i/d pipe	each	97	0	0	97
	20.8.6	200 mm i/d pipe	each	121	0	0	121
	20.8.7	250 mm i/d pipe	each	145	0	0	145
	20.8.8	300 mm i/d pipe	each	171	0	0	171
20.9	Cutting A.C./P.V.C. pipes and specials and chipping or filing surface to a uniform finish.						
	20.9.1	50 mm i/d	each	11	0	0	11
	20.9.2	80 mm i/d	each	17	0	0	17
	20.9.3	100 mm i/d	each	21	0	0	21
	20.9.4	125 mm i/d	each	30	0	0	30
	20.9.5	150 mm i/d	each	33	0	0	33
	20.9.6	200 mm i/d	each	37	0	0	37
	20.9.7	250 mm i/d	each	43	0	0	43
	20.9.8	300 mm i/d	each	54	0	0	54
	C. FIXING OF C.I. VALVES HYDRANTS						
20.10	Extra for fixing sluice valves/flap valves socketed or flanged including cartage from stores or nearest Railway Station to site of works						
	20.10.1	80 mm i/d	each	62	0	2870	2932
	20.10.2	100 mm i/d	each	70	0	4145	4216
	20.10.3	150 mm i/d	each	97	0	6412	6509
	20.10.4	200 mm i/d	each	103	0	11242	11346
	20.10.5	250 mm i/d	each	139	0	17649	17787
	20.10.6	300 mm i/d	each	139	0	21480	21618
	20.10.7	350 mm i/d	each	139	0	34556	34694
	20.10.8	400 mm i/d	each	139	0	46803	46942
	20.10.9	450 mm i/d	each	146	0	55772	55918
	20.10.10	500 mm i/d	each	146	0	76247	76392
	20.10.11	600 mm i/d	each	146	0	108466	108612
	Note: Joints for sluice values shall be paid separately as pet item no.20.4 and 20.5						
20.11	Providing & fixing cast iron double flanged swing check type reflux (non return) valves PN-1.6 marked with IS:5312 including nuts & bolts marked with IS:1363, rubber sheet marked with IS:638 etc., carriage loading, unloading, stacking, handling, re-handling etc. Complete in all respect to the satisfaction of Engineer-in-charge						
	20.11.1	80 mm i/d	each	62	0	2769	2831
	20.11.2	100 mm i/d	each	70	0	3762	3832
	20.11.3	150 mm i/d	each	97	0	6331	6428
	20.11.4	200 mm i/d	each	103	0	10325	10429
	20.11.5	250 mm i/d	each	139	0	15871	16009
	20.11.6	300 mm i/d	each	139	0	19269	19407
	20.11.7	350 mm i/d	each	139	0	39392	39531
	20.11.8	400 mm i/d	each	139	0	46590	46728
	20.11.9	450 mm i/d	each	146	0	56418	56564
	20.11.10	500 mm i/d	each	146	0	73307	73453

	20.11.11	600 mm i/d		each	146	0	117448	117593
	Note: Joints for sluice values shall be paid separately as pet item no.20.4 and 20.5							
20.12	Extra for fixing fire hydrants all sizes including cartage from Divisional Stores or nearest Railway Station to site of works			each	115	0	0	115
	Note: Joints for hydrants shall be paid separately as per item no.20.5							
20.13	Providing & fixing cast iron single air valves marked with IS:14845 including carriage, loading, uploading stacking, handling, re-handling etc. drilling, tapping, screwing etc. in valves connections complete in all respects to the satisfaction of Engineer-in-charge. (Rate is same for 40mm/50mm i/d pipes)							
	20.13.1	40 mm i/d		each	162	0	1670	1832
	20.13.2	50 mm i/d		each	162	0	1843	2005
20.14	Providing and fixing cast iron double air valves of size given below marked with IS: 14845 including carriage, loading, unloading stacking, handling, re-handling etc., drilling, tapping, screwing in valves connections complete in all respects to the satisfaction of Engineer-in- charge. (Rate is same for 65mm/80mm/100 i/d pipes)							
	20.14.1	65 mm i/d		each	162	0	1971	2133
	20.14.2	80 mm i/d		each	162	0	2222	2385
	20.14.3	100 mm i/d		each	162	0	2665	2828
20.15	Providing and fixing C.I. Kinetic air valves conforming to and marked with IS: 14845 including carriage, loading, unloading stacking, handling, re-handling etc., drilling, tapping, screwing in valves connections complete in all respects to the satisfaction of Engineer-in- Charge.							
	20.15.1	80 mm i/d		each	162	0	3046	3208
	20.15.2	100 mm i/d		each	162	0	3358	3521
	20.15.3	150 mm i/d		each	180	0	8382	8562
	20.15.4	200 mm i/d		each	180	0	15150	15330
20.16	Fixing cost iron sluice valve surface boxes/indicating plates including cartage from Divisional Stores or nearest Railway Station and embedding to correct levels in cement mortar 1:3			each	86	0	0	86
20.17	Fixing cast iron fire hydrants surface boxes including cartage from divisional stores or nearest railway station and embedding to correct levels in cement mortar 1:3			each	94	0	0	94
20.18	Fixing cast iron single air valves surface boxes including cartage from divisional stores or nearest railway station and embedding to correct levels in cement mortar 1:3			each	89	0	0	89
20.19	Fixing cast iron double air valves surface boxes including cartage from divisional stores or nearest railway station and embedding to correct levels in cement mortar 1:3			each	91	0	0	91
	Notes: (i) All surface boxes will be supplied without charge, ex-divisional store or F.O.R. nearest railway station.							
	(ii) Payment for lime, concrete, brick work, pitching etc., required in connection with the construction of brick work pits or chambers for sluice valves chambers and other works for water supply pipe lines where no and other works for water supply pipe lines where no composite rate exists will be made on the basis of actual measurements for each class of work at the rates laid down for appropriate classes of work in Schedule of Rates and no extra will be payable due to the limited quantities of the work or difficulties of construction or other causes.							
	D. LAYING OF G.I./ P.V.C./W.I. PIPES AND SPECIALS							
20.20	Labour for laying, jointing, fixing and testing G.I./P.V.C./W.I. pipelines and special tees, bends, sockets, elbow etc. inside building and testing etc. complete including cutting threading							
	20.20.1	Excluding cost of specials						
		20.20.1.1	15 mm internal diametre of pipeline	metre	43	0	0	43
		20.20.1.2	20 mm internal diametre of pipeline	metre	51	0	0	51
		20.20.1.3	25 mm internal diametre of pipeline	metre	57	0	0	57
		20.20.1.4	32 mm internal diametre of pipeline	metre	70	0	0	70
		20.20.1.5	40 mm internal diametre of pipeline	metre	74	0	0	74
		20.20.1.6	50 mm internal diametre of pipeline	metre	92	0	0	92
	20.20.2	Including cost of specials						
		20.20.2.1	15 mm internal diametre of pipeline	metre	94	0	0	94
		20.20.2.2	20 mm internal diametre of pipeline	metre	112	0	0	112
		20.20.2.3	25 mm internal diametre of pipeline	metre	124	0	0	124
		20.20.2.4	32 mm internal diametre of pipeline	metre	155	0	0	155
		20.20.2.5	40 mm internal diametre of pipeline	metre	163	0	0	163
		20.20.2.6	50 mm internal diametre of pipeline	metre	193	0	0	193
	Notes: (i) Holder bats, flanged joints, unions and making chases in walls will be paid for separately.							
	(ii) All G.I./P.V.C./ W.I. pipes and specials shall be obtained by indent upon the executive engineer public health concerned and direct purchases by the contractor shall not be permitted except in such special cases as shall be allowed in writing by the executive engineer.							
	(iii) All G.I./P.V.C./ W.I. pipes and specials bends, tees, etc., will be supplied ex-divisional stores or F.O.R. nearest Railway Station at the divisional stock issue rates in force when the specials are indented for and the rate includes the cost of cartage to the site of works including fixing, jointing and testing etc., complete.							
	(iv) Square elbow must not be used for any work but but round elbows used instead.							
	(v) Short lengths of G.I. pipelines upto 9m in connection with construction of stand post and other such works will be paid at rates meant for inside building work.							
20.21	Labour for laying jointing, fixing and testing G.I./P.V.C./W.I. pipe lines and special tees, bends, sockets, elbows etc. in trenches in the ground cutting, threading and testing, etc. complete							
	20.21.1	15 mm internal diameter		metre	14	0	0	14
	20.21.2	20 mm internal diameter		metre	20	0	0	20
	20.21.3	25 mm internal diameter		metre	22	0	0	22
	20.21.4	32 mm internal diameter		metre	32	0	0	32
	20.21.5	40 mm internal diameter		metre	36	0	0	36
	20.21.6	50 mm internal diameter		metre	39	0	0	39
	20.21.7	65 mm internal diameter		metre	40	0	0	40
	20.21.8	80 mm internal diameter		metre	43	0	0	43
	20.21.9	100 mm internal diameter		metre	50	0	0	50
20.22	Extra for fixing flanged joints on G.I. and W.I. pipelines including cost of jointing materials.							
	20.22.1	15 mm internal diametre		each	18	0	0	18
	20.22.2	20 mm internal diametre		each	20	0	0	20
	20.22.3	25 mm internal diametre		each	23	0	0	23
	20.22.4	32 mm internal diametre		each	26	0	0	26
	20.22.5	40 mm internal diametre		each	31	0	0	31
	20.22.6	50 mm internal diametre		each	38	0	0	38
	20.22.7	65 mm internal diametre		each	44	0	0	44

	20.22.8	80mm internal diameter	each	42	0	0	42
	20.22.9	100 mm internal diameter	each	47	0	0	47
	Notes: (i) The jointing material for the above will be supplied ex-divisional stores or F.O.R. nearest station at the stock issue rates in force when the material is indented for.						
	(ii) All bolts, nuts and washers will be supplied without charge to the contractor ex- divisional stores or F.O.R. nearest railway station and the rate includes the cost of the carriage to site of works.						
20.23	Extra for fixing and jointing union couplings in G.I. and W.I. pipelines.						
	20.23.1	15 mm internal diameter	each	8	0	0	8
	20.23.2	20 mm internal diameter	each	10	0	0	10
	20.23.3	25 mm internal diameter	each	13	0	0	13
	20.23.4	32 mm internal diameter	each	15	0	0	15
	20.23.5	40 mm internal diameter	each	17	0	0	17
	20.23.6	50 mm internal diameter	each	17	0	0	17
	20.23.7	65 mm internal diameter	each	20	0	0	20
	20.23.8	80 mm internal diameter	each	21	0	0	21
	20.23.9	100 mm internal diameter	each	23	0	0	23
	Notes: (i) These unions shall be fixed on branches at or the junctions with the main G.I. pipeline and also at intervals of about 30 metres on all pipelines laid in ground and at intervals of 18 to 24 m on pipelines laid on roofs and inside						
	(ii) The rates apply to couplings on straight lines, branches and also on bends.						
	(iii) The coup lings will be supplied without charge to the contractor ex-divisional stores or F.O.R. nearest railway station and the rate includes cost of cartage, fixing and testing etc., complete.						
	E. DRILLING AND TAPPING OF C.I. PIPES						
20.24	Drilling and tapping cast iron pipe lines of all diameters and screwing in ferrule and connections -						
	20.24.1	Ferrule size 10 mm	each	818	0	0	818
	20.24.2	Ferrule size 15 mm	each	828	0	0	828
	20.24.3	Ferrule size 20 mm	each	900	0	0	900
	20.24.4	Ferrule size 25 mm	each	942	0	0	942
	20.24.5	Ferrule size 32 mm	each	983	0	0	983
	20.24.6	Ferrule size 40 mm	each	1066	0	0	1066
	Note: Ferrule will be supplied without charges to the contractor, ex-divisional stores or F.O.R. nearest railway station. The fixing rate includes cartage to site of work and also cost of excavation up to the main and filling in and complete job.making good the surface after finishing the job. The rate is for complete job.						
	F. CUTTING HOLES IN WALLS / FLOORS / ROOFS						
20.25	Cutting holes upto 23 cm square through brick work in mud walls for pipes and making good including repointing, replastering and finishing according to existing finish where required.						
	20.25.1	11.43 cm thick wall	each	115	0	0	115
	20.25.2	22.86 cm thick wall	each	170	0	0	170
	20.25.3	34.29 cm thick wall	each	251	0	0	251
	20.25.4	45.72 cm thick wall	each	309	0	0	309
	20.25.5	57.15 cm thick wall	each	379	0	0	379
	20.25.6	68.58 cm thick wall	each	458	0	0	458
20.26	Cutting holes upto 23 cm through stone masonry or brick work in cement walls for pipes and making good including repointing, replastering and finishing according to existing finish where required.						
	20.26.1	11.43 cm thick wall	each	186	0	0	186
	20.26.2	22.86 cm thick wall	each	276	0	0	276
	20.26.3	34.29 cm thick wall	each	364	0	0	364
	20.26.4	45.72 cm thick wall	each	458	0	0	458
	20.26.5	57.15 cm thick wall	each	517	0	0	517
	20.26.6	68.58 cm thick wall	each	577	0	0	577
20.27	Cutting holes upto 23 cm square for pipes in flooring and roofs of brick tiles with lime concrete and making good including, repointing, replastering and colour or white washing where required.						
	20.27.1	75 mm thickness of floor	each	89	0	0	89
	20.27.2	115 mm thickness of floor	each	134	0	0	134
	20.27.3	150 mm thickness of floor	each	161	0	0	161
	20.27.4	190 mm thickness of floor	each	177	0	0	177
	20.27.5	225 mm thickness of floor	each	186	0	0	186
20.28	Cutting holes upto 23 cm square for pipes in floor and roofs of cement concrete reinforced concrete or reinforced brick work and making good including, repointing, replastering, replacing bitumen and colour or white washing where required.						
	20.28.1	75 mm thickness of roof or floor	each	99	0	0	99
	20.28.2	115 mm thickness of roof or floor	each	119	0	0	119
	20.28.3	150 mm thickness of roof or floor	each	162	0	0	162
	20.28.4	190 mm thickness of roof or floor	each	181	0	0	181
	20.28.5	225 mm thickness of roof or floor	each	202	0	0	202
20.29	Labour our fixing G.I. or W.I. pipe sleeve pieces in holes in walls, floors, and roofs rounds pipes including all cutting and wastage						
	20.29.1	15 mm internal diameter of sleeve pipe	metre	31	0	0	31
	20.29.2	20 mm internal diameter of sleeve pipe	metre	35	0	0	35
	20.29.3	25 mm internal diameter of sleeve pipe	metre	48	0	0	48
	20.29.4	32 mm internal diameter of sleeve pipe	metre	48	0	0	48
	20.29.5	40 mm internal diameter of sleeve pipe	metre	59	0	0	59
	20.29.6	50 mm internal diameter of sleeve pipe	metre	63	0	0	63
	20.29.7	65 mm internal diameter of sleeve pipe	metre	63	0	0	63
	20.29.8	80 mm internal diameter of sleeve pipe	metre	70	0	0	70
	20.29.9	100 mm internal diameter of sleeve pipe	metre	84	0	0	84
20.30	Fixing galvanised malleable iron holder bats hold fasts to pipe lines fixed on walls and ceilings including all cutting to walls and making good to original condition.						
	20.30.1	15 mm internal diameter of pipeline	each	30	0	0	30
	20.30.2	20 mm internal diameter of pipeline	each	30	0	0	30
	20.30.3	25 mm internal diameter of pipeline	each	38	0	0	38
	20.30.4	32 mm internal diameter of pipeline	each	38	0	0	38
	20.30.5	40 mm internal diameter of pipeline	each	44	0	0	44
	20.30.6	50 mm internal diameter of pipeline	each	44	0	0	44
	20.30.7	65 mm internal diameter of pipeline	each	51	0	0	51

	20.30.8	80 mm internal diameter of pipeline	each	51	0	0	51
	20.30.9	100 mm internal diameter of pipeline	each	61	0	0	61
	Notes: (i) Holder bats are generally required to be fixed at intervals of about 2.4 M on straight line.						
	(ii) The holder bats will be supplied free of cost to the contractor ex-divisional stores or nearest railway station. The rates include the cost of carriage and labour, etc., to site of works.						
	G. FIXING OF VALVES, COCKS, SHOWERS AND METERS ETC.						
20.31	Fixing and jointing gun metal peet valves (heavy pattern) with hand wheels, on G.I. pipelines laid in the ground or inside buildings, including cartage from divisional stores or nearest railway station to site of works.						
	20.31.1	15 mm internal diametre	each	26	0	0	26
	20.31.2	20 mm internal diametre	each	35	0	0	35
	20.31.3	25 mm internal diametre	each	38	0	0	38
	20.31.4	32 mm internal diametre	each	43	0	0	43
	20.31.5	40 mm internal diametre	each	51	0	0	51
	20.31.6	50 mm internal diametre	each	69	0	0	69
	20.31.7	65 mm internal diametre	each	87	0	0	87
	20.31.8	80 mm internal diametre	each	96	0	0	96
	20.31.9	100 mm internal diametre	each	102	0	0	102
	Note: Peet valves will be supplied free of cost to the contractor ex-divisional stores or nearest railway station.						
20.32	Fixing screw down stop cocks of gunmetal or hard brass on G.I. pipelines laid in the ground or inside buildings including cartage from divisional stores or nearest railway station to site of works.						
	20.32.1	15 mm internal diametre	each	24	0	0	24
	20.32.2	20 mm internal diametre	each	28	0	0	28
	20.32.3	25 mm internal diametre	each	32	0	0	32
	20.32.4	32 mm internal diametre	each	37	0	0	37
	20.32.5	40 mm internal diametre	each	39	0	0	39
	20.32.6	50 mm internal diametre	each	57	0	0	57
	Note: The stop cocks will be supplied free of cost to the contractor ex-divisional stores or nearest railway station.						
20.33	Fixing bib taps of gun-metal or hard brass on G.I. pipe lines including cartage from divisional stores or nearest railway station to						
	20.33.1	15 mm internal diametre	each	17	0	0	17
	20.33.2	20 mm internal diametre	each	18	0	0	18
	20.33.3	25 mm internal diametre	each	19	0	0	19
	20.33.4	32 mm internal diametre	each	21	0	0	21
	20.33.5	40 mm internal diametre	each	23	0	0	23
	20.33.6	50 mm internal diametre	each	33	0	0	33
20.34	Fixing ball values including cartage from divisional stores or nearest railway station to site of works						
	20.34.1	15 mm internal diametre	each	44	0	0	44
	20.34.2	20 mm internal diametre	each	44	0	0	44
	20.34.3	25 mm internal diametre	each	65	0	0	65
	20.34.4	32 mm internal diametre	each	65	0	0	65
	20.34.5	40 mm internal diametre	each	77	0	0	77
	20.34.6	50 mm internal diametre	each	88	0	0	88
20.35	Fixing chromium plated brass shower rose including carriage from divisional stores or nearest railway station to site of works.						
	20.35.1	150 mm i/d shower rose with 15 mm or 20 mm inlet	each	15	0	0	15
	20.35.2	100 mm i/d shower rose with 15 mm or 20 mm inlet	each	15	0	0	15
20.36	Making connection with the existing G.I. branch main upto 40 mm size including cutting and threading pipe etc., complete excluding cost of tee and long screw, but including cartage of material to site.		each	320	0	0	320
20.37	Fixing water meter and stop cock in G.I. pipe line upto 25 mm size including cutting and threading pipe and making long screw etc. complete including cost of G.I. jam nut but excluding cost of water meter and stop cock		each	174	0	0	174
20.38	Fixing peet value and stop cock surface boxes (coat iron) including cartage from divisional stores or nearest railway station to site of works.		each	51	0	0	51
	Note: The surface boxes will be supplied free of cost to the contractor ex-divisional stores or nearest railway station.						
	H. DISMANTLING OF G.I. JOINTS PIPES VALVES AND SPECIALS						
20.39	Dismantling lead caulked joints of cast iron socketted pipes, valves and specials by heating the joints including the cost of labour, fuel and tools, etc. collecting the lead taken out from the joints and delivering the same to the divisional stores.						
	20.39.1	50 mm internal diametre of pipe, valves or specials	per joint	21	0	0	21
	20.39.2	65 mm internal diametre of pipe, valves or specials	per joint	22	0	0	22
	20.39.3	80 mm internal diametre of pipe, valves or specials	per joint	30	0	0	30
	20.39.4	100 mm internal diametre of pipe, valves or specials	per joint	32	0	0	32
	20.39.5	125 mm internal diametre of pipe, valves or specials	per joint	33	0	0	33
	20.39.6	150 mm internal diametre of pipe, valves or specials	per joint	48	0	0	48
	20.39.7	175 mm internal diametre of pipe, valves or specials	per joint	59	0	0	59
	20.39.8	200 mm internal diametre of pipe, valves or specials	per joint	70	0	0	70
	20.39.9	225 mm internal diametre of pipe, valves or specials	per joint	79	0	0	79
	20.39.10	250 mm internal diametre of pipe, valves or specials	per joint	91	0	0	91
	20.39.11	300 mm internal diametre of pipe, valves or specials	per joint	119	0	0	119
	20.39.12	350 mm internal diametre of pipe, valves or specials	per joint	136	0	0	136
	20.39.13	375 mm internal diametre of pipe, valves or specials	per joint	143	0	0	143
	20.39.14	400 mm internal diametre of pipe, valves or specials	per joint	152	0	0	152
	20.39.15	450 mm internal diametre of pipe, valves or specials	per joint	226	0	0	226
	20.39.16	500 mm internal diametre of pipe, valves or specials	per joint	254	0	0	254
	20.39.17	525 mm internal diametre of pipe, valves or specials	per joint	262	0	0	262
	20.39.18	550 mm internal diametre of pipe, valves or specials	per joint	309	0	0	309
	20.39.19	600 mm internal diametre of pipe, valves or specials	per joint	336	0	0	336
20.40	Dismantaling flanged joints for cast-iron pipes, valves and specials including carriage of bolts, nuts, and washers to the divisional stores.						
	20.40.1	50 mm, 65 mm, 80 mm & 100 mm i/d of pipes, valves and specials	each	12	0	0	12
	20.40.2	125 mm, 150 mm, 175 mm & 200 mm i/d of pipes, valves and specials	each	23	0	0	23
	20.40.3	300 mm, 350 mm and 375 mm i/d of pipes, valves and specials	each	60	0	0	60
	20.40.4	400 mm and 450 mm i/d of pipes, valves and specials	each	69	0	0	69
	20.40.5	500 mm and 525 mm i/d of pipes, valves and specials	each	75	0	0	75

	20.40.6	550 mm and 600 mm i/d of pipes, valves and specials	each	91	0	0	91
20.41	Taking out dismantled cast iron socketted or flanged pipes, valves and special etc. outside from the trenches and stacking at a nearest convenient place as required by the engineer-in-charge from where they can be loaded into carts or trucks-						
	20.41.1	50 mm internal diametre of pipe	10 metres	53	0	0	53
	20.41.2	65 mm internal diametre of pipe	10 metres	60	0	0	60
	20.41.3	80 mm internal diametre of pipe	10 metres	72	0	0	72
	20.41.4	100 mm internal diametre of pipe	10 metres	89	0	0	89
	20.41.5	125 mm internal diametre of pipe	10 metres	91	0	0	91
	20.41.6	150 mm internal diametre of pipe	10 metres	108	0	0	108
	20.41.7	175 mm internal diametre of pipe	10 metres	126	0	0	126
	20.41.8	200 mm internal diametre of pipe	10 metres	144	0	0	144
	20.41.9	225 mm internal diametre of pipe	10 metres	166	0	0	166
	20.41.10	250 mm internal diametre of pipe	10 metres	192	0	0	192
	20.41.11	300 mm internal diametre of pipe	10 metres	217	0	0	217
	20.41.12	350 mm internal diametre of pipe	10 metres	286	0	0	286
	20.41.13	375 mm internal diametre of pipe	10 metres	335	0	0	335
	20.41.14	400 mm internal diametre of pipe	10 metres	379	0	0	379
	20.41.15	450 mm internal diametre of pipe	10 metres	427	0	0	427
	20.41.16	500 mm internal diametre of pipe	10 metres	462	0	0	462
	20.41.17	525 mm internal diametre of pipe	10 metres	481	0	0	481
	20.41.18	550 mm internal diametre of pipe	10 metres	550	0	0	550
	20.41.19	600 mm internal diametre of pipe	10 metres	569	0	0	569
	Note: (i) The contractor shall be liable to make good all dam age caused by breakage while taking out the pipes from						
	(ii) All measurements shall be taken along the centre line of axis of the pipelines throughout its length and shall include the overall laying length of sluice valves and specials fixed therein.						
20.42	Dismantling sluice valves socketted or flanged including cartage from the site of works to the divisional store.						
	20.42.1	50 mm internal diametre of valve	each	43	0	0	43
	20.42.2	65 mm internal diametre of valve	each	43	0	0	43
	20.42.3	80 mm internal diametre of valve	each	44	0	0	44
	20.42.4	100 mm internal diametre of valve	each	45	0	0	45
	20.42.5	125 mm internal diametre of valve	each	56	0	0	56
	20.42.6	150 mm internal diametre of valve	each	57	0	0	57
	20.42.7	175 mm internal diametre of valve	each	58	0	0	58
	20.42.8	200 mm internal diametre of valve	each	60	0	0	60
	20.42.9	225 mm internal diametre of valve	each	50	0	0	50
	20.42.10	250 mm internal diametre of valve	each	63	0	0	63
	20.42.11	300 mm internal diametre of valve	each	67	0	0	67
	20.42.12	350 mm internal diametre of valve	each	73	0	0	73
	20.42.13	375 mm internal diametre of valve	each	85	0	0	85
	20.42.14	400 mm internal diametre of valve	each	88	0	0	88
	20.42.15	450 mm internal diametre of valve	each	97	0	0	97
	20.42.16	500 mm internal diametre of valve	each	107	0	0	107
	20.42.17	525 mm internal diametre of valve	each	111	0	0	111
	20.42.18	550 mm internal diametre of valve	each	120	0	0	120
	20.42.19	600 mm internal diametre of valve	each	126	0	0	126
20.43	Dismantling fire hydrants of all sizes including dismantling joint cartage from site of works to the divisional stores.		each	50	0	0	50
20.44	Dismantling single or double air valves all sizes including dismantling the joints and cartage from the size of works to the divisional store.		each	50	0	0	50
20.45	Dismantling cast iron surface boxes for sluice valves and fire hydrants including cartage from the site of works to the divisional stores.		each	50	0	0	50
20.46	Dismantling cast iron single air value surface boxes including cartage from the site of works to the divisional stores.		each	41	0	0	41
20.47	Dismantling cast iron double air value surface boxes including cartage from the site of works to the divisional stores.		each	130	0	0	130
	I. FIXING BELL MOUTHS						
20.48	Fixing bell mouths with or without puddle collars puddle collar pieces and plain, socketed or flanged pipes in bricks, cement concrete or reinforced cement concrete used for inlets outlets scour and overflow pipes of the overhead service reservoirs of the length of pipe or special embedded to correct alignment and levels including the cost of cutting hole if required, cement concrete filling around the pipes or specials and making good the joint water tight including repointing, replastering and colour or white-washing as required by the Engineer-in-charge.						
	20.48.1	Upto 300 mm internal diametre	each	550	0	0	550
	20.48.2	Exceeding 300 mm internal diametre but not exceeding 450 mm internal diametre	each	841	0	0	841
	20.48.3	Exceeding 450 mm internal diametre but not exceeding 600 mm internal diametre	each	1211	0	0	1211
20.49	Bailing out water from the trenches for making new connections in fully charged pipe-lines including cleaning trimming and dressing the trenches to correct alignment and grade as required by the Engineer-in-charge.						
	Size of the main with which connection is to be made.						
	20.49.1	Upto 200 mm internal diametre	each	920	0	0	920
	20.49.2	Exceeding 200 mm internal diametre but not exceeding 300 mm internal diametre	each	1175	0	0	1175
	20.49.3	Exceeding 300 mm internal diametre but not exceeding 450 mm internal diametre	each	1431	0	0	1431
	20.49.4	Exceeding 450 mm internal diametre but not exceeding 600 mm internal diametre	each	1840	0	0	1840
	J. DISMANTLING GI PIPES AND SPECIALS						
20.50	Dismantling disjointing, removal and carriage to stores, G.I. pipelines, specials, valves and fittings.						
	20.50.1	15 mm internal diametre of the pipeline	per cut	10	0	0	10
	20.50.2	20 mm internal diametre of the pipeline	per cut	14	0	0	14
	20.50.3	25 mm internal diametre of the pipeline	per cut	19	0	0	19
	20.50.4	32 mm internal diametre of the pipeline	per cut	21	0	0	21
	20.50.5	40 mm internal diametre of the pipeline	per cut	28	0	0	28
	20.50.6	50 mm internal diametre of the pipeline	per cut	28	0	0	28
	20.50.7	65 mm internal diametre of the pipeline	per cut	31	0	0	31
	20.50.8	80 mm internal diametre of the pipeline	per cut	34	0	0	34
	20.50.9	100 mm internal diametre of the pipeline	per cut	37	0	0	37
	K. FIXTURES TO STRUCTURES						
20.51	Labour Rates including materials in erecting, fixing and jointing fixtures to filter beds, clear water tanks and sedimentation tanks etc.						

	20.51.1	150 mm C.I. pipe, bends, specials and heads complete for ventilating column built into the walls.	each	561	0	0	561
	20.51.2	Cast iron 'V' notch with base including embedding in 1:2 cement sand mortar setting both in 1:1 cement sand grouting levelling up and finishing complete.	each	957	0	0	957
	20.51.3	Fixing water level recorders or rate of flow indicators complete including grouting H.D. bolts and brackets guiders for wire, etc, in 1:1 cement sand mortar.	each	1543	0	0	1543
	20.51.4	Fitting in position equilibrium ball value at intel chambers in cement sand mortar	each	667	0	0	667
	20.51.5	Fixing steel shutters frame complete on in- let side of sedimentation tank including painting 3 coats of bitumastic paint.	each	638	0	0	638
	20.51.6	Fixing floating arm in position complete with sluice value, long spindle hand wheel, brackets and guides complete in	each	1462	0	0	1462
	20.51.7	Fixing enamelled gauge in storage and sedimentation tank	each	695	0	0	695
	L. FILTER MEDIA						
20.52	Provi/ding and placing in horizontal layers filtering media screened washed and cleaned as described below -						
	20.52.1	Top Layer:					
		Fine sand screened, cleaned and washed and graded (effective size 0.2 to 0.4 mm with uniformity coefficient 2.0 to 3.0) from Ghaggar or other approved source	cum	1226	0	1450	2676
	20.52.2	Second layer					
		Coursed sand screened, cleaned and washed and graded from 3 mm to 6 mm (from Ghaggar or approved equivalent quarry)	cum	1226	0	1450	2676
	20.52.3	Third layer					
		Bajri (coursed) screened and washed graded from 20 mm to 25 mm (from Ghaggar or approved equivalent quarry)	cum	102	0	1173	1276
	20.52.4	Fourth layer					
		Bajri (coursed) screened and washed graded from 20 mm to 25 mm (from Ghaggar or approved equivalent quarry)	cum	102	0	1047	1149
	20.52.5	Bottom layer					
		Broken stone,screened, washed and graded from 50 mm to 75 mm (from Ghaggar or approved equivalent quarry)	cum	102	0	1039	1142
20.53	Providing and fixing rubber sheet 3mm thick of best quality for jointing flanged pipes, specials etc. including making of holes etc. complete in all respects to the satisfaction of Engineer-in- Charge.						
	20.53.1	for pipe size 80mm i/d	each	0	0	13	13
	20.53.2	for pipe size 100 mm i/d	each	0	0	15	15
	20.53.3	for pipe size 150mm i/d	each	0	0	24	24
	20.53.4	for pipe size 200mm i/d	each	0	0	31	31
	20.53.5	for pipe size 250mm i/d	each	0	0	41	41
	20.53.6	for pipe size 300mm i/d	each	0	0	51	51
	20.53.7	for pipe size 350mm i/d	each	0	0	65	65
	20.53.8	for pipe size 400mm i/d	each	0	0	78	78
	20.53.9	for pipe size 450mm i/d	each	0	0	95	95
	20.53.10	for pipe size 500mm i/d	each	0	0	113	113
	20.53.11	for pipe size 600mm i/d	each	0	0	151	151
20.54	Providing GI pipes class B marked with IS: 1239 in 3.05 m length, their threading and welding with flanges (Heavy Duty) on both sides, jointing with nuts and bolts ('W' make), rubber gaskets , lowering into Tube wells and testing including carriage, loading, unloading etc. complete in all respects to the satisfaction of Engineer-in- Charge.						
	20.54.1	50 mm i/d	each	297	0	912	1209
	20.54.2	63 mm i/d	each	297	0	1123	1419
	20.54.3	80 mm i/d	each	341	0	1471	1812
	20.54.4	100 mm i/d	each	354	0	2060	2414
20.55	Providing and screwing in brass/Gun Metal ferrules drilling and tapping A.C. /PVC pipe lines of all diameters and connections including cost of M.S. Clamp (Heavy) with welded socket/Saddle piece including carriage, loading, unloading etc. complete in all respects to the satisfaction of Engineer-in- Charge. (Excavation will be paid separately).						
	20.55.1	6mm i/d ferrule on 50mm i/d pipes	each	45	0	191	236
	20.55.2	6mm i/d ferrule on 80mm i/d pipes	each	45	0	230	275
	20.55.3	6mm i/d ferrule on 100mm i/d pipes	each	45	0	264	309
	20.55.4	10mm i/d ferrule on 80mm i/d pipes	each	45	0	217	262
	20.55.5	10mm i/d ferrule on 100mm i/d pipes	each	45	0	228	274
	20.55.6	10mm i/d ferrule on 150mm i/d pipes	each	45	0	301	347
20.56	Providing and screwing in brass/Gun Metal ferrules drilling and tapping Cast Iron /D.I. /G.I. pipe lines of all diameters and connections including carriage, loading, unloading etc. complete in all respects to the satisfaction of Engineer-in- Charge. (Excavation will be paid separately).						
	20.56.1	6mm i/d ferrule	each	45	0	138	184
	20.56.2	10mm i/d ferrule	each	45	0	126	171
20.57	Providing and packing asbestos gland packing of best quality in pumps and sluice valves etc. complete in all respects to the satisfaction of Engineer-in- Charge		per kg	176	0	359	534
20.58	Providing and fixing Cast Iron Detachable Joints class-15 marked with IS: 8794 for use with asbestos cement pressure pipes complete with 2 Nos. rubber rings marked with IS:5382 & IS:10292 and appropriate number of nut and bolts marked with IS:1363 including carriage, loading, unloading etc. complete in all respects to the satisfaction of the engineer-in-charge. (Excavation will be paid separately)						
	20.58.1	80mm i/d CID Joint	each	0	0	202	202
	20.58.2	100mm i/d CID Joint	each	0	0	251	251
	20.58.3	150mm i/d CID Joint	each	0	0	411	411
	20.58.4	200mm i/d CID Joint	each	0	0	644	644
	20.58.5	250mm i/d CID Joint	each	0	0	835	835
	20.58.6	300mm i/d CID Joint	each	0	0	1014	1014
20.59	Providing and fixing Cast Iron Detachable Joints class-25 marked with IS: 8794 for use with asbestos cement pressure pipes complete with 2 Nos. rubber rings marked with IS:5382 & IS:10292 and appropriate number of nut and bolts marked with IS:1363 including carriage, loading, unloading etc. complete in all respects to the satisfaction of the engineer-in-charge. (Excavation will be paid separately)						
	20.59.1	80mm i/d CID Joint	each	0	0	246	246
	20.59.2	100mm i/d CID Joint	each	0	0	308	308
	20.59.3	150mm i/d CID Joint	each	0	0	502	502
	20.59.4	200mm i/d CID Joint	each	0	0	710	710
	20.59.5	250mm i/d CID Joint	each	0	0	932	932
	20.59.6	300mm i/d CID Joint	each	0	0	1158	1158
20.60	Providing and fixing unplasticized fabricated PVC, (unplasticised polyvinyl chloride) couplers (4kg/cm2) on PVC pipes used for potable water supply IS-4985:1988 including cost of adhesive, carriage, loading, unloading etc. complete in all respects to the satisfaction of Engineer-in- Charge. (Excavation will be paid separately)						

	20.60.1	Size 90mm o/d	each	4	0	25	28
	20.60.2	Size 110mm o/d	each	5	0	35	39
	20.60.3	Size 160mm o/d	each	6	0	79	85
	20.60.4	Size 200mm o/d	each	9	0	200	209
20.61	Providing and fixing Ductile Iron Double seal manhole covers and frames of 610 mm x 610 mm with locking arrangement on clear water tanks including cost of setting in Cement concrete 1:2:4 to correct alignment and levels including carriage, loading, unloading etc. complete in all respects to the satisfaction of Engineer-in- Charge.		kg	2	0	61	63
20.62	Providing, lowering, laying, cutting (cut surface to be uniformly finished), jointing with rubber rings marked with IS : 5382 and testing of SPIGOT AND SOCKETTED RCC, NP2 MARKED WITH IS : 458-1988 and specials into trenches for all depths including carriage, loading, unloading, stacking, handling, re-handling etc. complete is all respects to the satisfaction to the Engineer - in -charge.						
	20.62.1	200 mm i/d	per cut	15	0	264	279
	20.62.2	250 mm i/d	per cut	17	0	297	314
	20.62.3	300 mm i/d	per cut	22	0	406	428
	20.62.4	350 mm i/d	per cut	25	0	502	528
	20.62.5	400 mm i/d	per cut	33	0	594	627
	20.62.6	450 mm i/d	per cut	38	0	685	723
	20.62.7	500 mm i/d	per cut	40	0	783	823
	20.62.8	600 mm i/d	per cut	51	0	1045	1096
	20.62.9	700 mm i/d	per cut	68	0	1439	1507
	20.62.10	800 mm i/d	per cut	87	0	1668	1756
	20.62.11	900 mm i/d	per cut	107	0	1902	2009
	20.62.12	1000 mm i/d	per cut	133	0	2285	2417
	20.62.13	1200 mm i/d	per cut	175	0	2856	3031
	20.62.14	1400 mm i/d	per cut	197	0	3312	3509
	20.62.15	1600 mm i/d	per cut	216	0	3810	4026
20.63	Providing, lowering, laying in trenches, aligning, fixing in position and jointing Ductile Iron (DI) ISI marked K-9 grade S&S pipes as per 15:8329-2000 (amended upto date), with internal cement mortar lining for potable water with rubber ring (EPDM/SBR) joints as per IS: 5382-1985 (excluding special accessories) complete including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer. Note: E/W to be measured and paid separately.						
	20.63.1	100 mm i/d	per cut	5	0	1054	1059
	20.63.2	150 mm i/d	per cut	8	0	1528	1536
	20.63.3	200 mm i/d	per cut	11	0	2076	2087
	20.63.4	250 mm i/d	per cut	22	0	2760	2782
	20.63.5	300 mm i/d	per cut	30	0	3413	3444
	20.63.6	350 mm i/d	per cut	37	0	4285	4322
	20.63.7	400 mm i/d	per cut	42	0	4998	5041
	20.63.8	450 mm i/d	per cut	51	0	6087	6138
	20.63.9	500 mm i/d	per cut	61	0	6971	7032
	20.63.10	600 mm i/d	per cut	80	0	9292	9372
	20.63.11	700 mm i/d	per cut	91	0	11803	11894
	20.63.12	750 mm i/d	per cut	92	0	13805	13897
	20.63.13	800 mm i/d	per cut	104	0	15044	15148
	20.63.14	900 mm i/d	per cut	163	0	18607	18770
	20.63.15	1000 mm i/d	per cut	163	0	22318	22481
	20.63.16	1100 mm i/d	per cut	182	0	27768	27949
	20.63.17	1200 mm i/d	per cut	211	0	30599	30810
20.64	Providing, lowering, laying in trenches, aligning, fixing in position and jointing Ductile Iron (DI) ISI marked K-7 grade S&S pipes as per IS:8329-2000 (amended upto date), with internal cement mortar lining for potable water with rubber ring (EPDM/SBR) joints as per IS: 5382-1985 (excluding special accessories) complete including all material, labour, hydraulic testing and commissioning as per Technical Specifications and as per direction of Engineer. Note: E/W to be measured and paid separately.						
	20.64.1	100 mm i/d	per cut	5	0	933	938
20.65	Extra for fixing K-9 D1 socketted or flanged pipe valves and specials casting in vertical positions for over head reservoirs and stand pipes etc. including cost of all special scaffolding derricks , jim poles, tools and plants, ropes, guyes complete.						
	20.65.1	100 mm i/d	per cut	53	0	0	53
	20.65.2	150 mm i/d	per cut	80	0	0	80
	20.65.3	200 mm i/d	per cut	121	0	0	121
	20.65.4	250 mm i/d	per cut	165	0	0	165
	20.65.5	300 mm i/d	per cut	205	0	0	205
	20.65.6	350 mm i/d	per cut	284	0	0	284
	20.65.7	400 mm i/d	per cut	329	0	0	329
	20.65.8	450 mm i/d	per cut	395	0	0	395
	20.65.9	500 mm i/d	per cut	453	0	0	453
	20.65.10	600 mm i/d	per cut	600	0	0	600
20.66	Cutting DI pipe and chipping or filling the surface to a uniform finish						
	20.66.1	100 mm i/d	per cut	20	0	0	20
	20.66.2	150 mm i/d	per cut	23	0	0	23
	20.66.3	200 mm i/d	per cut	29	0	0	29
	20.66.4	250 mm i/d	per cut	38	0	0	38
	20.66.5	300 mm i/d	per cut	47	0	0	47
	20.66.6	350 mm i/d	per cut	65	0	0	65
	20.66.7	400 mm i/d	per cut	82	0	0	82
	20.66.8	450 mm i/d	per cut	97	0	0	97
	20.66.9	500 mm i/d	per cut	131	0	0	131
	20.66.10	600 mm i/d	per cut	142	0	0	142
	20.66.11	700 mm i/d	per cut	159	0	0	159
	20.66.12	750 mm i/d	per cut	177	0	0	177
	20.66.13	800 mm i/d	per cut	186	0	0	186
	20.66.14	900 mm i/d	per cut	205	0	0	205
	20.66.15	1000 mm i/d	per cut	215	0	0	215
	20.66.16	1100 mm i/d	per cut	234	0	0	234

	20.66.17	1200 mm i/d		per cut	252	0	0	252
20.67	Joining DI socketted pipes, valves and special with rubber tyton joints fitted complete including cost of labour and tools etc. and							
	20.67.1	100 mm i/d		per cut	27	0	0	27
	20.67.2	150 mm i/d		per cut	30	0	0	30
	20.67.3	200 mm i/d		per cut	34	0	0	34
	20.67.4	250 mm i/d		per cut	38	0	0	38
	20.67.5	300 mm i/d		per cut	48	0	0	48
	20.67.6	350 mm i/d		per cut	53	0	0	53
	20.67.7	400 mm i/d		per cut	59	0	0	59
	20.67.8	450 mm i/d		per cut	68	0	0	68
	20.67.9	500 mm i/d		per cut	83	0	0	83
	20.67.10	600 mm i/d		per cut	99	0	0	99
	20.67.11	700 mm i/d		per cut	105	0	0	105
	20.67.12	750 mm i/d		per cut	131	0	0	131
	20.67.13	800 mm i/d		per cut	175	0	0	175
	20.67.14	900 mm i/d		per cut	233	0	0	233
	20.67.15	1000 mm i/d		per cut	299	0	0	299
	20.67.16	1100 mm i/d		per cut	349	0	0	349
	20.67.17	1200 mm i/d		per cut	419	0	0	419
20.68	Providing, lowering, laying in trenches, aligning, fixing in position and jointing at all level/depths Ductile Iron (DI) standard specials plain /flanged/ socketed confirming to IS9523-2000 with rubber ring (EPDM/SBR) joints such as tees, bends, tapers, caps etc. with in trenches in DI pipe line complete including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.							
	20.68.1	Upto 300mm dia		per kg	0	0	0	72
	20.68.2	Above 300mm dia and upto 600mm dia		per kg	0	0	0	94
	20.68.3	Above 600mm dia and upto 1000mm dia		per kg	0	0	0	122
	20.68.4	Above 1000mm dia		per kg	0	0	0	136
20.69	Providing, lowering, laying in trenches, aligning, fixing in position and jointing at all level/depths cast iron (CI) standard specials plain /flanged/ socketed confirming to IS13382 with rubber ring, nut bolts and rubber sheet such as tees, bends, tapers, caps etc. complete including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer.							
	20.69.1	Upto 300mm dia		per kg	0	0	0	54
	20.69.2	Above 300mm dia and upto 600mm dia		per kg	0	0	0	63
	20.69.3	Above 600mm dia and upto 1000mm dia		per kg	0	0	0	82
	20.69.4	Above 1000mm dia		per kg	0	0	0	118
	AC PIPE C-15 (Rural)							
20.70	Repair of leakage in underground pipelines in all respects in rural area to the complete satisfaction of the Engineer-in-charge, involving following process							
	(i) Excavation for pipelines running under pressure intrenches and pits in open area where disposal ofsurplus earth is done alongwith the alignment and restoration of unmetalled or unpaved surface to its original conditions in ordinary soil- Without timbering and shoring upto 1.5 metre depth.							
	(ii) Dismantling plain cement concrete 1:2:4							
	(iii) laying of cement concrete 1:2:4 with stone aggregate 20 mm nominal size in foundation and plinth							
	(iv)Bailing out water from the trenches for making new connections in fully charged pipe lines size of the main up to 200mm internal diameter.							
	(v)Providing and fixing cast iron detchable joints (C.I.D) of the same internal diameter as of the pipes being repaired, class-15 marked with IS: 8794 for use with A.C/PVC/C.I pipes complete with 2 Nos. rubber rings marked with IS 5382 and IS:10292 and appropriate number of nut and bolts marked with IS: 1363 including carriage, loading, unloading etc. complete							
	(vi)Supply, laying, jointing and testing of A.C pipe as per IS: 1592:2003							
	20.70.1	80 mm internal diametre AC Pipe (Class-15)						
		20.70.1.1	One leakage with P.C.C and CID joints	each	-	-	-	1488
		20.70.1.2	One leakage without P.C.C. but with CID joints	each	-	-	-	726
		20.70.1.3	One leakage with PCC excluding CID joints	each	-	-	-	1136
		20.70.1.4	One leakage without PCC & CID joints	each	-	-	-	374
	20.70.2	100 mm internal diametre AC Pipe (Class-15)						
		20.70.2.1	One leakage with PCC and CID joints	each	-	-	-	1607
		20.70.2.2	One leakage without P.C.C. but with CID joints	each	-	-	-	846
		20.70.2.3	One leakage with PCC excluding CID joints	each	-	-	-	1173
		20.70.2.4	One leakage without PCC & CID joints	each	-	-	-	411
	20.70.3	150 mm internal diametre AC Pipe (Class-15)						
		20.70.3.1	One leakage with P.C.C and CID joints	each	-	-	-	2012
		20.70.3.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1250
		20.70.3.3	One leakage with PCC excluding CID joints	each	-	-	-	1300
		20.70.3.4	One leakage without PCC & CID joints	each	-	-	-	539
	PVC Pipes (Rural)							
20.71	Repair of leakage in underground pipelines in all respects in rural area to the complete satisfaction of the Engineer-in-charge, involving following process							
	(i) Excavation for pipelines running under pressure in trenches and pits in open area where disposal ofsurplus earth is done alongwith the alignment and restoration of unmetalled or unpaved surface to its original conditions in ordinary soil- Without timbering and shoring upto 1.5 metre depth.							
	(ii) Dismantling plain cement concrete 1:2:4							
	(iii) laying of cement concrete 1:2:4 with stone aggregate 20 mm nominal size in foundation and plinth							
	(iv)Bailing out water from the trenches for making new connections in fully charged pipe lines size of the main up to 200mm internal diameter.							
	(v)Providing and fixing PVC detchable joints suitable for 6Kg/cm2 pressure pipe marked with IS: 8794 for use with PVC pipes complete with 2 Nos. rubber rings marked with IS and appropriate number of nut and bolts marked with IS: 1363 including carriage, loading, unloading etc. complete							
	(vi)Supply, laying, jointing and testing of PVC pipe 6 Kg/cm2 pressure with ISI mark							
	20.71.1	80 mm internal diametre PVC Pipe						
		20.71.1.1	One leakage with P.C.C and CID joints	each	-	-	-	1402
		20.71.1.2	One leakage without P.C.C. but with CID joints	each	-	-	-	640
	20.71.2	100 mm internal diametre PVC Pipe						
		20.71.2.1	One leakage with P.C.C and CID joints	each	-	-	-	1499
		20.71.2.2	One leakage without P.C.C. but with CID joints	each	-	-	-	737

	20.71.3	150 mm internal diametre PVC Pipe						
		20.71.3.1	One leakage with P.C.C and CID joints	each	-	-	-	1829
		20.71.3.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1067
	AC PIPE CLASS-15 (URBAN AREA)							
20.72	Repair of leakage in underground pipelines in all respects in urban area to the complete satisfaction of the Engineer-in-charge, involving following process							
	(i) Excavation for pipelines running under pressure in trenches and pits, in streets and lanes including trimming and dressing sides, levelling of beds of trenches to correct grade, cutting joint hole, cutting trees and bushes etc., refilling, consolidation and watering of refill in 15 cm layers etc.- Without timbering and shoring upto 1.5 metre depth.							
	(ii) Dismantling plain cement concrete 1:2:4							
	(iii) laying of cement concrete 1:2:4 with stone aggregate 20 mm nominal size in foundation and plinth							
	(iv)Bailing out water from the trenches for making new connections in fully charged pipe lines size of the main up to 200mm							
	(v)Providing and fixing cast iron detchable joints (C.I.D) of the same internal diameter as of the pipes being repaired, class-15 marked with IS: 8794 for use with A.C/PVC/C.I pipes complete with 2 Nos. rubber rings marked with IS 5382 and IS:10292 and appropriate number of nut and bolts marked with IS: 1363 including carriage, loading, unloading etc. complete							
	(vi)Supply, laying, jointing and testing of A.C pipe as per IS: 1592:2003							
	20.72.1	80 mm internal diametre AC Pipe (Class-15)						
		20.72.1.1	One leakage with P.C.C and CID joints	each	-	-	-	1493
		20.72.1.2	One leakage without P.C.C. but with CID joints	each	-	-	-	731
	20.72.2	100 mm internal diametre AC Pipe (Class-15)						
		20.72.2.1	One leakage with P.C.C and CID joints	each	-	-	-	1615
		20.72.2.2	One leakage without P.C.C. but with CID joints	each	-	-	-	852
	20.72.3	150 mm internal diametre AC Pipe (Class-15)						
		20.72.3.1	One leakage with P.C.C and CID joints	each	-	-	-	2019
		20.72.3.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1257
	AC PIPE CLASS-25 (URBAN AREA)							
20.73	Repair of leakage in underground pipelines in all respects in urban area to the complete satisfaction of the Engineer-in-charge, involving following process							
	(i) Excavation for pipelines running under pressure in trenches and pits, in streets and lanes including trimming and dressing sides, levelling of beds of trenches to correct grade, cutting joint hole, cutting trees and bushes etc., refilling, consolidation and watering of refill in 15 cm layers etc.- Without timbering and shoring upto 1.5 metre depth.							
	(ii) Dismantling plain cement concrete 1:2:4							
	(iii) laying of cement concrete 1:2:4 with stone aggregate 20 mm nominal size in foundation and plinth							
	(iv)Bailing out water from the trenches for making new connections in fully charged pipe lines size of the main up to 200mm internal diameter.							
	(v)Providing and fixing cast iron detchable joints (C.I.D) of the same internal diameter as of the pipes being repaired, class-25 marked with IS: 8794 for use with A.C/PVC/C.I pipes complete with 2 Nos. rubber rings marked with IS 5382 and IS:10292 and appropriate number of nut and bolts marked with IS: 1363 including carriage, loading, unloading etc. complete							
	(vi)Supply, laying, jointing and testing of A.C pipe as per IS: 1592:2003							
	20.73.1	80 mm internal diametre AC Pipe (Class-25)						
		20.73.1.1	One leakage with P.C.C and CID joints	each	-	-	-	1615
		20.73.1.2	One leakage without P.C.C. but with CID joints	each	-	-	-	853
	20.73.2	100 mm internal diametre AC Pipe (Class-25)						
		20.73.2.1	One leakage with P.C.C and CID joints	each	-	-	-	1777
		20.73.2.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1015
	20.73.3	150 mm internal diametre AC Pipe (Class-25)						
		20.73.3.1	One leakage with P.C.C and CID joints	each	-	-	-	2302
		20.73.3.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1539
	PVC PIPE URBAN							
20.74	Repair of leakage in underground pipelines in all respects in urban area to the complete satisfaction of the Engineer-in-charge, involving following process							
	(i) Excavation for pipelines running under pressure in trenches and pits, in streets and lanes including trimming and dressing sides, levelling of beds of trenches to correct grade, cutting joint hole, cutting trees and bushes etc., refilling, consolidation and watering of refill in 15 cm layers etc.- Without timbering and shoring upto 1.5 metre depth.							
	(ii) Dismantling plain cement concrete 1:2:4							
	(iii) laying of cement concrete 1:2:4 with stone aggregate 20 mm nominal size in foundation and plinth							
	(iv)Bailing out water from the trenches for making new connections in fully charged pipe lines size of the main up to 200mm internal diameter.							
	(v)Providing and fixing PVC detchable joints suitable for 6Kg/cm2 pressure pipe marked with IS: 8794 for use with PVC pipes complete with 2 Nos. rubber rings marked with IS and appropriate number of nut and bolts marked with IS: 1363 including carriage, loading, unloading etc. complete							
	(vi)Supply, laying, jointing and testing of PVC pipe 6 Kg/cm2 pressure with ISI mark							
	20.74.1	80 mm internal diametre PVC Pipe						
		20.74.1.1	One leakage with P.C.C and CID joints	each	-	-	-	1407
		20.74.1.2	One leakage without P.C.C. but with CID joints	each	-	-	-	645
	20.74.2	100 mm internal diametre PVC Pipe						
		20.74.2.1	One leakage with P.C.C and CID joints	each	-	-	-	1505
		20.74.2.2	One leakage without P.C.C. but with CID joints	each	-	-	-	743
	20.74.3	150 mm internal diametre PVC Pipe						
		20.74.3.1	One leakage with P.C.C and CID joints	each	-	-	-	1836
		20.74.3.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1074
	CI&DI Pipes							
20.75	Repair of leakage in underground pipelines in all respects in urban area to the complete satisfaction of the Engineer-in-charge, involving following process							
	(i) Excavation for pipelines running under pressure in trenches and pits, in streets and lanes including trimming and dressing sides, levelling of beds of trenches to correct grade, cutting joint hole, cutting trees and bushes etc., refilling, consolidation and watering of refill in 15 cm layers etc.- Without timbering and shoring upto 1.5 metre depth.							
	(ii) Dismantling plain cement concrete 1:2:4							
	(iii) laying of cement concrete 1:2:4 with stone aggregate 20 mm nominal size in foundation and plinth							
	(iv)Bailing out water from the trenches for making new connections in fully charged pipe lines size of the main up to 200mm internal diameter.							
	(v) Cutting CI pipes and specials and chipping of filing the surface to a uniform finish							
	(vi)Providing and fixing cast iron detchable joints (C.I.D) of the same internal diameter as of the pipes being repaired, class-15 marked with IS: 8794 for use with A.C/PVC/C.I pipes complete with 2 Nos. rubber rings marked with IS 5382 and IS:10292 and appropriate number of nut and bolts marked with IS: 1363 including carriage, loading, unloading etc. complete							

	(vi)Supply, laying, jointing and testing of cast (spun) iron pressure pipes for water as per IS:1536							
	20.75.1	80 mm internal diametre						
		20.75.1.1	One leakage with P.C.C and CID joints	each	-	-	-	1799
		20.75.1.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1036
	20.75.2	100 mm internal diametre						
		20.75.2.1	One leakage with P.C.C and CID joints	each	-	-	-	2033
		20.75.2.2	One leakage without P.C.C. but with CID joints	each	-	-	-	1271
	20.75.3	150 mm internal diametre						
		20.75.3.1	One leakage with P.C.C and CID joints	each	-	-	-	2791
		20.75.3.2	One leakage without P.C.C. but with CID joints	each	-	-	-	2029
	BELL MOUTH							
20.76	Supplying & fixing of bell mouth including cost of jointing materials, excavation laying jointing refilling , making adequate sports of massonary/ concrete for dilvery and suction pipe from bell mouth in the under structures complete in all respect to satisfacton of Engineer-in-charge.							
	20.76.1	100 mm i/d (9kg)		one unit	-	-	-	437
	20.76.2	150 mm i/d (15kg)		one unit	-	-	-	728
	20.76.3	200 mm i/d (23kg)		one unit	-	-	-	1116
	20.76.4	250 mm i/d (31kg)		one unit	-	-	-	1505
	20.76.5	300 mm i/d (45kg)		one unit	-	-	-	2184
	20.76.6	350 mm i/d (58kg)		one unit	-	-	-	3284
	20.76.7	400 mm i/d (80kg)		one unit	-	-	-	4529
	20.76.8	450 mm i/d (93kg)		one unit	-	-	-	5265
	20.76.9	500 mm i/d (120kg)		one unit	-	-	-	6794
	20.76.10	600 mm i/d (201kg)		one unit	-	-	-	11380
	20.76.11	700 mm i/d (304kg)		one unit	-	-	-	22129
	20.76.12	800 mm i/d (435kg)		one unit	-	-	-	31666
	CEILING FAN/ EXHAUST FAN							
20.77	Supply, erection, testing of Ceiling fans with suitable GI pipe complete in all respects complete as per directions of Engineer-in-charge							
	20.77.1	48" (1200mm)		each	-	-	-	1807
	20.77.2	56" (1400mm)		each	-	-	-	2077
20.78	Supplying errection testing of Exhaust fan having a capacity of 45 cubic Metre perminutes complete with suitable G.I sheet ducting in structure confirming to latest IS specfications complete in all respect to satisfacton of Engineer-in-charge.			each	-	-	-	1178
	GANTRY							
20.79	Supply and fixing of Gantry with chain pulley block (tested for 1.5 times the rated capacity) with travelling trolley of appropriate lifting capacity for handling of pumping sets capable of moving along the girders including cost of suitable sized RCC pillars to be provided in pump house complete in all respects as per directions of Engineer-in-charge							
	20.79.1	1 tonne capacity		tonne	-	-	-	54584
	20.79.2	1.5 tonne capacity		tonne	-	-	-	47809
	20.79.3	2 tonne capacity		tonne	-	-	-	50302
	20.79.4	2.5 tonne capacity		tonne	-	-	-	49377
	20.79.5	3 tonne capacity		tonne	-	-	-	58181
	“V” NOTCH							
20.80	Providing, laying , jointing and fixing of cast iron “V” notch, duly marked with beam including embedding in 1:2 cement and grouting leveling and finishing complete in respects			per kg	-	-	-	48
	FLOATING ARM							
20.81	Providing and fixing suitable floating arms along with swivel bend confirming to latest IS specificaitions as per required specification approved by Engineer-in-charge complete in respects							
	20.81.1	150 mm (460kg)		one unit	-	-	-	22324
	20.81.2	200 mm (648kg)		one unit	-	-	-	31448
	20.81.3	250 mm (972kg)		one unit	-	-	-	47136
	20.81.4	300 mm (1555kg)		one unit	-	-	-	75464
	20.81.5	350 mm (2177kg)		one unit	-	-	-	123258
	20.81.6	400 mm (2830kg)		one unit	-	-	-	160231
	20.81.7	450 mm (3538kg)		one unit	-	-	-	200317
	20.81.8	500 mm (4564kg)		one unit	-	-	-	258407
	20.81.9	600 mm (5887kg)		one unit	-	-	-	333313
	LED & CFL LIGHT							
20.82	Supply, erection, testing of reputed make LED light 100 watts with fitting and accessories complete in respects.			each	-	-	-	3825
20.83	Supply, erection, testing of reputed make CFL light 100 watts with fitting and accessories complete in respects.			each	-	-	-	2729
	TRANSFORMERS							
20.84	Design, Supply & erection of transformer of standard make Required 25 KVA 11/0.433 KVA rating outdoor type 11 KVA V.C.B, panel, G.O. switch, H. Pole , H.T metering panel, APFC panel, battery charges, 11 KVA substation, entire cable network from G.O. switch to H.T metering equipment and from H.T metering to Transformer. From transformer to main to L.T, panel earthling, safety equipment, fenced enclosure for transformer, and any other contingent thereto complete in all respect as per approved make and directions of Engineer-in-charge as per respective capacity.							
	20.84.1	15 KVA		each	-	-	-	143227
	20.84.2	25 KVA		each	-	-	-	177913
	20.84.3	50 KVA		each	-	-	-	200752
	20.84.4	63 KVA		each	-	-	-	212628
	20.84.5	100 KVA		each	-	-	-	246886
	20.84.6	150 KVA		each	-	-	-	487125
	20.84.7	175 KVA		each	-	-	-	578480
	20.84.8	200 KVA		each	-	-	-	636021
	20.84.9	250 KVA		each	-	-	-	704537
	20.84.10	300 KVA		each	-	-	-	795892
	20.84.11	400 KVA		each	-	-	-	904809
	20.84.12	500 KVA		each	-	-	-	969757
	20.84.13	600 KVA		each	-	-	-	1026853
	20.84.14	700 KVA		each	-	-	-	1067277
	20.84.15	800 KVA		each	-	-	-	1278535
	20.84.16	900 KVA		each	-	-	-	1381309

	20.84.17	1000 KVA	each	-	-	-	1723888
	20.84.18	1100 KVA	each	-	-	-	1952702
	20.84.19	1200 KVA	each	-	-	-	2181089
	FILTER BEDS WASHING						
20.85	Taking out filter media of filter bed and placing the same in filter bed after screened washed & cleaned top layer complete in all respect		cum	-	-	-	629
20.86	Providing and fixing bed plates complete in all respect		each	-	-	-	90
20.87	Taking out filter media Top , 2nd, 3rd & 4th layer after washed, cleaned & screened and replacing the same into filter bed to correct alignment.		cum	-	-	-	719
20.88	Taking out filter media Top & 2nd layer after washed, cleaned & screened and replacing the same into filter bed to correct alignment.		cum	-	-	-	701
20.89	Taking out filter media 3rd and 4th & bottom layer and replacing the same into filter bed to correct alignment.		cum	-	-	-	701
20.90	Taking out filter media other layer.		cum	-	-	-	449
20.91	Taking out bed plates from filter beds and replacing same after washing.		each	-	-	-	629
	RUBBER MATTING						
20.92	Providing and fixing of insulated rubber matting suitable for 11 KV installation 1 M x 2 M x 12 mm thick (IS code 15652-40091) as per specification complete and as per directions of Engineer-in-charge		each	-	-	-	1348
	SLUICE GATES						
20.93	Providing and fixing aluminium open channel sluice gate of opening size 600 x 400 mm incuding cost of carriage, labour & material of approved make and complete as per directions of Engineer-in-charge		per job	-	-	-	4493
20.94	Supply erection, testing of CI Sluice gates with operating arrangement at top of screening chamber complete in all respect of approved makes confiming to latest specifications IVC/Kirloskar Make						
	20.94.1	500X1000 mm	complete job	-	-	-	7279
	20.94.2	400 mmX 400 mm	complete job	-	-	-	8987
	20.94.3	500X 1000 mm ,	complete job	-	-	-	10066
	20.94.4	600 X 1200 mm	complete job	-	-	-	10919
	20.94.5	750 X 1500 mm, 20 mm thickness	complete job	-	-	-	15287
	20.94.6	600X600 mm , 20 mm thickness	complete job	-	-	-	21389
	PVC WATER BAR						
20.95	Supplying and Fixing of PVC water bars for water stops flexible physical plastic for preventeing leakage in concrete joints to avoid seepage (Fixo- stop) with ribs and central bulbs confirmed to IS-12200 of 1987 alongwith bitumen filler complete in all respects.						
	20.95.1	150 mm wide X 4.65 mm thickness of wall	per metre	-	-	-	135
	20.95.2	150mm wide X 6.00 mm thickness of wall	per metre	-	-	-	180
	20.95.3	250 mm x 8-11 mm thickness of wall	per metre	-	-	-	315
	20.95.4	300 mm x 8 mm thickness of wall	per metre	-	-	-	493
	G.O. SWITCH						
20.96	Supply, erection, testing & commissioning of G.O. Switch with blade, pin 6 insulator operating handle with GI pipe 25 mm class B ,3 no. RCC pole complete in all respects.		each	-	-	-	14560
	DIESEL ENGINES						
20.97	Providing and installation of trolly mounted water cooled diesel engine coupled with coupling engine fitted with all accessories such as mobil, air, diesel filter, silencer, diesel tank etc pump consist of CI impeller, CI delivery casing, SS shaft, bronze sleeve engine fited with all accessories such as mobil, air, diesel filter, complete in all respect of ISI make as approved by Engineer-in-charge						
	20.97.1	5 Cs. Suitable for 25 BHP	each	-	-	-	299186
	20.97.2	2 Cs. Suitable for 10 BHP	each	-	-	-	213541
	CHLORINATORS						
20.98	Supply & erection of “Wall Mounting Type, solened driven, motor-less, electromagnetic diaphragm Dozing Metering pump working on single-phase 220/240 V 50 Hz electric supply with standard electronic controls, suitable for minimum dozing capacity 0 to 5 LPH at 8 bar back pressure” complete with necessary accessories. Complete in all respects alongwith supply and erection of 1 No. Voltage Stablizer with Dozing Pump alongwith 1 No. 300 litres capacity ISI marked HDPE storage tank of approved make.as per directions of Engineer-in-charge.		each	-	-	-	16444
20.99	Supply, erection testing and commissioning of electro chlorinator system capable of producing active chlorine (in house generation) in the form of sodium hypochlorite solution by electrolysis of common salt crystal solution, tank of capacity 1000 ltr. for brine solution complete with automatic metering come dosing facility @ 1kg. per hour for disinfection of water including supply & installation of 1 No. dosing pump of suitable duty points, supply of tank of 5000 ltr. capacity for storage of hypochlorite solution, packing, loading, unloading, transportation, laying of inlet, outlet pipe lines & all required electric works including all taxes etc. including all minor civil work required for installation of plant.1 No. for each IBS complete in all respect as per direction of Engineer-in-charge.		each	-	-	-	433934
	CT METER						
20.100	Supply, erection, testing and commissioning of CT meter of standard make with cubical meter box as per HVPNL specifications including 3 phase electrical meter 100/5 of standard make approved by HVPNL including CT/PT of suitable rating complete in all respect as per directions of Engineer-in-charge		each	-	-	-	13703
	RO SYSTEMS						
	Deflouridation Plants						
20.101	Installtion of defluoridation unit, "Providing Installtion Fluoride revival system is an adsorption process wherein the fluoride present in the underground water gets absorbed by the RS-F (Resin Selective Media) Fluoride revival resins of approved make. On exchange of the resin bed, it has to be regeneration, the unit is initialy backwashed wth treated water and then regenerated with PAC solution. After regeneration the resin bed is rinsed with treated water. The backwash and the rinse water are disposed off in the drain of capacity of Defoliation based unit 2 cum/hr. Providing and fixing of coin dispensing system. Supply, Installtion, Commissioining with quality test Report and O&M of the whole of pure drinking water distribution/ dispensing 1 No. Plant unit of capacity 1300 LPH, product work on single phase power supply for a period of 10 year old turnkey/EPC basis complete in all respect		each	-	-	-	1240137
20.102	Supply, erection, testing and commissioning of R.O. System of 250 lph capacity as per WHO specifications with 1/2 HP motor with all accessories complete in all respect alongwith defect liability period of 12 months complete in all respect as per directions of Engineer-in-charge.		each	-	-	-	111909
	DG SETS						

20.103	Designing, Supply & erection of DG set of capacity given below with noise controlled devices acoustic of suitable rating, testing and commisiioning of diesel generating set, radiator cooled, 3 phase, 4 wire, 50 cycles 415 +(-)1% volts AC alternator coupled directly through a set of flexible coupling on a common MS fabricated base frame with diesel engine complete with suitable size incoming cable from generator to change over/AMF panel, making 2nd incoming cable connection from transformer, outgoing cable connection from changeover/AMF panel to in corner of motor starter panel, fenced enclosure with platform for DG sets complete as per directions of Engineer-in-charge. The rating should be at 1500 RPM. a) Diesel Engine b) Alternator c) Battery 24 V. d) Base Plate. e) 1x120 sq mm 3.0 core XLPE Aluminum = 20 m. f) Tools A.M.F. PANEL a) Motorised change over switch 250 Amp 4 P with fuse base and HRC links 250 Amp. b) Under voltage/ over voltage relay - 2 No. 415 VAC. c) Start relay 24 VDC 1 No. d) Electronic Timer 24 VDC 1 No. e) Electronic Timer 24 VDC 2 No. f) Auxiliary relay 220 VAC - 2 No. g) Auxiliary relay 220 VAC - 3 No. h) Metering set 415 VAC - 1 set (Amp. Meter, Volt Meter, ASS, VSS, Phase Indicators, Control fuse, frequency meter, CT'S). i) Metering set 24 V DC (Amp. Meter, Volt Meter). j) Over Load protection for DC - 1 No. k) Battery Charger 24 V DC (Blueron make). l) Copper bus bar of suitable size. m) KWH meter 96 square mm size.						
	20.103.1	10 KVA	each	-	-	-	278460
	20.103.2	20 KVA	each	-	-	-	394937
	20.103.3	25 KVA	each	-	-	-	417776
	20.103.4	50 KVA	each	-	-	-	587923
	20.103.5	62.5 KVA	each	-	-	-	623323
	20.103.6	100 KVA	each	-	-	-	836008
	20.103.7	125 KVA	each	-	-	-	870266
	20.103.8	160 KVA	each	-	-	-	921653
	20.103.9	200 KVA	each	-	-	-	1428670
	20.103.10	250 KVA	each	-	-	-	1852327
	20.103.11	300 KVA	each	-	-	-	2353634
	20.103.12	360 KVA	each	-	-	-	2748743
	20.103.13	400 KVA	each	-	-	-	3502417
	20.103.14	500 KVA	each	-	-	-	4004867
	20.103.15	600 KVA	each	-	-	-	4236736
	20.103.16	700 KVA	each	-	-	-	4579316
	20.103.17	800 KVA	each	-	-	-	4807702
	20.103.18	900 KVA	each	-	-	-	5492861
	20.103.19	1000 KVA	each	-	-	-	6406406
	SUB-STATION						
20.104	Supplying & installation of 11 KV Compact Sub-station with 63KVA Oil type transformer and V+M as HT Switchgear consisting of followingand as per directions of Engineer-in charge.						
	HT Switchgear						
	11KV, 400A, 50 Hz, 16kA 1sec, Air insulated load break switch with striker operated HTHRC fuses for the transformer protection.						
	Transformer						
	63KVA, 11 kV/415V, DYn11, Oil type hermitacally sealed corrugated wall type transformer with off circuit tap links of rating +5 to -5 @2.5% on HT side of the transformer.						
	LT PANEL						
	415VLT Indoor panel with Aluminum busbars, Fabrication using 1.5/2 MM CRCA sheet steel, Ingress protection IP4X, complete with internal wiring consisting of following.						
	Incomer from Transformer						
	250A, 415V, 50Hz, 50kA4P Fixed Motorized Moulded Case Circuit Breaker		job	-	-	-	1527799
20.105	Supply, erection, testing and commissioning of LT panel with copper bus bar solid connection of suitable rating consisting of 1 No. incoming LT MPCB 24-32 Amp., timer and short circuit static type release for transformer one set of metering (Amp Meter with CT volt meter with control fuse 4 Nos star delta starter and should contain following items complete and as per directions of Engineer-in-charge a) MPCB 24-32 Amp. b) Contractor 3x32 Amp= 3 nos. c) Over load relay (CT operated 50/5 Amp = 1 no. d) Timeer electronic 0.60 Second= 1 no. e) Single phase preventer-415 voltage AC=A/P/R f) Motor protection relay-MPR=not required g) Push button = 1 No. h) Amp meter 0-50 Amp= 1 no. i) CTS 50/5 Amp= 3 nos j) Amp Selector Switch= 1 no. k) Control MCBSP 6 Amp SP= 3nos.						
	20.105.1	Suitable for 7.50 BHP (90 x 15 M/hour).	each	-	-	-	16176
	20.105.2	Suitable for 15 BHP (180x15 M /hour).	each	-	-	-	17974
20.106	Supply, erection, testing & commissioning in LT cables PVC aluminum armoured / copper cable including cost of thimbles, lugs for making connection underground covered with sand and bricks / in trench / in pipe on steel bridges (detail of cable sizes & length to be provided be clearly mentioned) for making following connection complete as per directions of Engineer-in-charge						
	20.106.1	from transformer to LT panel 1100 V grade 3.1/2 core 10 Sq. mm XLPE or for motor side 3 core aluminum 2x6 sq.mm XLPE	metre	-	-	-	180
	BOKKY TYPE SHELLO TUBWELL						
20.107	Drilling of 250mm dia of bore through bokky type instrument complete in all respect including charges for shifting of infrastructures.						
	20.107.1	0 to 50m BGL	metre	-	-	-	711
	20.107.2	51 to 75m BGL	metre	-	-	-	756
	20.107.3	76 to 100m BGL	metre	-	-	-	801

20.108	Providing and Lowering 225 mm dia PVC pipe threaded (10kg/CM2) duly ISI marked complete in all respect as per directions of Engineer-in-charge			metre	-	-	-	1112
20.109	Providing and fixng 225mm outer dia filter Jali (10 Kg/CM2) complete in all respect as per directions of Engineer-in-charge			metre	-	-	-	107
20.110	Providing and fixng 250 mm M.S. clamp as for suitable pipe with nut & bolt complete in all respect as per directions of Engineer-in-charge			each	-	-	-	1334
20.111	Providing and fixing PVC cap. For 225mm outer dia PVC pipe complete in all respect as per directions of Engineer-in-charge			each	-	-	-	623
20.112	Development of tubewell with pump of suitable rating to tht full satisfaction and as directed by the Engineer-in-charge			per hour	-	-	-	1780
20.113	supply and fixing 250mm bore plate			each	-	-	-	890
	INSTALLATION OF SHALLOW/MEDIUM/DEEP TUBEWELLS							
20.114	Drilling of 609.60mm dia bore by hydraulic rotary drilling (reverse circulation method) percussion rig according to ISI specification No. 2800-1991 (Part-I) as amended upto date and modified to extent of the specification attached with this schedule of items of work in all kinds of soils and boulders upto 125 mm dia except rocky strata including the cost of all consumable stores, fuel, oil, soil stabilizing material and transportation of rig and other accessories to the site of proposed bore and back including cost of lowering of all size of casing pipe while boring & extracting the same against earth friction etc. complete to the satisfaction of the Engineer-in-charge.			per metre	-	-	-	598
20.115	Supplying and lowering 277.10mm outer dia ERW steel pipes as per IS 4270/1992 as amended upto date, duly ISI marked for housing pipe in 4 to 7 Metres random length with 88.90mm of threaded ends (8 threads to an inch or 25.40mm) manufactured out of 8.00mm thick M.S. plates with required number of M.S. socket 177.8mm with inside thread to match the pipe threads and made out of M.S. plate in to borehole in vertical position including cost of all scaffolding, derricks, Jim, poles, tools and plants, ropes, guys M.S. clamp embedded in foundation etc. complete in all respects to the satisfaction of the Engineer-in-charge of the work including cost of all cutting, threading of pipe, welding, where required and all sockets. The pipe shall be painted with anti corrosive paint and covered tightly with polythene.			per metre	-	-	-	2516
20.116	Supplying and lowering 219.10mm outer dia ERW steel pipes as per IS 4270/1992 as amended upto date, duly ISI marked for housing pipe in 4 to 7 Metres random length with 88.90mm of threaded ends (8 threads to an inch or 25.40mm) manufactured out of 6.40mm thick M.S. plates with required number of M.S. socket 177.80mm with inside thread to match the pipe threads and made out of M.S. plate in to borehole in vertical position including cost of all scaffolding, derricks, Jim, poles, tools and plants, ropes, guys M.S. clamp embedded in foundation etc. complete in all respects to the satisfaction of the Engineer-in-charge of the work including cost of all cutting, threading of pipe, welding, where required and all sockets. The pipe shall be painted with corrosive paint and covered tightly with polythene.			per metre	-	-	-	1528
20.117	Supplying and lowering 200mm i/d all welded S.S. Screen cage type V-wire wound screen conforming to ISI 8110-2000, IS : 4270-1992 and compositions of material as per ISI : 1012 of outer dia 221 mm equivalent thichness 8.00mm, tensile load 14000 kg minimum and ring thickness 8mm, slot opening 0.75mm, open area 25%.			per metre	-	-	-	5122
20.118	Supplying, fixing and lowering reducing socket as per IS:226/1975 as amended upto date 277.10mm outer dia, x 219.10mm outer dia with 8 threads per inch or 25.40mm to be made out of M.S. plate with internal threads, suitable for jointing 277.10mm outer dia pipe and outer dia pipe and 219.10mm outer dia ERW pipe as per item said above.			each	-	-	-	449
20.119	Providing and fixing in position suitable bail plug hook of 219.10mm as per IS 226/1975 as amended upto date, including the cost of M.S. Screwed sockets etc. complete in all respects to the entire satisfaction of the Engineer-in-charge of the work.			each	-	-	-	449
20.120	Supplying and packing graded gravel of size as per ISI 4097/1988, as amended upto date and specification attached with this schedule of item of work. The gravel should be free from dust, dirt or vegetable matters. Packing to be done from the housing pipe to the bottom of liner all around in the bore and will be placed after liner and housing pipes have been lowered and suitably clamped. Thickness and size of the gravel packing will be designed & directed by the Engineer-in-charge strictly as per relevant ISI.			cum	-	-	-	1258
20.121	Supplying and fixing well threaded M.S. cap for 277.10mm outer dia M.S. pipe as per ISI 226/1975 as amended upto date to the satisfaction of the Engineer-in-charge.			each	-	-	-	449
20.122	Supplying as per IS 226/1975 as amended up to date deodar wooden box made of 20mm thick wood size 60 cm x 75 cm x 30 cm with lid and locking arrangement etc for preserving the strata samples received from the bore as and when desired by the Engineer-in-charge.			each	-	-	-	449
20.123	Supplying and fixing 277.10mm M.S. clamp as per IS 226 / 1975 as amended up to date for supplying the housing pipe supported on two girders not less than ISMB 100mm x 150mm, weight not less than 17.00 kg / m, cross section area not less than 21.67 sq. cm, flange thrickness 7.00mm, web thickness 5.40mm, 2.00 m long (each) embedded in suitable foundation as approved by the Engineer-in-charge.			each	-	-	-	1798
20.124	Development of tubewell according to clause 9.3 of IS: 2800-1991 (Part-I) as amended upto date and specifications attached and as directed by the Engineer-in-charge of the work including the cost of all consumable stores, fuel, oil, compressors, pumps and machinery etc. as required for this work.							
	20.124.1	Compressor 450cfm x 250 psi		per hour	-	-	-	4715
	20.124.2	Compressor 800cfm x 500 psi		per hour	-	-	-	5782
	20.124.3	Compressor 1100cfm x 350 psi		per hour	-	-	-	7473
20.125	Electric logging of tubewell.			complete job	-	-	-	16176
20.126	Providing clay seal of thickness 4.00 m or above, consisting of balls of local clay or bentonite mud, to be placed in the annular space around the assembly. The clay seal should be provided at a level of minimum 25.00 m above the top most screens, depending on the logging results. This item is to be included when ever is necessary).			complete job	-	-	-	899
20.127	Providing and fixing centralizer guides (centralizer) fitted to the well assembly except the housing pipe, at bottom and at a spacing of 12 m centre to centre, to keep the assembly in centre of the bore hole as per approved design and specifications, confirming to IS : 226/1975.			each	-	-	-	90
	Electric Resistance welded (ERW) M.S. Pipes / ERW Cage type Vee wire wound screen / Stainless steel screen / galvanized screens duly ISI Marked							
20.128	Providing and lowering (ERW) electric resistance welded M.S. pipes in bore wells ISI marked steel tubles used for water wells types hot finished / Electric Automatic Resistance Welded (ERW) / High Frequency Induction welded (HFIW) in random standard length of 4 to 7 metres conforming to IS 4270 / 2001 as amended upto date. Screwed End socketed casing pipes as per table No. 2 of IS : 4270 / 2001 as amended upto date of steel grade FE-410 one threaded socket duly bearing ISI certification mark shall be supplied free of cost with every length of pipe. All threads shall be coated with a petroleim jelly or other suitable rust preventing compound. All threads with V-form threads shall have the threads protected with plastic rings or sleeves.							
	20.128.1	200x6.4mm		metre	-	-	-	2047
	20.128.2	250x8.0mm		metre	-	-	-	2669
20.129	Providing and lowering ISI marked ERW Cage Type Vee Wire Wound Screens in bore wells as per IS : 8110-2000 with latest amendments if any. Screen will be of continuous trapezoidal wire spirally wound around fabricated cage. The wrapping wire having a "V" shaped (wedge) profile wire with flat surface on the outside and producting expanding slots on the inside of various dimensions, resistance welded to a cylindrical body made of number of longitudinal special high tensile support rods to provide smooth unrestricted bore which are in turn welded into culindrical ring couplings at either end for all nominal bore of given screen size.							
	20.129.1	219.10x6.40mm		metre	-	-	-	2135
20.130	Providing and lowering ISI marked metal Cage Type Vee Wire Wound Screens in bore wells of following sizes:-							
	20.130.1	Stainless Steel Screens						
		20.130.1.1	200x8.0x0.50mm	metre	-	-	-	6762
		20.130.1.2	200x8.0x0.75mm	metre	-	-	-	6672
		20.130.1.3	200x6.3x0.50mm	metre	-	-	-	6228
		20.130.1.4	200x6.3x0.75mm	metre	-	-	-	6139

		20.130.1.5	250x7.3x0.50mm	metre	-	-	-	6851
		20.130.1.6	250x7.3x0.75mm	metre	-	-	-	6761
		20.130.1.7	250x8.2x0.50mm	metre	-	-	-	7206
		20.130.1.8	250x8.2x0.75mm	metre	-	-	-	7118
	20.130.2	Galvanized Screens						
		20.130.2.1	200x7.0x0.50mm	metre	-	-	-	3470
		20.130.2.2	250x8.0x0.50mm	metre	-	-	-	4359
		20.130.2.3	250x8.0x0.75mm	metre	-	-	-	4181
		20.130.2.4	250x10.0x0.50mm	metre	-	-	-	4982
		20.130.2.5	250x10.0x0.75mm	metre	-	-	-	4894

CHAPTER NO. 21

SEWERAGE
AND
DRAINAGE

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CHAPTER 21 - SEWERAGE AND DRAINAGE

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 458	Pre-cast Concrete Pipes (with and without reinforcement).
2	IS 651	Specification for Salt Glazed Stoneware Pipes and Fittings.
3	IS 783	Code of Practice for Laying Concrete Pipes
4	IS 1726	Specification for Cast Iron Manhole Covers and Frames
5	IS 1729	Cast Iron /Ductile Iron Drainage Pipes and Pipe Fittings Socket and Spigot Series for Over-ground Non-pressure Pipe Line.
6	IS 4127	Code of Practice for Laying of Glazed Stone Ware Pipes
7	IS 4885	Specifications for Sewer Bricks
8	IS 12592	Pre-cast Concrete Manhole Covers and Frames – Specifications

CHAPTER 21 - SEWERAGE AND DRAINAGE

NOTES:

1. Efforts have been made to describe the various items self-explanatory as much as possible.

2. Rates are derived assuming that all type of materials shall be arranged by the contractor. If any material is decided to be issued departmentally, suitable adjustment for difference of store issue rate and market rate may be made in the estimated rates.

3. The rates given for all the items are applicable to work executed in soils above sub-soil water level. Extra allowance has to be made for work under sub-soil water level.

4. The rates include the carriage up to site of work, handling of material with in a lead of 50 metres. Nothing is to be paid for rehandling of materials.

5. The rates include the cost of water, tools and plants, labour and materials.

6. The rates provided under this chapter include the wastage and breakages of various materials during construction.

7. The rate also cover the cost of all special scaffolding, derricks, jim poles, tools and plant , ropes, guys etc., and nothing extra will be admissible to the contractor for the difficulties involved in erecting the columns absolutely true and vertical.

8. Water charges for water to be arranged by contractor are included in the rates mentioned.

9. The joints between the stone-ware or cement concrete pipe connecting the manholes with the column will be paid for at the rates as a joint of stone ware or cement concrete pipes at the relevant rates given in this schedule and all extra cement concrete required to make this joint perfect and to the requirements of the Engineer-in-charge shall be allowed to the contractor as per cement concrete at the rates laid down for such items.

10. The rates for fixing manhole cover and frames, C.I. or malleable iron steps, errection of C.I. or R.C.C. vent shafts, lowering of S.W. and R.C.C. pipes etc., provided under his chamber include the carriage of the material within a radius of 5 km of the site of works (i.e. all labour rates including carriage of material upto 5 km lead).

11. The rates for manhole chamber construction are only for estimating purposes and non-payment will be made on these rates. The payment for these items will however be made according to the measurements of various quantities of works executed at site.

12. The rates provided under this chapter include the wastage and breakages of various materials during construction.

13. In case of constructing brick or concrete sewers the rates are for 1.5 meters depth of invert level from the ground level. Where depth is greater, additional rate is to be paid for in slabs of 4 metres additional depth or part thereof.

14. The pieces if any of the column shall be assembled and joined at ground level and then hoisted and erected unless specification approval of the Engineer- in-charge in writing permitting the contractor to do shall have been given.

15. Various items related to Brick masonry, Sanitary Installations, Plastering, Earthwork, Trenching, Painting, Flooring and Paving etc. are included in the respective chapters of these subheads which can be referred to for estimating as well as execution purpose.

16. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 21.0 - SEWERAGE AND DRAINAGE						
21.1	Clay puddle, weathered and tempered, laid and consolidated on the flat or on the slope to correct template and levels or thickness as shall be required by the Engineer-in-charge.		cum	89	0	193	282
	Note: Only weathered and tempered clay of quality to be approved by the Engineer-in-charge shall be allowed to be used. The rate includes the cost of all forms and shuttering required for the placing and supporting of the puddle and for filling in all cracks and scoured out holes or channels, etc. formed in puddle and finishing to an accurate smooth surface to the plate puddle and finishing to an accurate smooth surface to the plate.						
	A. Dismantling and Demolition						
21.2	Dismantling existing drains of different sizes cunettes, section only including recovery of all useable materials, stacking the same near site of dismantled works and disposal of all rubbish off site of works.						
	21.2.1	House Connectian drains	10 metres	87	0	0	87
	21.2.2	Type I Drain	10 metres	135	0	0	135
	21.2.3	Type II Drain	10 metres	295	0	0	295
	21.2.4	Type III Drain	10 metres	385	0	0	385
	21.2.5	Type IV Drain	10 metres	450	0	0	450
	Notes: (i) The disposal of all rubbish off site of work means the removal thereof to the place of disposal outside the town into ponds, and depression or other suitable places, levelling off the same and clearing of the site of structures dismantled, to the satis faction of the Engineer-in-charge.						
	(ii) The dismantling of brick pitched drain shall be paid for at the rates given under Chapter No.8 (Demolition) on the class of work.						
	B. Brick flooring and Pitching						
	Reimbursements to drains and flooring in strips						
21.3	Tega 7.50 cm thick formed of first class bricks on end laid in cement sand mortar 1:5 and projecting to a maximum height of not more than 12.5 cm above top of drain along house sides of drains where required for protection of house walls.		10 metres	0	0	1055	1055
21.4	Tega 11.50 cm thick formed of first class bricks on end laid in cement sand mortar 1:5 as above.		10 metres	0	0	1481	1481
	The rates for items 21.3 and item 21.4 include for all excavation and roll for all bends, curve, cutting and wastage of bricks required. The external surface of the exposed joints must be struck flush as the work proceeds and left perfectly smooth.						
21.5	First class flat brick 7.50 cm thick laid in reimbursements in and on lime mortar on sides of drains and in other work where required over lime concrete or other foundations. All joints to be left completely filled and struck flush.		10 sqm	0	0	4259	4259
21.6	First class flat brick 7.50 cm thick laid in reimbursements in and on lime mortar on sides of drains and in other work where required over lime concrete or other foundations. All joints to be left completely filled and struck flush.		10 sqm	0	0	4268	4268
21.7	First class flat brick 7.50 cm thick laid in reimbursements in and on lime mortar on sides of drains and in other work where required over lime concrete or other foundations. All joints to be left completely filled and struck flush.		10 sqm	0	0	4527	4527
21.8	First class flat brick 7.50 cm thick laid in reimbursements in and on 1:4 cement sand mortar as above.		10 sqm	0	0	4829	4829
21.9	First class brick on edge 11.50 cm thick laid in reimbursements in and on lime mortar on sides of drains and in other work where required over lime concrete or other foundation, all joints to be left complete filled and struck flush.		10 sqm	0	0	6512	6512
21.10	First class brick on edge 11.50 cm thick laid in reimbursements in and on 1:6 cement sand mortar as above.		10 sqm	0	0	6526	6526
21.11	First class brick on edge 11.50 cm thick laid in reimbursements in and on 1:5 cement sand mortar as above.		10 sqm	0	0	6923	6923
21.12	First class brick on edge 11.50 cm thick laid in reimbursements in and on 1:4 cement sand mortar as above.		10 sqm	0	0	6785	6785
	NOTES: (i) The rates laid down for items 21.5 to 21.12 cover all reimbursements to drains and any strips ribs and edgings of narrow width en-closing areas to be paved with dry brick on edge or on flat. The rates also include all extra work involved in laying narrow strips 7.50 cm X 11.50 cm or 23 cm wide only along side the drains and for all curves, bends, slopes and changes of slopes and other works involving added labour or material also for all irregular areas and the cutting, fitting and wastage of bricks required for such work. No extra will be payable for any special difficult or complicated work required to be executed.						
	(ii) In all cases of brick on flat or brick on edge reimbursements of pitching in lime, or cement mortar, a layer of mortar not less than 6mm thick shall be placed underneath the bricks and the bricks shall be embeded therein. This is covered by the rate. All joints between the brick and along outer and inner sides of reimbursements shall be completely filled with mortar.						
	(iii) In the event of cement pointing being ordered in writing to be carried out for any flooring or pitching specified in item 21.3 to 21.12 the appropriate rate laid down for such work in this schedule shall be allowed as an extra otherwise the external surface of the exposed joints shall be struck flush as the work proceeds and left perfectly smooth.						
	(iv) All joints for items 21.3 to 21.12 inclusive shall be specially thin joints not exceeding 5 mm width.						
	(v) The rates laid down above for items 21.3 to 21.12 do not include the cost of the lime concrete brick ballast or other foundations under the flooring and pitching.						
	Flooring and Paving						
21.13	First class dry flat brick flooring or paving in ordinary bonded courses or in herring bone or other special courses or bond laid to template over rammed and dressed foundation and to correct longitudinal and cross slopes as shall be required by the Engineer-in-charge. All joints shall be thoroughly filled with dry sand grouting which shall be applied to a thickness of not than 20 mm over the surface of the flooring and brushed into the joints. All joints shall be fully filled with sand.		10 sqm	789	0	3028	3817
21.14	First class dry brick on edge flooring or paving in ordinary bounded courses or bound, laid as described in item no.21.13.		10 sqm	952	0	4925	5878
21.15	First class flat brick paving or flooring laid over and in lime mortar in ordinary bonded courses or in herring bone or other special courses, to templates overdressed foundation and to correct longitudinal and cross slopes as shall be required by the engineer-charge. All joints shall be filled with mortar and struck flushed as the work proceeds.		10 sqm	0	0	4446	4446
21.16	First class flat brick paving flooring in cement sand mortor 1:6 laid as described in item no 21.15		10 sqm	0	0	4456	4456
21.17	First class flat brick paving or flooring laid over and in cement sand mortar 1:5 laid as described in item No. 21.15		10 sqm	0	0	4531	4531
21.18	First class brick on edge paying or flooring laid over and in lime mortar laid as described in item No. 21.15		10 sqm	0	0	6114	6114
21.19	First class brick on edge paying or flooring laid over and in Cement sand mortar 1:6 laid as described in item No. 21.15		10 sqm	0	0	6127	6127
21.20	First class brick on edge paying or flooring laid over and in Cement sand mortar 1:5 laid as described in item No. 21.15		10 sqm	0	0	6230	6230
21.21	First class brick on edge paying or flooring laid over and in Cement sand mortar 1:4 laid as described in item No. 21.15		10 sqm	0	0	6333	6333
21.22	Extra over and above the rates for item No 21.13 to 21.21 inclusive for pitching on the slope to sullage drains above cunnetes and to storm water channels etc. where required		10 sqm	0	0	124	124
	Notes: (i) The rates laid down for item Nos. 21.13 to 21.22 include the cost of herring bone and other special bonding and curved work, corners, curves, longitudinal and cross slopes, cambers cutting, shaping and wastage of bricks to fit irregular areas and other special works, all bricks shall be laid with best side exposed.						
	(ii) In cases of item Nos.21.13 to 21.14 the rates include for a thin layer of clay or mud plaster from 6mm to 10 mm thick laid to correct templates and levels underneath the bricks which should be carefully set into the mud plaster.						
	(iii) In case of items 21.15 to 21.22 the rats include the provision of homogenous layer of mortar not less than 6 mm thick under the whole of the flooring or paving into which the bricks shall be carefully set and embedded when laid.						
	(iv) The joints of the flooring and paving specified in items 21.15 to 21.22 shall be fine and the maximum width shall not exceed 5 mm. All bricks shall be laid with the best side exposed and the rates cover the cost of cutting and trimming the bricks where necessary in order to ensure good bond and specified fine thickness of joints.						

	(v) In the event of the Engineer-in-charge giving orders in writing for cement pointing to be applied to the exposed surface of any flooring or paving the appropriate rate for such work will be allowed as laid down in the schedule otherwise the external surface of the joints shall be struck flush as the work proceeds and left perfectly smooth.						
	(vi) The rates laid down for items 21.15 to 21.22 do not include the cost of the lime concrete brick ballast or other foundation under the flooring and pitching.						
	(vii) The rates for item No.21.22 includes for any special profiles or strips laid to these specification even though the width of such strips or profiles may be only 11.5 cm or 23 cm and no extra over and above the rates laid down will be paid for such work.						
21.23	Brick ballast, well or over burnt broken and screened through a 32mm x 32mm square mesh screen laid consolidated and rammed to a finished thickness of 50mm to template and levels to correct longitudinal slopes, cross slopes cambers, etc. under paving or flooring.			10 sqm	277	0	340	617
21.24	Brick ballast, well or over burnt broken and screened through a 32mm x 32mm square mesh screen laid consolidated and rammed to a finished thickness of 75mm as above.			10 sqm	925	0	0	925
21.25	Clay concrete, consisting of 100 parts by volume of well burnt or over burnt brick ballast screened through 32mm x 32mm square mesh screen mixed with 33 parts by volume of fine buddle clay, thoroughly mixed laid, consolidated and rammed to a finished thickness of 50mm to templates and levels and to a correct longitudinal slopes, cross slopes, cambers, etc., under paying or flooring as shall be required by the Engineer-in-charge.			10 sqm	252	0	340	592
21.26	Clay concrete as above but laid consolidated and rammed to a finished thickness of 75mm as above.			10 sqm	996	0	0	996
	C. FIXING INCLUDING CARRIAGE							
21.27	Fixing 560mm, 500mm and 450mm internal diameter circular or 455mm x 610mm clear inside opening rectangular cast iron manhole cover and frame including carriage from the stores of the engineer-in-charge to site of work loading, unloading including stacking and setting the same to correct lines and levels in 1:2 cement sand mortar over manhole etc.							
	21.27.1	Heavy duty Circular 560 mm or 500 mm i/d (weight as per I.S.I.)		each	367	0	0	367
	21.27.2	Medium duty Circular 560 mm or 500 mm i/d (weight as per I.S.I.)		each	323	0	0	323
	21.27.3	Light duty rectangular, single seal pattern 1455mm x 610 mm clear inside opening or circular 500 mm or 450 mm dia (weight as per I.S.I)		each	178	0	0	178
21.28	Providing & fixing steel bar embedded plastic steps of size 263mm x 165mm of orange colour, confirming to specification in pump chambers, manholes etc., having minimum 3mm thick polypropylene polymer confirming to is:10910 encapsulated on 12mm dia ribbed steel bars per IS :1786. The rate include cost of setting the same to correct lines and levels duly embedded in 1:2:4 cement concrete including carriage, loading, uploading, stacking, handling, re-handling etc., complete in all respect to the satisfaction of Engineer-in-charge			each	126	0	199	325
21.29	Fixing or heavy cast iron automatic syphon with fittings including carriage from the stores of engineer-in-charge to site of works, loading and unloading fixing and setting the same to correct lines and levels in 1:2 cement sand mortar in automatic flushing tanks if required.							
	21.29.1	80 mm internal diametre syphon		each	527	0	0	527
	21.29.2	100 mm internal diametre syphon		each	633	0	0	633
21.30	Erection of cast iron ventilating columns 150mm, 250mm and 300mm internal dia. including bases, columns, caps, cowls or wire domes, etc, complete including carriage from the stores of the engineer-in- charge of works to site of works to site of works loading and unloading, fixing and jointing and setting the same in position in 1:2 cement sand mortar over the foundation blocks, in the works including the fixing and grouting of holding down bolts, nuts and grouting of holding down bolts, nuts and washers, the filling of the completed flanged joints with molten lead and finishing off to the requirements of the engineer-in-charge.							
	21.30.1	150 mm i/d columns						
		21.30.1.1	5.5 metres high and weighing 8.1 quintal	per column complete	4522	0	0	4522
		21.30.1.2	9.0 metres high and weighing 10.2 quintal	per column complete	5170	0	0	5170
		21.30.1.3	10.0 metres high and weighing 10.6 quintal	per column complete	6084	0	0	6084
		21.30.1.4	11.0 metres high and weighing 11.3 quintal	per column complete	6711	0	0	6711
		21.30.1.5	12.0 metres high and weighing 11.9 quintal	per column complete	7218	0	0	7218
	21.30.2	250 mm internal diameter columns						
		21.30.2.1	8 metres high and weighing 17.13 quintal	per column complete	9769	0	0	9769
		21.30.2.2	9 metres high and weighing 18.6 quintal	per column complete	10607	0	0	10607
		21.30.2.3	10 metres high and weighing 18.80 quintal	per column complete	10721	0	0	10721
		21.30.2.4	11 metres high and weighing 20.63 quintal	per column complete	11765	0	0	11765
		21.30.2.5	12 metres high and weighing 22.43 quintal	per column complete	12792	0	0	12792
	21.30.3	300 mm internal diametre column						
		21.30.3.1	8 metres high and weighing 19.80 quintal	per column complete	11292	0	0	11292
		21.30.3.2	10 metres high and weighing 21.80 quintal	per column complete	12432	0	0	12432
21.31	Erection of R.C.C. ventilating column having minimum 200 mm internal dia and a height of 11 meters above ground level, including caps, cowls or wire domes etc. complete including carriage from the stores of the engineer-in-charge of works to site of works, loading, unloading, fixing and setting the same in position and embedding in foundation block (to be paid separately) complete.			per column complete	11479	0	0	11479
	Notes: (i) The rates given above are based on the free supply by the department of columns and fittings include base, column pipes, caps, cowls or wire domes holding down bolts nuts and washers, jointing material comprising lead and bolts, nuts and washers and rubber insertion at the stores of the Engineer-in- charge but all steel strips or packing pieces required for jointing and erecting the columns true and vertical shall be provided by the contractor at his own expenses and cost thereof is included in the above rates.							
	(ii) The rate also cover the cost of all special scaffolding, derricks, jim poles, tools and plant , ropes, guys etc., and nothing extra will be admissible to the contractor for the difficulties involved in erecting the columns absolutely true and vertical.							
	(iii) The joints between the stone-ware or cement concrete pipe connecting the manholes with the column will be paid for at the rates as a joint of stone ware or cement concrete pipes at the relevant rates given in this schedule and all extra cement concrete required to make this joint perfect and to the requirements of the Engineer-in-charge shall be allowed to the contractor as per cement concrete at the rates laid down for such items.							
	(iv) The pieces if any of the column shall be assembled and joined at ground level and then hoisted and erected unless specification approval of the Engineer- in-charge in writing permitting the contractor to do shall have been given.							

	(v) The columns which have not been erected absolutely true, concentric and vertical shall to be accepted and the contractor shall rectify all defects arising from defective workmanship in joining, fixing and erection at his own costs and charge and nothing extra will be admissible to him for the removal of such defects.						
	(vi) The contractor shall be entirely responsible for the safety and the custody of the material handed ever to him for erection and joining and shall not damage any column or its component parts while the same is under his charge or during assembly, erection etc., should however, any column or its component part or the joining material got damaged or stolen while the same are under his charge and until the columns after erection have been duly approved, passed and accepted by the Engineer-in-charge, the actual cost of such damage or loss shall be recovered from the contractor. The actual cost of various component parts of the columns and of the joining material to be issued to the contractor free of cost can be ascertained by the contractor from the Engineer-in-charge before tendering.						
	(vii) The height of column as mentioned in item 21.30 above is exclusive of the height of base, cap and cowl or dome. The weight as mentioned in this item is approximate total weight of the column.						
	D. PAINTING VENT SHAFTS						
21.32	Painting two coats excluding priming coat with ready mixed paint for metallic surfaces in all shades on new works-						
	21.32.1	150 mm internal diametre vent shaft	metre	0	0	65	65
	21.32.2	250 mm internal diametre vent shaft	metre	0	0	106	106
	21.32.3	250 mm internal diametre vent shaft	metre	0	0	125	125
21.33	Painting one coat ready mixed paint for metallic surfaces in all shades on new works-						
	21.33.1	150 mm internal diametre vent shaft	metre	0	0	28	28
	21.33.2	250 mm internal diametre vent shaft	metre	0	0	46	46
	21.33.3	300 mm internal diametre vent shaft	metre	0	0	54	54
21.34	Painting two coats with anti-corrosive bitumastic paint on new work to give an even shade-						
	21.34.1	150 mm internal diametre vent shaft	metre	0	0	57	57
	21.34.2	250 mm internal diametre vent shaft	metre	0	0	94	94
	21.34.3	300 mm internal diametre vent shaft	metre	0	0	111	111
21.35	Painting one coat with anti-corrosive bitumastic paint on old work to give an even shade-						
	21.35.1	150 mm internal diametre vent shaft	metre	0	0	28	28
	21.35.2	250 mm internal diametre vent shaft	metre	0	0	45	45
	21.35.3	300 mm internal diametre vent shaft	metre	0	0	53	53
21.36	Finishing R.C.C. vent shafts minimum 200 mm internal diameter with exterior decorative cement based paints on new work two coats to give an even finish.		each	0	0	956	956
21.37	Finishing R.C. C. vent shafts as per item No 21.36 above with exterior decorative cement based paints on old work done so as to give an even shade.		each	0	0	682	682
	E. SALT GLAZED STONEWARE PIPE SEWERS AND DRAINS						
21.38	Lowering salt glazed stoneware pipes and specials into trenches for all depths and laying out the same to correct alignment gradient, level etc in trenches including all dressing and trimming of bed and sides of trenches, if required, trimming and cutting of concrete beds and joint holes, supporting the pipes and specials, in correct position in a suitable rigid manner while the same are being jointed and until the surrounding benching hunching and envelopes are completed. The sewer shall rest on the bed at every point throughout its length and to ensure this, it shall be grouted in without extra charge by the contractor with lime surkhi mortar, in the case of lime concrete beds and 1:3 cement sand mortar in the case of cement concrete beds including cartage from Divisional Store or nearest Railway station to site of work. The internal diameter of sewer being :-						
	21.38.1	100 mm internal diameter of sewer	10 metres	204	0	0	204
	21.38.2	150 mm internal diameter of sewer	10 metres	369	0	0	369
	21.38.3	175 mm internal diameter of sewer	10 metres	413	0	0	413
	21.38.4	200 mm internal diameter of sewer	10 metres	479	0	0	479
	21.38.5	225 mm internal diameter of sewer	10 metres	715	0	0	715
	21.38.6	250 mm internal diameter of sewer	10 metres	816	0	0	816
	21.38.7	300 mm internal diameter of sewer	10 metres	1111	0	0	1111
	21.38.8	350 mm internal diameter of sewer	10 metres	1484	0	0	1484
	21.38.9	375 mm internal diameter of sewer	10 metres	2137	0	0	2137
	21.38.10	400 mm internal diameter of sewer	10 metres	2372	0	0	2372
	21.38.11	450 mm internal diameter of sewer	10 metres	2850	0	0	2850
	Notes: The rates include all bricks and supports for the sewer and also all sight and appliances to ensure that the sewer is maintained to perfect alignment and gradients throughout.						
21.39	Jointing and fixing salt glazed stoneware pipes and special in trenches using cement sand mortar 1:1 and best white italain tarred hemp/yarn including finishing and trowel ling of each joint at an angle of 45 degrees with the longitudinal axis of the pipes, watering, keeping the joints covered and wetted till the same are cured, testing the sewer lines for leakages and making all leakages and defect good, complete as laid down in the contract specifications.						
	21.39.1	100 mm internal diametre of sewer	per Joint	30	0	10	40
	21.39.2	150 mm internal diametre of sewer	per Joint	41	0	15	56
	21.39.3	175 mm internal diametre of sewer	per Joint	48	0	17	65
	21.39.4	200 mm internal diametre of sewer	per Joint	55	0	20	74
	21.39.5	225 mm internal diametre of sewer	per Joint	62	0	22	84
	21.39.6	250 mm internal diametre of sewer	per Joint	81	0	27	107
	21.39.7	300 mm internal diametre of sewer	per Joint	99	0	31	131
	21.39.8	350 mm internal diametre of sewer	per Joint	108	0	35	143
	21.39.9	375 mm internal diametre of sewer	per Joint	116	0	37	153
	21.39.10	400 mm internal diametre of sewer	per Joint	124	0	40	164
	21.39.11	450 mm internal diametre of sewer	per Joint	137	0	44	180
	Notes: (i) The lime concrete in beds, benching and envelopes of all glazed stoneware pipe sewers will be paid for separately according to the measurements of the work carried out to the requirements of the Engineer-in-charge or as shown in the contract drawing, at the rates given in the Schedule of Rates, depending upon the description and specifications of the concrete. All brick ballast must be absolutely clean and free from rubbish dirt, clay etc.						
	(ii) If any cement concrete is ordered by the Engineer-in-charge to be placed in the beds, benching, haunchings of envelopes of any glazed stoneware pipe sewers, the same will be paid for at the rates given in the Schedule of Rates for the respective specifications and description of the concrete work carried out.						
	(iii) No extra over and above the rates of this Scheduled for lime concrete and cement concrete work in beds, benching, haunches and envelopes will be allowed by reasons of any difficulties or wastage in work or for rough shuttering or moulding.						
	(iv) In cases where caps on sockets of branches have to be removed in order to make the joints with the next pipes no extra shall be payable for cutting and re-moving the caps.						

21.40	Cutting glazed stoneware pipes and specials chipping and finishing the cut surface to a uniform finish and roughing the part of the pipes, if any entering the sockets of the adjacent pipes complete, to the satisfaction of the engineer-in-charge of the works.						
	21.40.1	100 mm internal diametre of pipes	per cut	14	0	0	14
	21.40.2	150 mm internal diametre of pipes	per cut	21	0	0	21
	21.40.3	175 mm internal diametre of pipes	per cut	25	0	0	25
	21.40.4	200 mm internal diametre of pipes	per cut	28	0	0	28
	21.40.5	225 mm internal diametre of pipes	per cut	32	0	0	32
	21.40.6	250 mm internal diametre of pipes	per cut	35	0	0	35
	21.40.7	300 mm internal diametre of pipes	per cut	42	0	0	42
	21.40.8	350 mm internal diametre of pipes	per cut	49	0	0	49
	21.40.9	375 mm internal diametre of pipes	per cut	53	0	0	53
	21.40.10	400 mm internal diametre of pipes	per cut	56	0	0	56
	21.40.11	450 mm internal diametre of pipes	per cut	63	0	0	63
21.41	Extra for laying and fixing drain chutes in pipe sewers including lowering, aligning, setting in brick work and concrete cutting away and making good complete.						
	21.41.1	100 mm internal diametre	per chute	36	0	0	36
	21.41.2	150 mm internal diametre	per chute	46	0	0	46
	21.41.3	175 mm internal diametre	per chute	55	0	0	55
	21.41.4	200 mm internal diametre	per chute	74	0	0	74
	21.41.5	225 mm internal diametre	per chute	85	0	0	85
21.42	Extra for laying oblique junction branches in stoneware pipe sewers including lowering, aligning, setting in correct position with correct slopes of branches and cutting and making a room for branches complete.						
	21.42.1	100 mm to 450 mm internal diameter of sewer and 100 mm internal diametre of branch	per branch	29	0	0	29
	21.42.2	150 mm to 450 mm internal diametre of sewer and 150 mm internal diametre of branch	per branch	40	0	0	40
	21.42.3	175 mm to 450 mm internal diametre of sewer and 175 mm internal diametre of branch	per branch	51	0	0	51
21.43	Extra over the rate laid down in this schedule for cement concrete work mor making and finishing benching and complicated floor work in manholes, including formation of channels and bullnozing and smooth finishing the surface accurately to template.		per sqm benching and flooring	160	0	0	160
	F. PLAN AND REINFORCED CONCRETE PIPES						
21.44	Lowering plain and reinforced concrete pipes and specials into trenches for all depths and laying out the same to correct alignment gradients levels etc., including all dressing and trimming and cutting of concrete beds and joint holes, supporting the pipes and specials in correct position in a suitable rigid manner while the same are being jointed and until the surrounding benching haunches and envelope are completed. The pipes shall rest on the beds at all points throughout their lengths and to ensure this they shall be grouted in where necessary as described in item no.21.38 including carriage from the stores of the Engineer-in-charge and safe delivery thereof at site of works. This includes, loading, unloading, stacking at convenient points adjacent to the works ready for lowering as may be found most convenient in the interest of work.						
	(For NPl or NP2 and NP3 or NP4 pipes)						
	21.44.1	100 mm internal diametre of sewer (Class NP1 to NP2)	10 metres	112	0	0	112
	21.44.2	150 mm internal diametre of sewer (Class NP1 to NP2)	10 metres	157	0	0	157
	21.44.3	200 mm internal diametre of sewer (Class NP1 to NP2)	10 metres	200	0	0	200
	21.44.4	225 mm internal diametre of sewer (Class NP1 to NP2)	10 metres	225	0	0	225
	21.44.5	250 mm internal diametre of sewer (Class NP1 to NP2)	10 metres	263	0	0	263
	21.44.6	300 mm internal diametre of sewer (Class NP1 to NP2)	10 metres	337	0	0	337
	21.44.7	350 mm internal diametre of sewer					
		21.44.7.1 NP1 or NP2 Pipe	10 metres	266	0	0	266
		21.44.7.2 NP3 or NP4 Pipe	10 metres	735	0	0	735
	21.44.8	400 mm internal diametre of sewer					
		21.44.8.1 NP1 or NP2 Pipe	10 metres	379	0	0	379
		21.44.8.2 NP3 or NP4 Pipe	10 metres	823	0	0	823
	21.44.9	450 mm internal diametre of sewer					
		21.44.9.1 NP1 or NP2 Pipe	10 metres	416	0	0	416
		21.44.9.2 NP3 or NP4 Pipe	10 metres	909	0	0	909
	21.44.10	500 mm internal diametre of sewer					
		21.44.10.1 NP1 or NP2 Pipe	10 metres	451	0	0	451
		21.44.10.2 NP3 or NP4 Pipe	10 metres	994	0	0	994
	21.44.11	600 mm internal diametre of sewer					
		21.44.11.1 NP1 or NP2 Pipe	10 metres	529	0	0	529
		21.44.11.2 NP3 or NP4 Pipe	10 metres	1256	0	0	1256
	21.44.12	700 mm internal diametre of sewer					
		21.44.12.1 NP1 or NP2 Pipe	10 metres	715	0	0	715
		21.44.12.2 NP3 or NP4 Pipe	10 metres	1441	0	0	1441
	21.44.13	800 mm internal diametre of sewer					
		21.44.13.1 NP1 or NP2 Pipe	10 metres	925	0	0	925
		21.44.13.2 NP3 or NP4 Pipe	10 metres	1850	0	0	1850
	21.44.14	900 mm internal diametre of sewer					
		21.44.14.1 NP1 or NP2 Pipe	10 metres	1085	0	0	1085
		21.44.14.2 NP3 or NP4 Pipe	10 metres	2312	0	0	2312
	21.44.15	1000 mm internal diametre of sewer					
		21.44.15.1 NP1 or NP2 Pipe	10 metres	917	0	0	917
		21.44.15.2 NP3 or NP4 Pipe	10 metres	1664	0	0	1664
	21.44.16	1100 mm internal diametre of sewer					
		21.44.16.1 NP1 or NP2 Pipe	10 metres	1111	0	0	1111
		21.44.16.2 NP3 or NP4 Pipe	10 metres	2121	0	0	2121
	21.44.17	1200 mm internal diametre of sewer					
		21.44.17.1 NP1 or NP2 Pipe	10 metres	1306	0	0	1306
		21.44.17.2 NP3 or NP4 Pipe	10 metres	2295	0	0	2295
	21.44.18	1400 mm internal diametre of sewer					
		21.44.18.1 NP1 or NP2 Pipe	10 metres	1768	0	0	1768
		21.44.18.2 NP3 or NP4 Pipe	10 metres	3138	0	0	3138
	21.44.19	1600 mm internal diametre of sewer					
		21.44.19.1 NP1 or NP2 Pipe	10 metres	2151	0	0	2151

		21.44.19.2	NP3 or NP4 Pipe	10 metres	3693	0	0	3693
	21.44.20	1800 mm internal diametre of sewer						
		21.44.20.1	NP1 or NP2 Pipe	10 metres	2722	0	0	2722
		21.44.20.2	NP3 or NP4 Pipe	10 metres	4436	0	0	4436
	Notes: (i) The octroi and terminal taxes on the pipes and specials will not be payable by the contractor but the should be liable for all loses, breakages and other damages to the pipes and specials from the moment he takes delivery thereof and thereafter until the pipes and specials have been jointed and tested.							
	(ii) The rates include all bricks supports, sight-rails and appliances required to ensure that the alignment and gradient of the sewer is perfectly maintained throughout.							
21.45	Jointing plain and reinforced concrete pipes and specials of all classes in trenches using collar joints jointed with 1:1 ½ cement sand mortar nearly dry heavily caulked into joints and with end dowels filled with 1:1½ cement sand mortar including facing trowelling and finishing the joints at an angle of 45 degrees with faces of collars keeping joints wet till curved testing the drain lines for leakage and making good all leakage and defects as laid down in the contract specifications complete with two spigot ends jointed to collar and internal diameter of sewer pipe or special being.							
	21.45.1	100 mm internal diametre sewer pipe		per collar	50	0	14	64
	21.45.2	150 mm internal diametre sewer pipe		per collar	66	0	18	85
	21.45.3	200 mm internal diametre sewer pipe		per collar	87	0	22	109
	21.45.4	225 mm internal diametre sewer pipe		per collar	116	0	24	140
	21.45.5	250 mm internal diametre sewer pipe		per collar	132	0	27	159
	21.45.6	300 mm internal diametre sewer pipe		per collar	149	0	40	189
	21.45.7	350 mm internal diametre sewer pipe		per collar	186	0	48	234
	21.45.8	400 mm internal diametre sewer pipe		per collar	219	0	53	273
	21.45.9	450 mm internal diametre sewer pipe		per collar	277	0	88	365
	21.45.10	500 mm internal diametre sewer pipe		per collar	331	0	96	427
	21.45.11	600 mm internal diametre sewer pipe		per collar	384	0	120	504
	21.45.12	700 mm internal diametre sewer pipe		per collar	433	0	136	570
	21.45.13	800 mm internal diametre sewer pipe		per collar	496	0	163	659
	21.45.14	900 mm internal diametre sewer pipe		per collar	553	0	193	746
	21.45.15	1000 mm internal diametre sewer pipe		per collar	611	0	226	837
	21.45.16	1100 mm internal diametre sewer pipe		per collar	678	0	261	938
	21.45.17	1200 mm internal diametre sewer pipe		per collar	731	0	300	1031
	21.45.18	1400 mm internal diametre sewer pipe		per collar	793	0	389	1183
	21.45.19	1600 mm internal diametre sewer pipe		per collar	864	0	465	1329
	21.45.20	1800 mm internal diametre sewer pipe		per collar	930	0	583	1513
	Notes: (i) If any socketted plain or reinforced cement concrete pipes or specials are jointed with 1 : 1 cement sand mortar and tarred yarn as described for salt glazed stoneware pipes and specials in item No.21.39 of this schedule, the jointing rates laid down for the sizes of pipes or specials given in item No.21.39 of this schedule shall be payable for such joints.							
	(ii) Notes (i), (ii), (iii) and (iv) following item No. 21.39 of this schedule shall also apply to all lines of drains with plain or reinforced concrete pipes and specials.							
21.46	Cutting plain and reinforced concrete pipes and specials of all classes chipping and finishing the cut surface to a uniform finish to the satisfaction of the Engineer-in-charge.							
	21.46.1	100 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	21	0	0	21
	21.46.2	150 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	29	0	0	29
	21.46.3	200 mm internal diametre pipe or special(NPI or NP 2 types on outer diametre basis)		per cut	36	0	0	36
	21.46.4	225 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	39	0	0	39
	21.46.5	250 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	43	0	0	43
	21.46.6	300 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	51	0	0	51
	21.46.7	350 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	65	0	0	65
	21.46.8	400 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	72	0	0	72
	21.46.9	450 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	80	0	0	80
	21.46.10	500 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	87	0	0	87
	21.46.11	600 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	103	0	0	103
	21.46.12	700 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	118	0	0	118
	21.46.13	800 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	133	0	0	133
	21.46.14	900 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	150	0	0	150
	21.46.15	1000 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	165	0	0	165
	21.46.16	1100 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	182	0	0	182
	21.46.17	1200 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	197	0	0	197
	21.46.18	1400 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	230	0	0	230
	21.46.19	1600 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	259	0	0	259
	21.46.20	1600 mm internal diametre pipe or special (NPI or NP 2 types on outer diametre basis)		per cut	291	0	0	291
	G. STONE WARE INTERCEPTING TRAPS, FLAP VALVES, ROAD GULLIES ETC.							
21.47	Fixing cast iron or stoneware intercepting traps to be supplied by the Engineer-in-charge and embedding the same in cement concrete to the requirements of the Engineer-in-charge in screening chambers including carriage from the stores of the Engineer-in-charge.							
	21.47.1	100 mm internal diameter		each	258	0	0	258
	21.47.2	150 mm internal diameter		each	285	0	0	285
	21.47.3	200 mm internal diameter		each	390	0	0	390
21.48	Fixing cast iron road gully grating and frame complete including carriage from the stores of the Engineer-in-charge of the works, loading, fixing and erecting the same in position to correct lines and levels in 1:2 cement sand mortar and painting of grating and frame with coal tar.			each	264	0	0	264
21.49	House outlet, connection including cutting and forming parnalas and making khuras at head of house connection size of each khura to be not less than 30 cm x 30 cm. The rate shall cover the cost of all works to the requirements of the Engineer-in-charge.			per connection	0	0	210	210
21.50	House outlet connections as described in item 21.49 above but with size of khura not less than 30 cm x 15 cm			per connection	0	0	156	156
21.51	House outlet connections as described in item no 21.49 above but with size of khurra not less then 23 cm x 15 cm size			per connection	0	0	128	128
21.52	Constructing standard drain, type house connection complete consisting of concrete drain moulded and laid over lime concrete foundation rendered and finished smooth with 6mm thick rendering concrete to be of 1:3:6 parts by volume of cement sand stone bajri and rendering to be 1:1 cement sand mortar.			metre	0	0	159	159

21.53	Constructing standard drain type I drain moulded and laid over lime concrete foundation rendered and finished smooth with 6 mm thick rendering concrete to be of 1 136 parts by volume of cement sand stone bajri and rendering to be 1:1 cement sand mortar			metre	0	0	198	198
21.54	Constructing standard drain type II drain complete consisting of cement concrete drain moulded and laid over lime concrete foundation rendered and finished smooth with 6 mm thick rendering concrete to be 1:3:6 Paris by volume of cement sand stone Bajri and rendering to be 1:1 cement and mortar.			metre	0	0	461	461
21.55	Constructing standard drain type II drain complete consisting of concrete drain moulded and laid concrete foundation, rendered and smooth with 6mm thick rendering concrete to be of I :3:6 parts by volume of cement sand stone bajri and rendering to be 1:1 cement sand mortar			metre	0	0	542	542
21.56	Constructing standard drain IV type drain complete consisting of concrete drain moulded and laid concrete foundation rendered and smooth with 6 mm thick rendering concrete to be of 1: 3: 6 by parts volume of cement sand stone bajri and rendering to be 1: 1 cement sand mortar.			metre	0	0	647	647
	Notes: (i) The rates given above for the type drains include in all cases for the cost of the excavation for the drain below level of top of cunette, the timbering, shoring dewatering and dressing of the excavation to correct template and levels, the removal and disposal of all surplus soil and refilling if any as described under the head Earth work, the cost of lime concrete in foundation of the drains and of all setting out apparatus required for the work. The rates also include the cost of all curves, bends , falls junctions inlets, outlets and all other special work in the drains and expansion joints. For drains where precast slabs are used , the rate includes for fixing and setting to correct level and templates in 1:2 cement mortar, the joint being finished perfectly smooth with the faces of the slabs.							
	(ii) All surface drains shall be finished perfectly smooth by rubbing with properly shaped steel finishing tools and the design of all tools and appliances moulds and templates and used on the construction of the drains shall be to the approval of the Engineer-in charge of the work.							
	(iii) All precast slabs shall be cured by immersion for 10 days under water before use and all cement concrete drains moulded in site shall be flooded with water upto the tops of the bullnose edging for 10 days after construction to ensure that all concrete is thoroughly seasoned.							
	(iv) The rates for items item 21.49, 21.50 and 21.51 house outlet connections include for all work from the plinth of the house upto the street drain where this is adjacent to the house wall, if the street drain is away from the wall the appropriate length of the house connection drain will be paid for. The rates also include for cutting Jharries in the house wall and reimbursement of the drains for forming parnalas where required and plastering the same.							
	H. Masonry Plugs							
21.57	Providing masonry plugs to ends of sewers of all types with 11.43 cm thick brick wall in cement sand mortar 1:7 with 12 mm thick cement plaster 1:6 (as required by the engineer-in-charge).							
	21.57.1	For Circular sewers having internal diameter :-						
		21.57.1.1	100 mm	each	0	0	7	7
		21.57.1.2	150 mm	each	0	0	14	14
		21.57.1.3	175 mm	each	0	0	21	21
		21.57.1.4	200 mm	each	0	0	28	28
		21.57.1.5	225 mm	each	0	0	29	29
		21.57.1.6	250 mm	each	0	0	37	37
		21.57.1.7	300 mm	each	0	0	57	57
		21.57.1.8	350 mm	each	0	0	79	79
		21.57.1.9	375 mm	each	0	0	81	81
		21.57.1.10	400 mm	each	0	0	101	101
		21.57.1.11	450 mm	each	0	0	129	129
		21.57.1.12	500 mm	each	0	0	146	146
		21.57.1.13	600 mm	each	0	0	217	217
		21.57.1.14	685 mm	each	0	0	287	287
		21.57.1.15	700 mm	each	0	0	293	293
		21.57.1.16	760 mm	each	0	0	359	359
		21.57.1.17	800 mm	each	0	0	425	425
		21.57.1.18	840 mm	each	0	0	432	432
		21.57.1.19	900 mm	each	0	0	503	503
		21.57.1.20	915 mm	each	0	0	567	567
		21.57.1.21	990 mm	each	0	0	642	642
		21.57.1.22	1000 mm	each	0	0	645	645
		21.57.1.23	1065 mm	each	0	0	715	715
		21.57.1.24	1100 mm	each	0	0	784	784
		21.57.1.25	1145 mm	each	0	0	859	859
		21.57.1.26	1200 mm	each	0	0	928	928
		21.57.1.27	1220 mm	each	0	0	933	933
		21.57.1.28	1295 mm	each	0	0	1074	1074
		21.57.1.29	1370 mm	each	0	0	1211	1211
		21.57.1.30	1400 mm	each	0	0	1222	1222
		21.57.1.31	1450 mm	each	0	0	1359	1359
		21.57.1.32	1525 mm	each	0	0	1498	1498
		21.57.1.33	1600 mm	each	0	0	1643	1643
		21.57.1.34	1680 mm	each	0	0	1791	1791
		21.57.1.35	1755 mm	each	0	0	1998	1998
		21.57.1.36	1800 mm	each	0	0	2074	2074
		21.57.1.37	1830 mm	each	0	0	2148	2148
	21.57.2	For Egg Shaped sewers having inside dimensions:						
		21.57.2.1	610 mm x 915 mm	each	0	0	353	353
		21.57.2.2	660 mm x 990 mm	each	0	0	365	365
		21.57.2.3	710 mmx1065 mm	each	0	0	434	434
		21.57.2.4	760 mmx1140 mm	each	0	0	504	504
		21.57.2.5	810 mmx1215 mm	each	0	0	576	576
		21.57.2.6	860 mm x 1290 mm	each	0	0	649	649
		21.57.2.7	910 mm x 1365 mm	each	0	0	781	781
		21.57.2.8	970 mmx 1455 mm	each	0	0	857	857
		21.57.2.9	1020 mm x 1530 mm	each	0	0	932	932
		21.57.2.10	1070 mm x 1605mm	each	0	0	1067	1067
		21.57.2.11	1120mm x1680 mm	each	0	0	1142	1142
		21.57.2.12	1170mm x 1755mm	each	0	0	1219	1219

	I. BRICK SEWERS (EGG-SHAPED)							
21.58	Construction of standard new egg shaped type sewers as per standard drawings where the invert level of the sewer is upto 1.5 meters below ground level including dressing of beds and sides of trenches to exact profiles, grades and alignment, lime concrete or cement lime sand concrete in beds, sides and in haunchеswith 1:3 cement sand collar joint not less than 12 mm thick on sides, 1:1 ½:3 moulded cement concrete invert accurately finished with neat cement rendering face specially hand moulded first class radiated brick work laid in 1:3 cement sand mortar in the side and under arch rings of the sewers and specially hand moulded first class radiated brick work laid in 1:4 cement sand mortar in the outer arch rings of the sewer laid over 1:3 cement sand collar joint not less than 12 mm in thickness formed round the inner layer of brick work and with the entire inner surface of sewer rendered with a layer of neat cement not less than 12 mm thick of 1:2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to template finished with two coats of sodium silicate wherever required. The rates includes the cost of accurately planed and fitted centring and supports for all works as well as for all curves bends, falls & other special works and the cleaning out of the sewers throughout their lengths. sodium silicate shall be supplied free of cost at the stores of the Engineer-in-charge. The finished inside dimension of egg shaped sewer being.							
	21.58.1	610 mmx 915 mm						
		21.58.1.1	Cost with lime concrete	per metre	0	0	10755	10755
		21.58.1.2	Cost with cement lime sand concrete	per metre	0	0	10936	10936
	21.58.2	660mm x 990 mm						
		21.58.2.1	Cost with lime concrete	per metre	0	0	11044	11044
		21.58.2.2	Cost with cement lime sand concrete	per metre	0	0	11237	11237
	21.58.3	710 mmx 1065 mm						
		21.58.3.1	Cost with lime concrete	per metre	0	0	11363	11363
		21.58.3.2	Cost with cement lime sand concrete	per metre	0	0	11564	11564
	21.58.4	760 mm x 1140 mm						
		21.58.4.1	Cost with lime concrete	per metre	0	0	11703	11703
		21.58.4.2	Cost with cement lime sand concrete	per metre	0	0	11916	11916
	21.58.5	810 mm x 1215 mm						
		21.58.5.1	Cost with lime concrete	per metre	0	0	12048	12048
		21.58.5.2	Cost with cement lime sand concrete	per metre	0	0	12272	12272
	21.58.6	860 mm x 1290 mm						
		21.58.6.1	Cost with lime concrete	per metre	0	0	12470	12470
		21.58.6.2	Cost with cement lime sand concrete	per metre	0	0	12709	12709
	21.58.7	910 mm x 1365 mm						
		21.58.7.1	Cost with lime concrete	per metre	0	0	12794	12794
		21.58.7.2	Cost with cement lime sand concrete	per metre	0	0	13041	13041
	21.58.8	970 mm x 1455 mm						
		21.58.8.1	Cost with lime concrete	per metre	0	0	13084	13084
		21.58.8.2	Cost with cement lime sand concrete	per metre	0	0	13343	13343
	21.58.9	1020 mm x 1530 mm						
		21.58.9.1	Cost with lime concrete	per metre	0	0	13453	13453
		21.58.9.2	Cost with cement lime sand concrete	per metre	0	0	13726	13726
	21.58.10	1070 mm x1605 mm						
		21.58.10.1	Cost with lime concrete	per metre	0	0	13804	13804
		21.58.10.2	Cost with cement lime sand concrete	per metre	0	0	14089	14089
	21.58.11	1120 mm x 1680 mm						
		21.58.11.1	Cost with lime concrete	per metre	0	0	14153	14153
		21.58.11.2	Cost with cement lime sand concrete	per metre	0	0	14449	14449
	21.58.12	1170 mm x 1755 mm						
		21.58.12.1	Cost with lime concrete	per metre	0	0	14602	14602
		21.58.12.2	Cost with cement lime sand concrete	per metre	0	0	14916	14916
21.59	Construction of standard new egg shaped type sewers as per standard drawings as described in item 21.58 above but with 1:2:9:24 cement lime sand concrete with stone ballast of 20mm gauge in beds, sides and haunches in place of lime concrete or cement lime sand concrete with brick ballast. The finished inside dimensions of egg shaped sewer being :-							
	21.59.1	610 mm x 915 mm		per metre	0	0	11093	11093
	21.59.2	660 mm x 990 mm		per metre	0	0	11382	11382
	21.59.3	710 mm x 1065 mm		per metre	0	0	11739	11739
	21.59.4	760 mm x 1140 mm		per metre	0	0	12100	12100
	21.59.5	810 mm x 1215 mm		per metre	0	0	12467	12467
	21.59.6	860 mm x 1290 mm		per metre	0	0	12916	12916
	21.59.7	910 mm x 1365 mm		per metre	0	0	13256	13256
	21.59.8	970 mm x 1455 mm		per metre	0	0	13567	13567
	21.59.9	1020 mm x 1530 mm		per metre	0	0	13963	13963
	21.59.10	1070 mm x 1605 mm		per metre	0	0	14336	14336
	21.59.11	1120 mm x 1680 mm		per metre	0	0	14706	14706
	21.59.12	1170 mm x 1755 mm		per metre	0	0	15188	15188
21.60	Extra over and above the rates for item No. 21.58 and 21.59 above for every additional 4 metres depth or part thereof for depth of the invert level beyond 1.5 metres below ground level. The finished inside dimensions of egg shaped sewer being :-							
	21.60.1	610 mmx915 mm		per metre	0	0	52	52
	21.60.2	660 mm x 990 mm		per metre	0	0	55	55
	21.60.3	710 mmx1065 mm		per metre	0	0	58	58
	21.60.4	760 mmx1140 mm		per metre	0	0	61	61
	21.60.5	810 mmx1215 mm		per metre	0	0	64	64
	21.60.6	860 mmx1290 mm		per metre	0	0	69	69
	21.60.7	910 mmx1365 mm		per metre	0	0	72	72
	21.60.8	970 mmx1455 mm		per metre	0	0	74	74
	21.60.9	1020 mmx1530 mm		per metre	0	0	77	77
	21.60.10	1070 mmx1605 mm		per metre	0	0	81	81
	21.60.11	1120 mmx1680 mm		per metre	0	0	84	84
	21.60.12	1170 mm x 1755mm		per metre	0	0	88	88

21.61	Construction of standard new-egg-shaped sewers as per standard drawing built upto 2/3rd height only (as constructed in manhole lengths) where the invert level of the sewer is upto 1.5 meters below G.L. including dressing of beds and sides of trenches to exact profiles, grades and alignments, lime concrete or cement lime sand concrete in beds and sides with 1:3 cement sand collar joint not less than 12 mm thick on side 1:1½:3 moulded cement concrete invert accurately finished with neat cement rendering face specially hand moulded first class radiated brick work laid in 1:3 cement sand mortar in the sides of the sewer with the entire inner surface of the sewer rendered with neat cement not less than 12 mm thick of 1:2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to template finished with two coats of sodium silicate wherever required. The rate includes the cost of accurately planed and fitted centring and moulds and supports for all works as well as for all curves bends falls and other special works and cleaning out of the sewer throughout their length. Sodium silicate shall be supplied free of cost at the stores of the Engineer-in-charge.							
	21.61.1	610 mmx915 mm						
		21.61.1.1	Cost with lime concrete	per metre	0	0	2653	2653
		21.61.1.2	Cost with cement lime sand concrete	per metre	0	0	2803	2803
	21.61.2	660 mm x 990 mm						
		21.61.2.1	Cost with lime concrete	per metre	0	0	2885	2885
		21.61.2.2	Cost with cement lime sand concrete	per metre	0	0	3043	3043
	21.61.3	710 mm x 1065 mm						
		21.61.3.1	Cost with lime concrete	per metre	0	0	3049	3049
		21.61.3.2	Cost with cement lime sand concrete	per metre	0	0	3216	3216
	21.61.4	760 mm x 1140 mm						
		21.61.4.1	Cost with lime concrete	per metre	0	0	3214	3214
		21.61.4.2	Cost with cement lime sand concrete	per metre	0	0	3389	3389
	21.61.5	810 mm x 1215 mm						
		21.61.5.1	Cost with lime concrete	per metre	0	0	3383	3383
		21.61.5.2	Cost with cement lime sand concrete	per metre	0	0	3567	3567
	21.61.6	860 mm x 1290 mm						
		21.61.6.1	Cost with lime concrete	per metre	0	0	3627	3627
		21.61.6.2	Cost with cement lime sand concrete	per metre	0	0	3823	3823
	21.61.7	State 910 mm x 1365 mm						
		21.61.7.1	Cost with lime concrete	per metre	0	0	3792	3792
		21.61.7.2	Cost with cement lime sand concrete	per metre	0	0	3996	3996
	21.61.8	970 mm x 1455 mm						
		21.61.8.1	Cost with lime concrete	per metre	0	0	3956	3956
		21.61.8.2	Cost with cement lime sand concrete	per metre	0	0	4169	4169
	21.61.9	1020 mm x 1530 mm						
		21.61.9.1	Cost with lime concrete	per metre	0	0	4145	4145
		21.61.9.2	Cost with cement lime sand concrete	per metre	0	0	4369	4369
	21.61.10	1070 mm x 1605 mm						
		21.61.10.1	Cost with lime concrete	per metre	0	0	4372	4372
		21.61.10.2	Cost with cement lime sand concrete	per metre	0	0	4605	4605
	21.61.11	1120 mm x 1680 mm						
		21.61.11.1	Cost with lime concrete	per metre	0	0	4541	4541
		21.61.11.2	Cost with cement lime sand concrete	per metre	0	0	4783	4783
	21.61.12	1170 mm x 1755 mm						
		21.61.12.1	Cost with lime concrete	per metre	0	0	4730	4730
		21.61.12.2	Cost with cement lime sand concrete	per metre	0	0	4983	4983
21.62	Construction of standard new egg-shaped type sewer as per standard drawing built upto 2/3rd height only (as consructed in manhole lenghts) as per described in item No. 29.61 above but with 1:2:9:24 cement lime sand concrete with stone ballast 20mm gauge in beds and sides in place of lime concrete or cement lime sand concrete with brick ballast. The finished inside dimensions of egg-shaped sewer being :-							
	21.62.1	610mm x 915mm		per metre	0	0	2932	2932
	21.62.2	660mm x 990mm		per metre	0	0	3180	3180
	21.62.3	710mm x 1065mm		per metre	0	0	3361	3361
	21.62.4	760mm x 1140mm		per metre	0	0	3541	3541
	21.62.5	810mm x 1215mm		per metre	0	0	3726	3726
	21.62.6	860mm x 1290mm		per metre	0	0	3993	3993
	21.62.7	910mm x 1365mm		per metre	0	0	4173	4173
	21.62.8	970mm x 1455mm		per metre	0	0	4353	4353
	21.62.9	1020mm x 1530mm		per metre	0	0	4564	4564
	21.62.10	1070mm x 1605mm		per metre	0	0	4807	4807
	21.62.11	1120mm x 1680mm		per metre	0	0	4992	4992
	21.62.12	1170mm x 1755mm		per metre	0	0	5203	5203
21.63	Extra over and above the rate for item No. 21.61 and 21.62 for every additional 4 meters depth or part there of for depth of the invert level beyond 1.5 meters below ground level. The finised inside dimensions of egg-shaped sewer being :-							
	21.63.1	610mm x 915mm		per metre	0	0	25	25
	21.63.2	660mm x 990mm		per metre	0	0	27	27
	21.63.3	710mm x 1065mm		per metre	0	0	29	29
	21.63.4	760mm x 1140mm		per metre	0	0	30	30
	21.63.5	810mm x 1215mm		per metre	0	0	32	32
	21.63.6	860mm x 1290mm		per metre	0	0	34	34
	21.63.7	910mm x 1365mm		per metre	0	0	36	36
	21.63.8	970mm x 1455mm		per metre	0	0	37	37
	21.63.9	1020mm x 1530mm		per metre	0	0	39	39
	21.63.10	1070mm x 1605mm		per metre	0	0	41	41
	21.63.11	1120mm x 1680mm		per metre	0	0	43	43
	21.63.12	1170mm x 1755mm		per metre	0	0	44	44
	J. BRICK SEWERS							

21.64	Construction of brick circular Non-pressure type sewers as per standard drawings where the invert level of the sewer is upto 1.5 metres be low ground level includnig dressing of beds and sides of trenches to exact profiles, grades and alignments, lime concrete or cement lime sand concrete in beds, sides and in haunches with 1:3 cement sand collar joint not less than 12 mm thick on sides 1:1.5:3 moulded cement concrete invert accurately finished with neat cement rendering face specially hand moulded 1st class radiated brick work laid on 1: 3 cement sand mortar in the inner arch rings of the sewer and specially hand moulded first class radiated brick work laid in 1: 4 cement sand mortar in the outer arch rings of sewers laid over arch 1: 3 cement sand collar joint not less than 12 mm in thicknesss formed round the inner arch layer of brick work and with the entire inner surface of the sewer rendered with neat cement not less than 12 mm in thickness of 1: 2 cement sand plaster and finished with a floatiog coat of neat cement left absolutely smooth polished and correct to templates finished with two coats of sodium silicate wherever required. The rates include the cost of accurately planed and fitted centring moulds and supports for all curves, bends falls and other special works and cleaning out of the sewer through out the lengths. Sodium silicate shall be supplied free of cost at the stores of the engineer-in-charge. The finished inside diameter of sewer being :-							
	21.64.1	760mm						
		21.64.1.1	Cost with lime concrete	per metre	0	0	5069	5069
		21.64.1.2	Cost with cement lime sand concrete	per metre	0	0	5204	5204
	21.64.2	840mm						
		21.64.2.1	Cost with lime concrete	per metre	0	0	5500	5500
		21.64.2.2	Cost with cement lime sand concrete	per metre	0	0	5650	5650
	21.64.3	915mm						
		21.64.3.1	Cost with lime concrete	per metre	0	0	5898	5898
		21.64.3.2	Cost with cement lime sand concrete	per metre	0	0	6065	6065
	21.64.4	990mm						
		21.64.4.1	Cost with lime concrete	per metre	0	0	6708	6708
		21.64.4.2	Cost with cement lime sand concrete	per metre	0	0	6900	6900
	21.64.5	1065mm						
		21.64.5.1	Cost with lime concrete	per metre	0	0	6901	6901
		21.64.5.2	Cost with cement lime sand concrete	per metre	0	0	7108	7108
	21.64.6	1145mm						
		21.64.6.1	Cost with lime concrete	per metre	0	0	7478	7478
		21.64.6.2	Cost with cement lime sand concrete	per metre	0	0	7720	7720
	21.64.7	1220mm						
		21.64.7.1	Cost with lime concrete	per metre	0	0	7977	7977
		21.64.7.2	Cost with cement lime sand concrete	per metre	0	0	8241	8241
	21.64.8	1295mm						
		21.64.8.1	Cost with lime concrete	per metre	0	0	8397	8397
		21.64.8.2	Cost with cement lime sand concrete	per metre	0	0	8673	8673
	21.64.9	1370mm						
		21.64.9.1	Cost with lime concrete	per metre	0	0	9470	9470
		21.64.9.2	Cost with cement lime sand concrete	per metre	0	0	9844	9844
	21.64.10	1450mm						
		21.64.10.1	Cost with lime concrete	per metre	0	0	10090	10090
		21.64.10.2	Cost with cement lime sand concrete	per metre	0	0	10478	10478
	21.64.11	1525mm						
		21.64.11.1	Cost with lime concrete	per metre	0	0	10372	10372
		21.64.11.2	Cost with cement lime sand concrete	per metre	0	0	10778	10778
21.65	Construction of brick circular non pressure type sewer as per standard drawing as per described in item no. 21.64 above but with 1:2:9:24 cement lime sand concrete with stone ballast 20 mm gauge in beds sides and haunches in place of lime concrete or cement lime sand concrete with brick ballast.							
	The finished inside diameter of sewer being							
	21.65.1	760 mm		per metre	0	0	5322	5322
	21.65.2	840 mm		per metre	0	0	5780	5780
	21.65.3	915 mm		per metre	0	0	6209	6209
	21.65.4	990 mm		per metre	0	0	7068	7068
	21.65.5	1065 mm		per metre	0	0	7288	7288
	21.65.6	1145 mm		per metre	0	0	7930	7930
	21.65.7	1220 mm		per metre	0	0	8471	8471
	21.65.8	1295 mm		per metre	0	0	8913	8913
	21.65.9	1370 mm		per metre	0	0	10168	10168
	21.65.10	1450 mm		per metre	0	0	10815	10815
	21.65.11	1525 mm		per metre	0	0	11130	11130
21.66	Extra over and above the rate for item no. 21.64 and 21.65 for every additional 4 metre depth or part thereof for depth of invert level beyond 1.5 metre below ground level. The finished inside diamter of sewer being:							
	21.66.1	760 mm		per metre	0	0	49	49
	21.66.2	840 mm		per metre	0	0	54	54
	21.66.3	915mm		per metre	0	0	57	57
	21.66.4	990 mm		per metre	0	0	63	63
	21.66.5	1065 mm		per metre	0	0	67	67
	21.66.6	1145 mm		per metre	0	0	73	73
	21.66.7	1220 mm		per metre	0	0	78	78
	21.66.8	1295 mm		per metre	0	0	82	82
	21.66.9	1370 mm		per metre	0	0	94	94
	21.66.10	1450 mm		per metre	0	0	100	100
	21.66.11	1525 mm		per metre	0	0	102	102
21.67	Construction of brick circular non-pressure type sewers as per standard drawings built up one half height only (as constructed in manhole lengths) where the invert level of the sewer is upto 1.5 meters below ground level including dressing of beds and sides of trenches to exact profiles, grades and alignment lime concrete or cement lime sand concrete in beds sides with 1:3 cement sand collar joint not less than 12 mm thick on sides 1:1-1/2:3 moulded cement concrete invert accurately finished with neat cement rendering face specially hand moulded 1st class radiated brick work laid in 1:3 cement sand mortar in the inner arch rings of sewers upto one half with the entire inner surface of the sewer rendered with neat cement not less than 12mm in thickness 1:2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to templates finished with two coats of sodium silicate where ever required. The rates include the cost of accurately planed and fitted centring mould and support for all works as well as for all curves, bends, falls and other special works and the cleaning out of the sewers throughout their lengths. Sodium silicate shall be supplied by the Engineer-in-charge. The finished inside dia-meter of sewer being-							

	21.67.1	760 mm						
		21.67.1.1	Cost with lime concrete	per metre	0	0	2287	2287
		21.67.1.2	Cost with cement lime sand concrete	per metre	0	0	2408	2408
	21.67.2	840 mm						
		21.67.2.1	Cost with lime concrete	per metre	0	0	2492	2492
		21.67.2.2	Cost with cement lime sand concrete	per metre	0	0	2627	2627
	21.67.3	915 mm						
		21.67.3.1	Cost with lime concrete	per metre	0	0	2764	2764
		21.67.3.2	Cost with cement lime sand concrete	per metre	0	0	2914	2914
	21.67.4	990 mm						
		21.67.4.1	Cost with lime concrete	per metre	0	0	3036	3036
		21.67.4.2	Cost with cement lime sand concrete	per metre	0	0	3208	3208
	21.67.5	1065 mm						
		21.67.5.1	Cost with lime concrete	per metre	0	0	3204	3204
		21.67.5.2	Cost with cement lime sand concrete	per metre	0	0	3385	3385
	21.67.6	1145 mm						
		21.67.6.1	Cost with lime concrete	per metre	0	0	3614	3614
		21.67.6.2	Cost with cement lime sand concrete	per metre	0	0	3830	3830
	21.67.7	1120 mm						
		21.67.7.1	Cost with lime concrete	per metre	0	0	3868	3868
		21.67.7.2	Cost with cement lime sand concrete	per metre	0	0	4104	4104
	21.67.8	1295 mm						
		21.67.8.1	Cost with lime concrete	per metre	0	0	4103	4103
		21.67.8.2	Cost with cement lime sand concrete	per metre	0	0	4348	4348
	21.67.9	1370 mm						
		21.67.9.1	Cost with lime concrete	per metre	0	0	4318	4318
		21.67.9.2	Cost with cement lime sand concrete	per metre	0	0	4577	4577
	21.67.10	1450 mm						
		21.67.10.1	Cost with lime concrete	per metre	0	0	4496	4496
		21.67.10.2	Cost with cement lime sand concrete	per metre	0	0	4763	4763
	21.67.11	1525 mm						
		21.67.11.1	Cost with lime concrete	per metre	0	0	4751	4751
		21.67.11.2	Cost with cement lime sand concrete	per metre	0	0	5030	5030
21.68	Construction of brick circular non-pressure type sewers as per standard drawings built up one half height only (as constructed in manhole lengths) as per described in item no.21.67 above but with 1:2:9:24 cement lime sand concrete with stone ballast 20mm gauge in beds and sides in place of lime concrete or cement lime sand concrete with brick ballast. The finished inside diameter of sewer being.							
	21.68.1	760 mm		per metre	0	0	2513	2513
	21.68.2	840 mm		per metre	0	0	2744	2744
	21.68.3	915 mm		per metre	0	0	3044	3044
	21.68.4	990 mm		per metre	0	0	3358	3358
	21.68.5	1065 mm		per metre	0	0	3542	3542
	21.68.6	1145 mm		per metre	0	0	4017	4017
	21.68.7	1220 mm		per metre	0	0	4309	4309
	21.68.8	1295 mm		per metre	0	0	4560	4560
	21.68.9	1370 mm		per metre	0	0	4802	4802
	21.68.10	1450 mm		per metre	0	0	4996	4996
	21.68.11	1525 mm		per metre	0	0	5272	5272
21.69	Extra over and above the rates for item No. 21.67 and 21.68 for every additional 4 metres depth or part thereof for depth of invert level boyond 1.5 metres below ground level. The finished inside diameter of sewer being :							
	21.69.1	760 mm		per metre	0	0	20	20
	21.69.2	840 mm		per metre	0	0	22	22
	21.69.3	915 mm		per metre	0	0	25	25
	21.69.4	990 mm		per metre	0	0	28	28
	21.69.5	1065 mm		per metre	0	0	29	29
	21.69.6	1145 mm		per metre	0	0	33	33
	21.69.7	1220 mm		per metre	0	0	36	36
	21.69.8	1295 mm		per metre	0	0	38	38
	21.69.9	1370 mm		per metre	0	0	40	40
	21.69.10	1450 mm		per metre	0	0	41	41
	21.69.11	1525 mm		per metre	0	0	44	44
	K. RCC cum Brick Circular Sewer							
21.70	Construction of R.C.C. cum brick circular (pressure type) sewer with full section without triangular portion conerete in bed as per standard drawings where the invert level of the sewer is 1.5 metres below ground level including dressing of beds and sides of trenches to exact profiles, grades and alignments, cement concrete 1:3:6 in beds and sides , R.C C. ring of cement concrete 1:2:4 , Specially hand moulded 1st class radiated brick work laid in 1:3 cement sand mortar in the inner and outer arch rings of the sewers and with the entire inner surface of the sewer rendered with neat cement not less than 12 mm in thickness of 1:2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to template finished with two coats of sodium silicate wherever required. The rates include the cost of accurately planed and fitted centring moulds and supports for all works as well as for all curves, bends, falls and ofher special work and cleaning out the sewer throughout their lengths. Sodium silicate and steel will be supplied free of cost at the stores of the Engineer-in-charge.							
	21.70.1	760 mm		per metre	0	0	6935	6935
	21.70.2	840 mm		per metre	0	0	7619	7619
	21.70.3	915 mm		per metre	0	0	8301	8301
	21.70.4	990 mm		per metre	0	0	8947	8947
	21.70.5	1065 mm		per metre	0	0	9536	9536
	21.70.6	1145 mm		per metre	0	0	10797	10797
	21.70.7	1220 mm		per metre	0	0	11449	11449
	21.70.8	1295 mm		per metre	0	0	12493	12493
	21.70.9	1370 mm		per metre	0	0	13014	13014
	21.70.10	1450 mm		per metre	0	0	13640	13640

	21.70.11	1525 mm	per metre	0	0	14225	14225
21.71	Extra over and above the rates for item no.21.70 for every additional 4 metres depth or part there of for invert level beyond 1.5 metre below ground level						
	The finished inside diametre of sewer being						
	21.71.1	760 mm	per metre	0	0	49	49
	21.71.2	840 mm	per metre	0	0	54	54
	21.71.3	915 mm	per metre	0	0	59	59
	21.71.4	990 mm	per metre	0	0	63	63
	21.71.5	1065 mm	per metre	0	0	67	67
	21.71.6	1145 mm	per metre	0	0	75	75
	21.71.7	1220 mm	per metre	0	0	80	80
	21.71.8	1295 mm	per metre	0	0	87	87
	21.71.9	1370 mm	per metre	0	0	90	90
	21.71.10	1450 mm	per metre	0	0	94	94
	21.71.11	1525 mm	per metre	0	0	99	99
21.72	Construction of R.C.C cum brick circular (pressure type) sewers with trangular portion concrete in bed as per standared drawings as described in item no.21.70 above. The finished inside diametre of sewer being:						
	21.72.1	760 mm	per metre	0	0	7664	7664
	21.72.2	840 mm	per metre	0	0	8502	8502
	21.72.3	915 mm	per metre	0	0	9222	9222
	21.72.4	990 mm	per metre	0	0	9983	9983
	21.72.5	1065 mm	per metre	0	0	10687	10687
	21.72.6	1145 mm	per metre	0	0	12216	12216
	21.72.7	1220 mm	per metre	0	0	13099	13099
	21.72.8	1295 mm	per metre	0	0	14219	14219
	21.72.9	1370 mm	per metre	0	0	14894	14894
	21.72.10	1450 mm	per metre	0	0	15635	15635
	21.72.11	1525 mm	per metre	0	0	16373	16373
21.73	Extra over and above the rates for item No. 21.72 for every additional 4 metres depth or part thereof for depth of the invert level beyond 1.5 metres below ground level. The finished inside diametre of sewer being						
	21.73.1	760 mm	per metre	0	0	53	53
	21.73.2	840 mm	per metre	0	0	59	59
	21.73.3	915 mm	per metre	0	0	64	64
	21.73.4	990 mm	per metre	0	0	70	70
	21.73.5	1065 mm	per metre	0	0	74	74
	21.73.6	1145 mm	per metre	0	0	84	84
	21.73.7	1220 mm	per metre	0	0	90	90
	21.73.8	1295 mm	per metre	0	0	97	97
	21.73.9	1370 mm	per metre	0	0	101	101
	21.73.10	1450 mm	per metre	0	0	107	107
	21.73.11	1525 mm	per metre	0	0	112	112
21.74	Construction of R.C.C.-cum-brick cricular (pressure type) sewer as per standard drawings where the invert level of the sewer is upto 1.5 metres below ground level built upto one half height only (as constructed in manholes lengths) without triangular portion concrete in bed including dressing of beds and sides of trenches to exact profiles, grade and alingments, cement concrete 1:3:6 in beds and sides, R.C.C. ring of cement concrete 1:2:4, specially hand moulded first class radiated brick work laid in 1:3 cement sand mortar in the inner arch ring of the sewer with the entire inner surface of the sewer rendered with neat cemet not less tham 12 mm in thickness of 1:2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to templates, finished with two coats of sodium silicate wherever required, The rates include the cost of accurately planed and fitted centring moulds and supports for all works and cleaning out the sewer throughout their lengths. sodidum silicate and steel will be supplied free of cost at the stores of the Engineer-in-incharge. The finished inside diametre of sewer being:						
	21.74.1	760 mm	per metre	0	0	2039	2039
	21.74.2	840 mm	per metre	0	0	2283	2283
	21.74.3	915 mm	per metre	0	0	2427	2427
	21.74.4	990 mm	per metre	0	0	2569	2569
	21.74.5	1065 mm	per metre	0	0	2773	2773
	21.74.6	1145 mm	per metre	0	0	3049	3049
	21.74.7	1220 mm	per metre	0	0	3198	3198
	21.74.8	1295 mm	per metre	0	0	3406	3406
	21.74.9	1370 mm	per metre	0	0	3599	3599
	21.74.10	1450 mm	per metre	0	0	3753	3753
	21.74.11	1525 mm	per metre	0	0	3965	3965
21.75	Extra over and above the rates for item no.21.74 for every additional 4 metres depth or part there of for invert level beyond 1.5 metre below ground level. The finished inside diametre of sewer being:						
	21.75.1	760 mm	per metre	0	0	27	27
	21.75.2	840 mm	per metre	0	0	30	30
	21.75.3	915 mm	per metre	0	0	32	32
	21.75.4	990 mm	per metre	0	0	35	35
	21.75.5	1065 mm	per metre	0	0	38	38
	21.75.6	1145 mm	per metre	0	0	42	42
	21.75.7	1220 mm	per metre	0	0	45	45
	21.75.8	1295 mm	per metre	0	0	48	48
	21.75.9	1370 mm	per metre	0	0	50	50
	21.75.10	1450 mm	per metre	0	0	52	52
	21.75.11	1525 mm	per metre	0	0	54	54
21.76	Construction of RCC-cum-Brick cricular (pressure type) sewers with traingular portion concrete in bed as per standard drawings as per described in item no. 21.74 above. The finished inside dia metre of sewer being:						
	21.76.1	760 mm	per metre	0	0	2768	2768
	21.76.2	840 mm	per metre	0	0	3166	3166
	21.76.3	915 mm	per metre	0	0	3348	3348
	21.76.4	990 mm	per metre	0	0	3605	3605
	21.76.5	1065 mm	per metre	0	0	3924	3924

	21.76.6	1145 mm		per metre	0	0	4468	4468
	21.76.7	1220 mm		per metre	0	0	4848	4848
	21.76.8	1295 mm		per metre	0	0	5133	5133
	21.76.9	1370 mm		per metre	0	0	5479	5479
	21.76.10	1450 mm		per metre	0	0	5748	5748
	21.76.11	1525 mm		per metre	0	0	6113	6113
21.77	Extra over and above the rates for item no.21.76 above for every additional 4 metres depth or part thereof for depth of invert level beyond 1.5 metres below ground level. The finished inside diametre of sewer being:							
	21.77.1	760 mm		per metre	0	0	31	31
	21.77.2	840 mm		per metre	0	0	35	35
	21.77.3	915 mm		per metre	0	0	38	38
	21.77.4	990 mm		per metre	0	0	41	41
	21.77.5	1065 mm		per metre	0	0	45	45
	21.77.6	1145 mm		per metre	0	0	51	51
	21.77.7	1220 mm		per metre	0	0	55	55
	21.77.8	1295 mm		per metre	0	0	58	58
	21.77.9	1370 mm		per metre	0	0	61	61
	21.77.10	1450 mm		per metre	0	0	64	64
	21.77.11	1525 mm		per metre	0	0	67	67
	L. CIRCULAR STORM WATER BRICK DRAINS							
21.78	Construction of brick circular storm water drains as per standar drawings where the invert level of the drain is upto 1.5 metres below ground level including dressing of beds and sides of trenches to exact profiles, grades and alignments lime concrete or cement lime sand concrete in beds and sides specially hand moulded first class radiated brick work laid in 1:4 cement sand mortar in the inner and outer arch rings of drain and with the entire inner surface of the drain rendered with neat cement not less than 12 mm in thickness of 1.2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to templates finished with two coats of sodium silicate wherever required. The rates include the cost of accurately planed and fitted centring moulds and supports for all works as well as for all curves, bends, falls and other special works and cleaning out of the storm water drain throughout their lengths. Soldium silicate will be supplied free of cost at the stores of the Engineer-in-charge. The inished inside diameter of storm water drain:							
	21.78.1	685 mm						
		21.78.1.1	Cost with lime concrete	per metre	0	0	3870	3870
		21.78.1.2	Cost with cement lime sand concrete	per metre	0	0	3951	3951
	21.78.2	760 mm						
		21.78.2.1	Cost with lime concrete	per metre	0	0	4192	4192
		21.78.2.2	Cost with cement lime sand concrete	per metre	0	0	4278	4278
	21.78.3	840 mm						
		21.78.3.1	Cost with lime concrete	per metre	0	0	4557	4557
		21.78.3.2	Cost with cement lime sand concrete	per metre	0	0	4654	4654
	21.78.4	915 mm						
		21.78.4.1	Cost with lime concrete	per metre	0	0	4902	4902
		21.78.4.2	Cost with cement lime sand concrete	per metre	0	0	5009	5009
	21.78.5	990 mm						
		21.78.5.1	Cost with lime concrete	per metre	0	0	5229	5229
		21.78.5.2	Cost with cement lime sand concrete	per metre	0	0	5341	5341
	21.78.6	1065 mm						
		21.78.6.1	Cost with lime concrete	per metre	0	0	5557	5557
		21.78.6.2	Cost with cement lime sand concrete	per metre	0	0	5675	5675
	21.78.7	1145 mm						
		21.78.7.1	Cost with lime concrete	per metre	0	0	5927	5927
		21.78.7.2	Cost with cement lime sand concrete	per metre	0	0	6057	6057
	21.78.8	1220 mm						
		21.78.8.1	Cost with lime concrete	per metre	0	0	6258	6258
		21.78.8.2	Cost with cement lime sand concrete	per metre	0	0	6393	6393
	21.78.9	1295 mm						
		21.78.9.1	Cost with lime concrete	per metre	0	0	6589	6589
		21.78.9.2	Cost with cement lime sand concrete	per metre	0	0	6730	6730
	21.78.10	1370 mm						
		21.78.10.1	Cost with lime concrete	per metre	0	0	6922	6922
		21.78.10.2	Cost with cement lime sand concrete	per metre	0	0	7068	7068
	21.78.11	1450 mm						
		21.78.11.1	Cost with lime concrete	per metre	0	0	7313	7313
		21.78.11.2	Cost with cement lime sand concrete	per metre	0	0	7466	7466
	21.78.12	1525 mm						
		21.78.12.1	Cost with lime concrete	per metre	0	0	7668	7668
		21.78.12.2	Cost with cement lime sand concrete	per metre	0	0	7829	7829
	21.78.13	1600 mm						
		21.78.13.1	Cost with lime concrete	per metre	0	0	8002	8002
		21.78.13.2	Cost with cement lime sand concrete	per metre	0	0	8169	8169
	21.78.14	1680 mm						
		21.78.14.1	Cost with lime concrete	per metre	0	0	8343	8343
		21.78.14.2	Cost with cement lime sand concrete	per metre	0	0	8516	8516
	21.78.15	1755 mm						
		21.78.15.1	Cost with lime concrete	per metre	0	0	8721	8721
		21.78.15.2	Cost with cement lime sand concrete	per metre	0	0	8905	8905
	21.78.16	1830 mm						
		21.78.16.1	Cost with lime concrete	per metre	0	0	9059	9059
		21.78.16.2	Cost with cement lime sand concrete	per metre	0	0	9249	9249
21.79	Construction of brick circular storm water drains as per standerd drawings as described in item no. 21.78 above but with cement lime sand concrete 1:2:9:24 with stone ballast of 20 mm (as specified in item no. 10.18) gauge in beds and sides. The finished inside diametre of storm water drain being :-							
	21.79.1	685 mm		per metre	0	0	4101	4101
	21.79.2	760 mm		per metre	0	0	4439	4439

	21.79.3	840 mm		per metre	0	0	4837	4837
	21.79.4	915 mm		per metre	0	0	5207	5207
	21.79.5	990 mm		per metre	0	0	5551	5551
	21.79.6	1065 mm		per metre	0	0	5895	5895
	21.79.7	1145 mm		per metre	0	0	6298	6298
	21.79.8	1220 mm		per metre	0	0	6645	6645
	21.79.9	1295 mm		per metre	0	0	6993	6993
	21.79.10	1370 mm		per metre	0	0	7342	7342
	21.79.11	1450 mm		per metre	0	0	7751	7751
	21.79.12	1525 mm		per metre	0	0	8130	8130
	21.79.13	1600 mm		per metre	0	0	8481	8481
	21.79.14	1680 mm		per metre	0	0	8838	8838
	21.79.15	1755 mm		per metre	0	0	9249	9249
	21.79.16	1830 mm		per metre	0	0	9603	9603
21.80	Extra over and above the rates for item No. 21.78 and 21.79 for every additional 4 metres depth or part thereof for depth of invert level beyond 1.5 metres below ground level. The finished inside diameter of storm water drain being:-							
	21.80.1	685 mm		per metre	0	0	43	43
	21.80.2	760 mm		per metre	0	0	47	47
	21.80.3	840 mm		per metre	0	0	51	51
	21.80.4	915 mm		per metre	0	0	55	55
	21.80.5	990 mm		per metre	0	0	58	58
	21.80.6	1065 mm		per metre	0	0	62	62
	21.80.7	1045 mm		per metre	0	0	66	66
	21.80.8	1020 mm		per metre	0	0	69	69
	21.80.9	1295 mm		per metre	0	0	72	72
	21.80.10	1370 mm		per metre	0	0	76	76
	21.80.11	1450 mm		per metre	0	0	80	80
	21.80.12	1525 mm		per metre	0	0	84	84
	21.80.13	1600 mm		per metre	0	0	87	87
	21.80.14	1680 mm		per metre	0	0	91	91
	21.80.15	1755 mm		per metre	0	0	95	95
	21.80.16	1830 mm		per metre	0	0	98	98
21.81	Construction of brick circular storm water drains as per standard drawings, built up one half height only (as constructed in manhole lengths) where the invert level of the drain is up to 1.5 meters below ground level including dressing of beds and sides of trenches to exact profiles, grades and alignments, lime concrete or cement lime sand concrete in beds and sides with 1:4 cement sand mortar in the inner arch rings of the storm water drain and with the entire inner surface of the drain rendered with neat cement not less than 12 mm in thickness of 1:2 cement sand plaster and finished with a floating coat of neat cement left absolutely smooth polished and correct to templates finished with two coats of sodium silicate wherever required.The rates include the cost of accurately planed and fitted centring moulds and supports for all works as well as for all curves, bends, falls and other special works and cleaning of the storm water drains throughout their lengths. Sodium silicate will be supplied free of cost at the stores of the Engineer-in-charge. The finished inside diameter of storm water drain being :								
	21.81.1	685 mm						
		21.81.1.1	Cost with lime concrete	per metre	0	0	1698	1698
		21.81.1.2	Cost with cement lime sand concrete	per metre	0	0	1778	1778
	21.81.2	760 mm						
		21.81.2.1	Cost with lime concrete	per metre	0	0	1824	1824
		21.81.2.2	Cost with cement lime sand concrete	per metre	0	0	1910	1910
	21.81.3	840 mm						
		21.81.3.1	Cost with lime concrete	per metre	0	0	2048	2048
		21.81.3.2	Cost with cement lime sand concrete	per metre	0	0	2145	2145
	21.81.4	915 mm						
		21.81.4.1	Cost with lime concrete	per metre	0	0	2195	2195
		21.81.4.2	Cost with cement lime sand concrete	per metre	0	0	2302	2302
	21.81.5	990 mm						
		21.81.5.1	Cost with lime concrete	per metre	0	0	2324	2324
		21.81.5.2	Cost with cement lime sand concrete	per metre	0	0	2436	2436
	21.81.6	1065 mm						
		21.81.6.1	Cost with lime concrete	per metre	0	0	2509	2509
		21.81.6.2	Cost with cement lime sand concrete	per metre	0	0	2627	2627
	21.81.7	1145 mm						
		21.81.7.1	Cost with lime concrete	per metre	0	0	2678	2678
		21.81.7.2	Cost with cement lime sand concrete	per metre	0	0	2807	2807
	21.81.8	1220 mm						
		21.81.8.1	Cost with lime concrete	per metre	0	0	2810	2810
		21.81.8.2	Cost with cement lime sand concrete	per metre	0	0	2945	2945
	21.81.9	1295 mm						
		21.81.9.1	Cost with lime concrete	per metre	0	0	2998	2998
		21.81.9.2	Cost with cement lime sand concrete	per metre	0	0	3139	3139
	21.81.10	1370 mm						
		21.81.10.1	Cost with lime concrete	per metre	0	0	3128	3128
		21.81.10.2	Cost with cement lime sand concrete	per metre	0	0	3275	3275
	21.81.11	1450 mm						
		21.81.11.1	Cost with lime concrete	per metre	0	0	3262	3262
		21.81.11.2	Cost with cement lime sand concrete	per metre	0	0	3414	3414
	21.81.12	1525 mm						
		21.81.12.1	Cost with lime concrete	per metre	0	0	3471	3471
		21.81.12.2	Cost with cement lime sand concrete	per metre	0	0	3632	3632
	21.81.13	1600 mm						
		21.81.13.1	Cost with lime concrete	per metre	0	0	3605	3605
		21.81.13.2	Cost with cement lime sand concrete	per metre	0	0	3772	3772
	21.81.14	1680 mm						
		21.81.14.1	Cost with lime concrete	per metre	0	0	3798	3798

		21.81.14.2	Cost with cement lime sand concrete	per metre	0	0	3970	3970
	21.81.15	1755 mm						
		21.81.15.1	Cost with lime concrete	per metre	0	0	3973	3973
		21.81.15.2	Cost with cement lime sand concrete	per metre	0	0	4157	4157
	21.81.16	1830 mm						
		21.81.16.1	Cost with lime concrete	per metre	0	0	4109	4109
		21.81.16.2	Cost with cement lime sand concrete	per metre	0	0	4299	4299
21.82	Construction of brick circular storm water drains as per standard drawings built up to one half height only (as constructed in manhole length)as per described in item No. 21.81 above, but with cement lime sand concrete 1:2:9:24 with stone ballast of 20 mm gauge in beds and sides The finished inside diameter of storm water drain being :-							
	21.82.1	685 mm		per metre	0	0	1929	1929
	21.82.2	760 mm		per metre	0	0	2061	2061
	21.82.3	840 mm		per metre	0	0	2296	2296
	21.82.4	915 mm		per metre	0	0	2452	2452
	21.82.5	990 mm		per metre	0	0	2586	2586
	21.82.6	1065 mm		per metre	0	0	2778	2778
	21.82.7	1145 mm		per metre	0	0	2958	2958
	21.82.8	1220 mm		per metre	0	0	3096	3096
	21.82.9	1295 mm		per metre	0	0	3289	3289
	21.82.10	1370 mm		per metre	0	0	3425	3425
	21.82.11	1450 mm		per metre	0	0	3564	3564
	21.82.12	1525 mm		per metre	0	0	3783	3783
	21.82.13	1600 mm		per metre	0	0	3923	3923
	21.82.14	1680 mm		per metre	0	0	4121	4121
	21.82.15	1755 mm		per metre	0	0	4307	4307
	21.82.16	1830 mm		per metre	0	0	4449	4449
21.83	Extra over and above the rates for item No. 21.81 and 21.82 for every additional 4 metres depth or part there of for depth of invert level beyond 1.5 metres below ground level.The finished inside dia meter of storm water drain being:							
	21.83.1	685 mm		per metre	0	0	18	18
	21.83.2	760 mm		per metre	0	0	19	19
	21.83.3	840 mm		per metre	0	0	21	21
	21.83.4	915 mm		per metre	0	0	23	23
	21.83.5	990 mm		per metre	0	0	24	24
	21.83.6	1065 mm		per metre	0	0	26	26
	21.83.7	1045 mm		per metre	0	0	28	28
	21.83.8	1020 mm		per metre	0	0	29	29
	21.83.9	1295 mm		per metre	0	0	31	31
	21.83.10	1370 mm		per metre	0	0	32	32
	21.83.11	1450 mm		per metre	0	0	33	33
	21.83.12	1525 mm		per metre	0	0	36	36
	21.83.13	1600 mm		per metre	0	0	37	37
	21.83.14	1680 mm		per metre	0	0	39	39
	21.83.15	1755 mm		per metre	0	0	41	41
	21.83.16	1830 mm		per metre	0	0	42	42
	Notes: (i) For all types of sewers/drains described under item no.21.58,21.59,21.61,21.62,21.64,21.65,21.67,21.68,21.70, 21.72, 21.74, 21.76,21.78, 21.79, 21.81 and 21.82, the through rates laid down in these items shall be payable in all cases and not the individual rates for lime concrete, brick work and other separate components item of work as laid down in this Schedule.							
	(ii) In the case of manholes, junctions and junction chambers, flushing tanks and various works however payment will be made on the basis of detailed measurements of each separate item of work carried out under the heads lime concrete, plain concrete and concrete for reinforcement, brick work pointing and plastering etc. as laid down and described in this Schedule.							
	(iii) In the event of any extra or additional work being carried out under orders in writing of the Engineer-in-charge of the works in connection with any type of sewer the same shall be measured and paid for at the respective rates laid down in this Scheduled under the heads lime concrete plain concrete and concrete for re-inforcement, brick work pointing and plastering for the items of extra works actually carried out.							
	(iv)In the event of Engineer-in-charge requiring the provision of the whole or any part of the foundation or envelope of any type of sewers to be constructed of cement concrete in place of lime concrete/ cement lime sand concrete a deduction shall be made according to the rates specified for lime concrete /cement lime sand concrete in beds and sides and in haunches and top arch rings etc. on account of the actual volume of lime concrete or cement lime sand concrete from the amount payable to the contractors and the contactor shall be entitled to payment for the cement concrete work actually carried out by him under the orders of the Engineer-in-charge at the relevant rates laid down in this Schedule of Rates depending on the Specifications and description of the said concrete work, No extra over and above the said rate laid down in this Schedule of Rates shall be allowed to the contractor due to difficulties of the works small dimensions, laying concrete in or under water, or on account of any troubles or difficulties whatsoever which may be encountered by him in the work and the contractor before tendering for the work shall make himself thoroughly acquinted with all local conditions and difficulties in respect thereof in his tender.							
	(v) Socketted joints made on branch pipes, junctions or blocks laid in connection with the brick burn sewers will be paid for at the rate laid down for jointing salt glazed stone ware pipes vide item No.21.39.							
	M. MASONRY CHAMBERS							
21.84	Constructing brick masonry inspection Chamber sizes as given below upto 0.60 metre average depth in cement mortar 1:5 lime concrete with 40 per cent lime mortar 2:3 in foundation cement concrete 1:2:4 benching 12mm thick cement plaster 1:2 with a floating coat of 1 mm thick of neat cement R.C.C. 1:2:4 slab 100 mm thick/cement concrete topping, 50mm thick with 455mmx455mm / 455mm x610mm inside light duty C.I. inspection chamber cover and frame weight as per I.S.I. specification painted with 3 coats of black bitumastic superior paint complete as per standard design.							
	21.84.1	Size 450 mm X450 mm inside (with 455 mm x 455 mm cover and frame light duty single seal weighing 20 kg with C.C. topping		each	0	0	4259	4259
	21.84.2	Size 450 mm X 600 mm inside (with 455 mm x 610 mm cover and frame single seal pattern I weighing 38 kg with C.C. topping)		each	0	0	5832	5832
	21.84.3	Size 600 mm X900 mm inside (with 455 mm x 455 mm cover and frame light duty single seal weighing 20 kg with R.C.C. slab)		each	0	0	6486	6486
	Note: Normally inspection chambers of 450 mm x 450mm and 450mm x 600 mm should be constructed. In very exceptional cases where connections cannot be accommodated in 450 mm X 600 mm size inspection chamber of 600 mm x 900 mm be adopted.							

21.85	Extra for every 0.30 metre depth of Inspection chamber							
	21.85.1	450 mm x 450 mm inside		per 0.30 metre depth	0	0	1145	1145
	21.85.2	450 mmx 600 mm inside		per 0.30 metre depth	0	0	1272	1272
	21.85.3	600 mm x 900 mm inside		per 0.30 metre depth	0	0	1708	1708
21.86	Constructing brick masonry ventilating chambers as per standard drawings including dressing of beds and sides of chamber to exact profiles 15 cm lime concrete 16:24100 (as per specified in item No. 10.6) in foundation, first class brick work laid in cement sand mortar 1:5, cement concrete 1:2:4 for reinforced concrete work in slab 12mm thick cement for plaster 1:2 rendered with a floating coat of neat cement 1mm thick over exposed brick tablet and inside walls, lime pointing 2:3 on outside complete and as required by the Engineer-in-charge			each	0	0	11926	11926
21.87	Constructing brick masonry road gully chambers as per standard drawings (as per sizes given below) including dressing of beds and sides of chambers to exact profiles, 15cm thick lime concrete 16:24:100 (as per specified in item No.10.6) in foundations 1st class brick work laid in cement sand mortar 1:5, 40 mm thick cement concrete 1:2:4 topping inside the chamber with a floating coat of 1.5mm thick neat cement laid in one operation to the topping, the entire inner surface of the chamber rendered with neat cement not less than 12mm in thickness of 1:2 cement sand plaster and finished with floating coat of neat cement 1 mm thick left absolutely smooth polished and correct to templates including labour for fixing the C.I. road gully grating and frame including painting with coal tar (as Specified in item No.item 21.48) complete to the requirement of the Engineer in-charge							
	21.87.1	Single road gully chamber						
		21.87.1.1	Size: 610mm x 457mm x 800mm	each	0	0	4597	4597
		21.87.1.2	Size.-610 mmx457 mmx1105mm	each	0	0	5870	5870
	21.87.2	Double Road Gully Chamber						
		21.87.2.1	Size 1448mm x 457mm x 800mm	each	0	0	7418	7418
		21.87.2.2	Size: 1448mm x 457mm x 1105 mm	each	0	0	2080	2080
21.88	Reduction for every 7.5 cm depth of road gully chamber from the rate of item No. 29.87 above.							
	21.88.1	Single Road Gully Chamber		each	0	0	321	321
	21.88.2	Double road gully chamber		each	0	0	526	526
	N. MANHOLE CHAMBERS							
21.89	Construction of rectangular standard brick masonry manhole chambers to standard drawings on new. egg-shaped sewers upto the required depth in 1:5 cement sand mortar, lime concrete 40 percent lime mortar with 19-20 mm gauge brick ballast in haunches above the arch ring where the depth of cover in traffic streets is less than 1.5 metres, 12mm thick water tight 1:2 cement sand plaster with a floating coat of neat cement and finished with two coats of sodium silicate on interior surface where required, reinforced cement concrete slab 180mm thick fixing 560 mm internal diameter C.I. manhole frame and cover weight not less than 2.5 quintal painted with 3 coats of black bitumen paint, fixing galvanised malleable iron steps embedded in 1:2 cement sand mortar etc., complete. the rate also covers the cost of M.S. steel for R.C.C. slab labour for fixing and carriage of C.I. manhole frame and cover and malleable iron steps from the stores of the engineer-in-charge of the works to site of works. The rate further includes cost of accurately planned and fitted centring, supports for all works, as well as for all curves and specials work cleaning out their beds, etc. sodium silicate shall be supplied free of cost at the stores of Engineer-in-charge.							
	21.89.1	**On egg-shaped sewers of size 610mm X 915 mm to 860 mm X 1290 mm**						
		21.89.1.1	for 2.40 meters depth below ground level	each	0	0	0	11958
		21.89.1.2	for 2.70 meters depth below ground level	each	0	0	0	12899
		21.89.1.3	for 3.00 meters depth below ground level	each	0	0	0	13840
		21.89.1.4	for 3.40 meters depth below ground level	each	0	0	0	14781
		21.89.1.5	for 3.70 meters depth below ground level	each	0	0	0	15313
		21.89.1.6	for 4.00 meters depth below ground level	each	0	0	0	17466
		21.89.1.7	for 4.30 meters depth below ground level	each	0	0	0	18380
		21.89.1.8	for 4.60 meters depth below ground level	each	0	0	0	19210
		21.89.1.9	for 4.90 meters depth below ground level	each	0	0	0	20151
		21.89.1.10	for 5.20 meters depth below ground level	each	0	0	0	21203
		21.89.1.11	for 5.50 meters depth below ground level	each	0	0	0	22033
		21.89.1.12	for 5.80 meters depth below ground level	each	0	0	0	22698
		21.89.1.13	for 6.10 meters depth below ground level	each	0	0	0	24026
	21.89.2	**On egg-shaped sewers of size 910mm X 1365 mm to 970 mm x 1455 mm**						
		21.89.2.1	for 3.70 meters depth below ground level	each	0	0	0	29147
		21.89.2.2	for 4.00 meters depth below ground level	each	0	0	0	30337
		21.89.2.3	for 4.30 meters depth below ground level	each	0	0	0	31129
		21.89.2.4	for 4.60 meters depth below ground level	each	0	0	0	32220
		21.89.2.5	for 4.90 meters depth below ground level	each	0	0	0	33161
		21.89.2.6	for 5.20 meters depth below ground level	each	0	0	0	34379
		21.89.2.7	for 5.50 meters depth below ground level	each	0	0	0	35320
		21.89.2.8	for 5.80 meters depth below ground level	each	0	0	0	37590
		21.89.2.9	for 6.10 meters depth below ground level	each	0	0	0	39998
	21.89.3	**On egg-shaped sewers of size 1020mm X 1530 mm or above.**						
		21.89.3.1	for 3.70 meters depth below ground level	each	0	0	0	30337
		21.89.3.2	for 4.00 meters depth below ground level	each	0	0	0	31417
		21.89.3.3	for 4.30 meters depth below ground level	each	0	0	0	32358
		21.89.3.4	for 4.60 meters depth below ground level	each	0	0	0	33438
		21.89.3.5	for 4.90 meters depth below ground level	each	0	0	0	34379
		21.89.3.6	for 5.20 meters depth below ground level	each	0	0	0	35431
		21.89.3.7	for 5.50 meters depth below ground level	each	0	0	0	36510
		21.89.3.8	for 5.80 meters depth below ground level	each	0	0	0	38531
		21.89.3.9	for 6.10 meters depth below ground level	each	0	0	0	41354

21.90	Construction of rectangular standard brick masonry manhole chambers to standard drawings on S.W. pipe sewers or other circular pipe sewers upto the required depth in 1.5 cement sand mortar, lime concrete in bed and sides of pipe sewer and cement concrete 1:2:4 in benching, 12 mm thick water tight 1:2 cement sand plaster with a floating coat of neat cement and finished with 2 coats of sodium silicate on interior surface where required, reinforced cement concrete slab 180mm thick fixing 560 mm internal diameter C.I. manhole cover and frame weight not less than 2.5 quintal painted with 3 coats of black bitumen paint, fixing galvanised malleable iron steps embedded in 1:2 cement sand mortar complete. the rate covers the cost of M.S. steel for R.C.C. slab labour for fixing and carriage of C.I. manhole frame and cover and malleable iron steps from the stores of the Engineer-in-charge of the works to the site of works. The rate also include the cost of accurately planned and fitted centring, supports for all works as well as for all curves and special work, cleaning out their beds etc. sodium silicate shall be supplied free of cost at the stores of the Engineer-in-charge.							
	21.90.1	**On 100 mm internal diameter pipe sewer.**						
		21.90.1.1	for 1.20 meters depth below ground level	each	0	0	0	10463
		21.90.1.2	for 1.50 meters depth below ground level	each	0	0	0	12096
		21.90.1.3	for 1.80 meters depth below ground level	each	0	0	0	13702
	21.90.2	**On 150 mm internal diameter pipe sewer.**						
		21.90.2.1	for 1.20 meters depth below ground level	each	0	0	0	11543
		21.90.2.2	for 1.50 meters depth below ground level	each	0	0	0	13286
		21.90.2.3	for 1.80 meters depth below ground level	each	0	0	0	14781
		21.90.2.4	for 2.10 meters depth below ground level	each	0	0	0	16525
		21.90.2.5	for 2.40 meters depth below ground level	each	0	0	0	18269
	21.90.3	**On 175 mm internal diameter pipe sewer.**						
		21.90.3.1	for 1.80 meters depth below ground level	each	0	0	0	15169
		21.90.3.2	for 2.10 meters depth below ground level	each	0	0	0	16913
		21.90.3.3	for 2.40 meters depth below ground level	each	0	0	0	18795
		21.90.3.4	for 2.70 meters depth below ground level	each	0	0	0	20400
		21.90.3.5	for 3.00 meters depth below ground level	each	0	0	0	21092
	21.90.4	**On 200 mm internal diameter pipe sewer.**						
		21.90.4.1	for 1.80 meters depth below ground level	each	0	0	0	15584
		21.90.4.2	for 2.10 meters depth below ground level	each	0	0	0	17328
		21.90.4.3	for 2.40 meters depth below ground level	each	0	0	0	18906
		21.90.4.4	for 2.70 meters depth below ground level	each	0	0	0	20400
		21.90.4.5	for 3.00 meters depth below ground level	each	0	0	0	21203
	21.90.5	**On 225 mm internal diameter pipe sewer.**						
		21.90.5.1	for 1.80 meters depth below ground level	each	0	0	0	15833
		21.90.5.2	for 2.10 meters depth below ground level	each	0	0	0	17605
		21.90.5.3	for 2.40 meters depth below ground level	each	0	0	0	19348
		21.90.5.4	for 2.70 meters depth below ground level	each	0	0	0	20760
		21.90.5.5	for 3.00 meters depth below ground level	each	0	0	0	21341
		21.90.5.6	for 3.70 meters depth below ground level	each	0	0	0	26185
	21.90.6	**On 250 mm internal diameter pipe sewer.**						
		21.90.6.1	for 2.40 meters depth below ground level	each	0	0	0	20013
		21.90.6.2	for 2.70 meters depth below ground level	each	0	0	0	21341
		21.90.6.3	for 3.00 meters depth below ground level	each	0	0	0	22144
		21.90.6.4	for 3.40 meters depth below ground level	each	0	0	0	24026
		21.90.6.5	for 3.70 meters depth below ground level	each	0	0	0	26324
	21.90.7	**On 300 mm internal diameter pipe sewer.**						
		21.90.7.1	for 2.40 meters depth below ground level	each	0	0	0	20013
		21.90.7.2	for 2.70 meters depth below ground level	each	0	0	0	21895
		21.90.7.3	for 3.00 meters depth below ground level	each	0	0	0	22836
		21.90.7.4	for 3.40 meters depth below ground level	each	0	0	0	24303
		21.90.7.5	for 3.70 meters depth below ground level	each	0	0	0	25244
	21.90.8	**On 350 mm internal diameter pipe sewer.**						
		21.90.8.1	for 2.40 meters depth below ground level	each	0	0	0	22559
		21.90.8.2	for 2.70 meters depth below ground level	each	0	0	0	24165
		21.90.8.3	for 3.00 meters depth below ground level	each	0	0	0	24829
		21.90.8.4	for 3.40 meters depth below ground level	each	0	0	0	26047
		21.90.8.5	for 3.70 meters depth below ground level	each	0	0	0	26850
	21.90.9	**On 375 mm internal diameter pipe sewer.**						
		21.90.9.1	for 2.40 meters depth below ground level	each	0	0	0	22144
		21.90.9.2	for 2.70 meters depth below ground level	each	0	0	0	23777
		21.90.9.3	for 3.00 meters depth below ground level	each	0	0	0	24165
		21.90.9.4	for 3.40 meters depth below ground level	each	0	0	0	25244
		21.90.9.5	for 3.70 meters depth below ground level	each	0	0	0	26047
	21.90.10	**On 400 mm internal diameter pipe sewer.**						
		21.90.10.1	for 2.40 meters depth below ground level	each	0	0	0	24165
		21.90.10.2	for 2.70 meters depth below ground level	each	0	0	0	25244
		21.90.10.3	for 3.00 meters depth below ground level	each	0	0	0	25909
		21.90.10.4	for 3.40 meters depth below ground level	each	0	0	0	26573
		21.90.10.5	for 3.70 meters depth below ground level	each	0	0	0	27403
	21.90.11	**On 450 mm internal diameter pipe sewer.**						
		21.90.11.1	for 2.40 meters depth below ground level	each	0	0	0	25632
		21.90.11.2	for 2.70 meters depth below ground level	each	0	0	0	26573
		21.90.11.3	for 3.00 meters depth below ground level	each	0	0	0	26850
		21.90.11.4	for 3.40 meters depth below ground level	each	0	0	0	27126
		21.90.11.5	for 3.70 meters depth below ground level	each	0	0	0	27929

21.91	Construction of circular standard brick-masonry manhole chambers to standard drawings on S.W. pipe sewers or other circular sewers upto the required depth in 1:5 cement sand mortar lime concrete in bed and sides of pipe-sewer and cement concrete 1:2:4 in benching 12 mm thick water tight 1:2 cement sand plaster with a floating coat of neat cement and finished with two coats of sodium silicate of interior surface where required fixing cover and frame weight not less than 2:5 quintal painted with 3 coats of black bitumen paint fixing galvanised malleable iron steps embedded in 1:2 cement sand mortar complete. The rate covers the cost of carriage of C.I. manhole, frame and cover and malleable iron steps from the stores of the engineer-in-charge of the works to site of works. the rate also includes the cost of accurately planed and fitted centring supports for all works as well as for all curves and special works cleaning out their beds etc. Sodium silicate will be supplied free of cost at the stores of the Engineer-in-charge.						
	For 1.80 metres depth below ground level						
	21.91.1	on 175 mm internal diameter pipe sewer	each	0	0	0	10740
	21.91.2	on 200 mm internal diameter pipe sewer	each	0	0	0	10878
	21.91.3	on 225 mm internal diameter pipe sewer	each	0	0	0	10878
	21.91.4	on 250 mm internal diameter pipe sewer	each	0	0	0	10961
	21.91.5	on 300 mm internal diameter pipe sewer	each	0	0	0	11072
	21.91.6	on 350 mm internal diameter pipe sewer	each	0	0	0	11072
	21.91.7	on 375 mm internal diameter pipe sewer	each	0	0	0	11681
	21.91.8	on 400 mm internal diameter pipe sewer	each	0	0	0	11626
	21.91.9	on 450 mm internal diameter pipe sewer	each	0	0	0	11819
21.92	Extra over and above on item no.21.91 for every additional per 0.30 metre depth of manhole upto 4 metres depth beyond 1.80 metres belows ground level.		per 0.30 metre depth	0	0	0	1744
21.93	Providing, lowering, laying, cutting (cut surface to be uniformly finished), jointing with rubber rings marked with IS: 5382 and testing of spigot and socketted RCC NP2 marked with IS: 458-1988 and specials into trenches for all depths including carriage, loading, unloading, stacking, handling, re-handling etc. complete in all respects to the satisfaction to the Engineer-in-charge.						
	21.93.1	200 mm i/d	per metre	17	0	277	293
	21.93.2	250 mm i/d	per metre	19	0	312	330
	21.93.3	300 mm i/d	per metre	24	0	426	450
	21.93.4	350 mm i/d	per metre	28	0	528	555
	21.93.5	400 mm i/d	per metre	36	0	623	660
	21.93.6	450 mm i/d	per metre	41	0	719	761
	21.93.7	500 mm i/d	per metre	44	0	822	866
	21.93.8	600 mm i/d	per metre	56	0	1098	1153
	21.93.9	700 mm i/d	per metre	74	0	1511	1585
	21.93.10	800 mm i/d	per metre	96	0	1752	1848
	21.93.11	900 mm i/d	per metre	118	0	1997	2115
	21.93.12	1000 mm i/d	per metre	146	0	2399	2545
	21.93.13	1200 mm i/d	per metre	192	0	2999	3191
	21.93.14	1400 mm i/d	per metre	217	0	3477	3694
	21.93.15	1600 mm i/d	per metre	238	0	4000	4238
21.94	Providing and fixing SFRC MANHOLE COVERS AND FRAMES MARKED WITH IS: 12592 including setting the same to correct lines and levels in 1:3 cement sand mortar oner manhole including carriage loading unloading stacking handling re-handling etc. complete in all respects to the satisfaction to the Engineer-in-charge.						
	21.94.1	Type:- Extra Heavy Duty Set (EHD-35) 560MM Clear Opening	each	154	0	1146	1300
	21.94.2	Type:- Extra Heavy Duty Set (EHD-20) 560MM Clear Opening	each	141	0	1051	1191
	21.94.3	Type:- Extra Heavy Duty Set (EHD-10) 560MM Clear Opening	each	78	0	790	868
21.95	Providing salt glazed stone ware pipes grade 'A' in standard length of 600 mm each pipe marked with IS: 651 and their lowering, cutting, jointing and testing as described in item No. 21.38, 21.39, item 21.40 including the cost of jointing materials as well as carriage, loading, unloading, stacking, handling, re-handling etc. complete in all respects to the satisfaction of Engineer-in-charge.						
	21.95.1	100mm i/d	per metre	0	0	0	135
	21.95.2	150mm i/d	per metre	0	0	0	210
	21.95.3	200mm i/d	per metre	0	0	0	267
	21.95.4	250mm i/d	per metre	0	0	0	408
	21.95.5	300mm i/d	per metre	0	0	0	592
	21.95.6	350mm i/d	per metre	0	0	0	1032
	21.95.7	400mm i/d	per metre	0	0	0	1509
	21.95.8	450mm i/d	per metre	0	0	0	2002
	21.95.9	500mm i/d	per metre	0	0	0	3200
	21.95.10	600mm i/d	per metre	0	0	0	4457
21.96	Providing lowering cutting jointing and testing RCC pipe class NP3 as per IS-458-2003 with spigot & socketted joints manufactured with ISI marked sulphate resistance cement as per ISI 12330 with rubber rings ISI marked antiternmite as required at site in to trenches for all depths and laying out the same to correct alignment gridients and levels including dressing and trimming and cutting of concrete beds and side of trenches, if required jointing with rubber rings in trenches and jointing with 1:3/2 cement sand mortarand with end dowels filled with 1:3/2 cement sand mortar and finishing the joints at an angle of 45 degree with faces of spigot of socket joints cutting and finishing the cut surface to a uniform finish etc. as fully described in item No. 21.38, item 21.44, item 21.45, & item 21.46 including cartage loading and unloading complete in all respects. the internal diametric of the sewer being:						
	21.96.1	350 mm	per metre	44	0	1057	1101
	21.96.2	400 mm	per metre	51	0	1360	1411
	21.96.3	450 mm	per metre	48	0	1696	1744
	21.96.4	500 mm	per metre	62	0	1856	1918
	21.96.5	600 mm	per metre	80	0	2445	2525
	21.96.6	700 mm	per metre	97	0	3101	3198
	21.96.7	800 mm	per metre	125	0	3700	3825
	21.96.8	900 mm	per metre	150	0	3905	4056
	21.96.9	1000 mm	per metre	178	0	4840	5018
	21.96.10	1200 mm	per metre	234	0	5860	6094
	21.96.11	1400 mm	per metre	304	0	6270	6574
	21.96.12	1600 mm	per metre	362	0	9367	9729

	21.96.13	1800 mm	per metre	444	0	11638	12082
21.97	Providing, lowering, laying, aligning, fixing in position and jointing at all level/ depths ISI marked HDPE pipe of PE-80 grade and PN- 4 for sewer application as per IS 14333-1996 (amended upto date) in trenches in complete including cost of HDPE Specials, labour, sectional hydro testing (including the cost and conveyance of water to site for testing) and commissioning as per Technical Specifications and as per direction of Engineer. Note: E/w to be measured and paid separately. Rate includes cost of all specials like bends,tees required during laying of pipe line along required alignment.						
	21.97.1	200 mm Outside Dia	per metre	38	0	1429	1467
	21.97.2	225 mm Outside Dia	per metre	38	0	1806	1844
	21.97.3	250 mm Outside Dia.	per metre	38	0	2226	2264
	21.97.4	280 mm Outside Dia	per metre	38	0	2787	2825
	21.97.5	315 mm Outside Dia	per metre	38	0	3502	3540
	21.97.6	355 mm Outside Dia	per metre	38	0	4467	4505
	21.97.7	400 mm Outside Dia	per metre	38	0	5783	5821
	21.97.8	450 mm Outside Dia	per metre	38	0	7449	7487
	21.97.9	500 mm Outside Dia	per metre	73	0	9184	9256
	21.97.10	560 mm Outside Dia	per metre	73	0	11502	11575
	21.97.11	630 mm Outside Dia	per metre	73	0	14513	14586
	21.97.12	710 mm Outside Dia	per metre	73	0	18783	18855
	21.97.13	800 mm Outside Dia	per metre	73	0	23799	23871
	21.97.14	900 mm Outside Dia	per metre	73	0	30128	30201
	21.97.15	1000 mm Outside Dia	per metre	73	0	37203	37275
21.98	Providing, lowering, laying, aligning, fixing in position and jointing at all level/ depths ISI marked HDPE pipe of PE-100 grade and PN-6 for sewer. application as per IS 14333-1996 (amended upto date) in trenches in complete including cost of HDPE Specials, labour, sectional hydro testing (including the cost and conveyance of water to site for testing) and commissioning as per Technical Specifications and as per direction of Engineer. Note: E/w to be measured and paid separately. Rate includes cost of all specials like bends,tees required during laying of pipe line along required alignment.						
	21.98.1	200 mm Outside Dia	per metre	38	0	1688	1726
	21.98.2	225 mm Outside Dia	per metre	38	0	2129	2167
	21.98.3	250 mm Outside Dia.	per metre	38	0	2625	2663
	21.98.4	280 mm Outside Dia	per metre	38	0	3284	3321
	21.98.5	315 mm Outside Dia	per metre	38	0	4157	4194
	21.98.6	355 mm Outside Dia	per metre	38	0	5267	5305
	21.98.7	400 mm Outside Dia	per metre	38	0	6846	6884
	21.98.8	450 mm Outside Dia	per metre	38	0	8785	8823
	21.98.9	500 mm Outside Dia	per metre	73	0	10858	10931
	21.98.10	560 mm Outside Dia	per metre	73	0	13572	13645
	21.98.11	630 mm Outside Dia	per metre	73	0	17190	17263
	21.98.12	710 mm Outside Dia	per metre	73	0	22164	22237
	21.98.13	800 mm Outside Dia	per metre	73	0	28116	28188
	21.98.14	900 mm Outside Dia	per metre	73	0	31654	31727
	21.98.15	1000 mm Outside Dia	per metre	73	0	39109	39182
21.99	Providing, lowering, laying, aligning, fixing in position and jointing at all level/ depths ISI marked HDPE pipes of PE-100 grade and PN- 8 for sewer application as per IS 14333-1996 (amended upto date) in trenches in complete including cost of HDPE 'Specials, labour, sectional hydro testing (including the cost and conveyance of water to site for testing) and commissioning as per Technical Specifications and as per direction of Engineer. Note: E/w to be measured and paid separately. Rate includes cost of all specials like bends,tees required during laying of pipe line along required alignment.						
	21.99.1	200 mm Outside Dia	per metre	38	0	2154	2192
	21.99.2	225 mm Outside Dia	per metre	38	0	2720	2757
	21.99.3	250 mm Outside Dia.	per metre	38	0	3363	3400
	21.99.4	280 mm Outside Dia	per metre	38	0	4208	4246
	21.99.5	315 mm Outside Dia	per metre	38	0	5327	5365
	21.99.6	355 mm Outside Dia	per metre	38	0	6745	6783
	21.99.7	400 mm Outside Dia	per metre	38	0	8759	8797
	21.99.8	450 mm Outside Dia	per metre	38	0	11266	11304
	21.99.9	500 mm Outside Dia	per metre	73	0	13889	13962
	21.99.10	560 mm Outside Dia	per metre	73	0	17404	17476
	21.99.11	630 mm Outside Dia	per metre	73	0	22031	22104
	21.99.12	710 mm Outside Dia	per metre	73	0	28388	28461
21.100	Providing, lowering, laying, aligning, fixing in position and jointing at all level/ depths ISI marked HDPE pipes of PE-100 grade and PN-10 for sewer application as per IS 14333-1996 (amended upto date) in trenches in complete including cost of HDPE 'Specials, labour, sectional hydro testing (including the cost and conveyance of water to site for testing) and commissioning as per Technical Specifications and as per direction of Engineer. Note: E/w to be measured and paid separately. Rate includes cost of all specials like bends,tees required during laying of pipe line along required alignment.						
	21.100.1	200 mm Outside Dia	per metre	38	0	2585	2623
	21.100.2	225 mm Outside Dia	per metre	38	0	3271	3309
	21.100.3	250 mm Outside Dia.	per metre	38	0	4037	4075
	21.100.4	280 mm Outside Dia	per metre	38	0	5032	5070
	21.100.5	315 mm Outside Dia	per metre	38	0	6400	6438
	21.100.6	355 mm Outside Dia	per metre	38	0	8118	8156
	21.100.7	400 mm Outside Dia	per metre	38	0	10516	10554
	21.100.8	450 mm Outside Dia	per metre	38	0	13540	13578
	21.100.9	500 mm Outside Dia	per metre	73	0	16696	16769
	21.100.10	560 mm Outside Dia	per metre	73	0	20948	21021
	21.100.11	630 mm Outside Dia	per metre	73	0	26469	26542
21.101	Making holes for HCL soil / Waste pipe by core cutting upto 200 mm thick slabs and sealing with Drip seal sealent complete in all respect.						
	21.101.1	40 mm dia pipe	each	0	0	228	228
	21.101.2	100 mm dia pipe	each	0	0	628	628
	21.101.3	125 mm dia pipe	each	0	0	799	799
	21.101.4	150 mm dia pipe	each	0	0	914	914
	21.101.5	175 mm dia pipe	each	0	0	1085	1085

21.102	Providing and fixing MS Angle 35 x 35 x 5 mm with 10 mm MS Threaded rods & Fastner & Fixture to Support the CI and PVC			each	20	0	126	146
21.103	Providing and fixing of HCL ISI Mark Cleaning out plug 100mm dia.			each	52	0	799	852
	Lowering of Water Table for Sewerage Net work & Sewerage Structures							
21.104	Lowering of sub soil water upto depth below the foundation concrete of the sewerage net work lines & manholes by providing well point system including cost of boring, providing and installing pipes for the bore, developing for a successful bore, provding and installing of pumping machinery, suction / delivery pipes disposal of water including cost repairs / maintenance, running cost of pumping machinery, electric and diesel oil charges, consumable items, pay of the operational staff, electric connection frees to be paid to the electricity department and dismantling of the pumping machinery bores and filling the bores with sand after use and reinstallation of the same to the next site for erecting of the above process of well point system if required so as to complete the const. / testing of the structure under dry condition. In case of failure of electricity, the contractor will provide, install and operate generating set of adequate capacity at his own cost to keep the well poing system in operation. Nothing extra will be paid for any difficulities met with during execution / construction complete in all respects. (Note: This item is only payable for completed sewer and manhole and nothing shall be payable if the water table is lowered and construction work is delayed are not done due to any reason what so ever.)							
	21.104.1	0.5 metre average depth BGL		per metre	-	-	-	650
	21.104.2	1.0 metre average depth BGL		per metre	-	-	-	789
	21.104.3	1.5 metre average depth BGL		per metre	-	-	-	928
	21.104.4	2.0 metre average depth BGL		per metre	-	-	-	1067
	21.104.5	2.5 metre average depth BGL		per metre	-	-	-	1067
	21.104.6	3.0 metre average depth BGL		per metre	-	-	-	1207
	21.104.7	3.5 metre average depth BGL		per metre	-	-	-	1207
	21.104.8	4.0 metre average depth BGL		per metre	-	-	-	1346
	21.104.9	4.5 metre average depth BGL		per metre	-	-	-	1485
	21.104.10	5.0 metre average depth BGL		per metre	-	-	-	1624
	21.104.11	6.0 metre average depth BGL		per metre	-	-	-	1763
21.105	Lowering of sub soil water upto 1.00 m below the foundation concrete of the various structures of the disposal work by providing well point system including cost of boring, providing and installing pipes for the bore, developing for a successful bore, providing and installation of pumping machinery, suction / delivery pipes, disposal of water including cost of repairs, maintenance, running cost of pumping machinery, electric and diesel oil charge, consumables, pay of the operational staff, electric connection fees to be paid to the electricity department and dismantling of the pumping machinery bores with sand after use and reinstallation of the same to the next site for erecting of the above process of well point system if required so as to complete the construction / testing of the structure under dry condition in case of failure of electricity the contractor will provide install and operate a generating set of adequate capacity at his own coat of keep the well point system in operation. Nothing extra will be paid for any difficulties met with during execution / construction complete description as per directions of Engineer-in-charge							
	21.105.1	Under water for inlet chamber & screening Chamber, Trench size at bottom. Water table 0.00 M to 1.00 M above the bed level of structure		sqm	-	-	-	449
	21.105.2	Under water for collectine Tank / sump. Trench seat bottom. Water table 0.00 M to 4.00 M above the bed level of structure		sqm	-	-	-	2697
	21.105.3	Under water for collectine Tank / sump. Trench seat bottom. Water table 0.00 M to 6.00 M above the bed level of structure		sqm	-	-	-	4493
	Trenchless work items for Sewerage Net work							
21.106	Supplying, laying, jointing using heat fusion/electro fusion cutting and testing of HDPE pipe of sewer at an average depth 1.5 m to 2m and ancillary works by trench-less technology including Civil and Structural work required for laying in position as per given specifications, all items of work i.e soil investigation and excavation,all works in or under water/ liquid mud as required, dewatering of sub soil water, road cutting, necessary barricading including flickering lights etc., disposal of surplus earth as per direction of Engineer-in-charge, submission of 3 sets of completion drawings showing completion of alignment/ level of the work etc. required for the successful completion of the work on turn key basis as per IS code 14333-1996 i/c up to date amendments of size:							
	21.106.1	200mm o/d to 280mm o/d HDPE sewer pipe with thickness of minimum 15.90mm and maximum 17.70mm grade PE		metre	-	-	-	2523
21.107	Supplying, laying, jointing using heat fusion/electro fusion cutting and testing of HDPE pipe of sewer at an average depth 2 m to 4m and ancillary works by trench-less technology including Civil and Structural work required for laying in position as per given specifications, all items of work i.e soil investigation and excavation,all works in or under water/ liquid mud as required, dewatering of sub soil water, road cutting, necessary barricading including flickering lights etc., disposal of surplus earth as per direction of Engineer-in-charge, submission of 3 sets of completion drawings showing completion of alignment/ level of the work etc. required for the successful completion of the work on turn key basis as per IS code 14333-1996 i/c up to date amendments of size:			metre	-	-	-	3106
	21.107.1	200mm o/d to 280mm o/d HDPE sewer pipe with thickness of minimum 15.90mm and maximum 17.70mm grade						
21.108	Supplying, laying, jointing using heat fusion/electro fusion cutting and testing of HDPE pipe of sewer at an average depth 4.5 to 7m and ancillary works by trench-less technology including Civil and Structural work required for laying in position as per given specifications, all items of work i.e soil investigation and excavation,all works in or under water/ liquid mud as required, dewatering of sub soil water, road cutting, necessary barricading including flickering lights etc., disposal of surplus earth as per direction of Engineer-in-charge, submission of 3 sets of completion drawings showing completion of alignment/ level completion of alignment/ level of the work etc. required for the successful completion of the work on turn key basis as per IS code 14333-1996 i/c up to date amendments of size:							
	21.108.1	315mm o/d to 500mm o/d		metre	-	-	-	4761
	21.108.2	560mm o/d to 1000mm o/d		metre	-	-	-	8324
21.109	Supply & Erection of non clog submersible sewage pump with suitable electrical motors with accessories complete in all respect with submersible cable of suitable size 10 M double length with complete base frame, lifting monorail, chain guide line, auto coupling and shackle (CS) chain complete in all respects complete as per directions of Engineer-in-charge							
	21.109.1	90 M 3/ Hour x 15 M head		each	-	-	-	224676
	21.109.2	180 M 3/ Hour x 15 M head		each	-	-	-	251638
21.110	Supplying and fixing following CI/DF pipe and specials / bell mouth including cost of jointing materials, excavation, laying, jointing, refilling including making adequate support of manonry/ concrete steel for delivery and sunction pipe from bell mouth in the underground tank upto the rising man as per approved plan from the foundation wall of the pump chamber for non-clog Submersible Sewage pumping set of 90 m3/ hour x 15 M Head, disposal works as per the approved specifications complete and as per directions of Engineer-in-charge							
	21.110.1	CI/DF bends, Reducers, tees etc. upto 150mm i/d or 200mm i/d or 450mm i/d		kg	-	-	-	81
21.111	Supplying & fixng following CI/DF pipe and specials / bell mouth Including cost of jonting materials, excavation, laying, jointing, refilling including making adequate supports of masonry / concrete / steel for delivery and suction pipe from bell mouth in the underground tank upto the rising main as per approved plan from the foundation wall of the pump chamber for non clog Sub Sewage pumping set at Disposal works as per specification and directions of Engineer-in-charge							
	21.111.1	150mm i/d						
		21.111.1.1	Suction of CI/DF pipes	metre	-	-	-	3145
		21.111.1.2	Delivery of CI/DF pipes	metre	-	-	-	3145
		21.111.1.3	Bell Mouth	each	-	-	-	4493
	21.111.2	200mm i/d						
		21.111.2.1	Suction of CI/DF pipes	metre	-	-	-	4493
		21.111.2.2	Delivery of CI/DF pipes	metre	-	-	-	4493
		21.111.2.3	Bell Mouth	each	-	-	-	4493

CHAPTER NO. 22

SANITARY INSTALLATIONS

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CHAPTER 22.0 - SANITARY INSTALLATIONS

LIST OF BUREAU OF INDIAN STANDARDS (BIS) CODES

Sr. No.	B.I.S. No.	Subject
1	IS 771 (Pt.1)	Specification for glazed fire clay sanitary appliances: Part 1: General requirements.
2	IS 771 (Pt.-2)	Specification for glazed fire clay sanitary appliances: Part 2: Specific requirements of kitchen and laboratory sink.
3	IS 772	Specific action for general requirements for enameled cast iron sanitary appliances.
4	IS 774	Flushing cisterns for water closets and urinals (Other than plastic
5	IS 1703	Water fittings- copper alloy float valves (horizontal plunger type) - Specification.
6	IS 1729	Cast iron /Ductile Iron Drainage Pipes and pipe fittings for Over ground non-pressure pipe line Socket and Spigot Series.
7	IS 1795	Specification for pillar taps for water supply purposes.
8	IS 2326	Specification for Automatic Flushing Cisterns for Urinals (Other than plastic cisterns)
9	IS 2548 (Part-1)	Plastic seats and covers for water closets Part 1: Thermo set seats and
10	IS 2548 (Part-2)	Plastic seats and covers for water closets Part 2: Thermoplastic seats and covers.- Specifications
11	IS 2556	Vitreous sanitary appliances (vitreous chinaware) –Specifications
12	IS 2556 (Part-1)	Part-1: General requirements.
13	IS 2556 (Part-2)	Part-2: Specific requirements of wash-down water closets.
14	IS 2556 (Part-3)	Part-3: Specific squatting pans.
15	IS 2556 (Part-4)	Part-4: Specific requirements of wash basins.
16	IS 2556 (Part-5)	Part-5: Specific requirements of laboratory sinks.
17	IS 2556 (Part-6)	Part-6: Specific requirements of Urinals & Partition plates
18	IS 2556 (Part-7)	Part-7: Specific requirements of accessories for sanitary appliances
19	IS 2556 (Part -14)	Part-14: Specific requirements of integrated squatting pans.
20	IS 2556 (Part -15)	Part-15: Specific requirements of universal water closets.
21	IS 2963	Specification for Copper alloy waste fittings for wash basins and sinks.
22	IS 3076	Specification for low density polyethylene pipes for potable water supplies.
23	IS 3989	Specification for centrifugally cast (spun) iron spigot and socket soil, waste and ventilating pipes fittings and accessories.
24	IS 4827	Specification for electroplated coating of nickel and chromium on copper and copper alloys.
25	IS 4984	Specification for high density polyethylene pipes for potable water
26	IS 4985	Unplasticised P.V.C. pipes for potable water supply – Specifications.
27	IS 7231	Plastic flushing cisterns for water closets and urinals – Specifications.
28	IS 13983	Stainless steel sinks for domestic purposes –Specifications.

CHAPTER 22.0 - SANITARY INSTALLATIONS

NOTES:

1. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

2. All sanitary and plumbing work shall be carried out through licensed plumbers.

3. All vitreous sanitary appliances (Vitreous Chinaware) shall conform to IS 2556 (Part-I) general requirements.

4. Flushing Cisterns: The flushing cisterns shall be automatic or manually operated high level or low level as specified, for water closets and urinals. A high level cistern is intended to operate with minimum height of 125 cm and a low level cistern with a maximum height of 30 cm between the top of the pan and the underside of the cistern. A cistern shall be considered mosquito proof only if there is no clearance anywhere which would permit a 1.6 mm wire to pass through in the permanent position of the cistern i.e. in the flushing position or filling position.

5. Pillar Taps: Pillar taps shall be chromium plated brass and shall conform to IS 1795. The nominal sizes of the pillar tap shall be 15 mm or 20 mm.

6. Sand Cast Iron or Centrifugally Cast (Spun) Iron Pipes and Fittings: Sand cast iron spigot and socket soil, waste and ventilating pipes, fittings and accessories shall conform to IS 1729. Centrifugally cast (Spun) iron spigot and socket soil, waste and ventilating pipes, fittings and accessories shall conform to IS 3989. The sand cast iron pipes shall be 1.5/1.8/2.0 metre in length including socket ends, cast iron (Spun) pipes shall be 1.5/1.75/2.0/2.5/3.0 metre in length excluding socket ends, unless shorter lengths are either specified or required at junctions etc. The pipe and fittings shall be supplied without ears, unless specified or directed otherwise.

7. Sand Cast Iron Floor Trap or Nahani Trap : Sand cast Iron Floor trap or Nahani trap shall be 'P' or 'S' type with minimum 50 mm seal. The traps shall be of self cleansing design and shall conform to IS 1729.

8. Plastic Seat and Covers for Water Closet: The seat and cover shall be of thermosetting or thermoplastic conforming to IS 2548 as specified. The hinging device shall be bronze or brass with nickel chromium plating confirming to IS 1068.

9. Sinks: Laboratory sinks and Kitchen sinks shall be of white glazed fire clay confirming to IS 771 The kitchen sink shall be of one piece construction with or without rim but without overflow. Stainless steel kitchen sink shall be of sizes as specified and shall be conforming to IS 13983.

10. Urinals: Bowl Type Urinals, Half Stall Urinals, Squatting Plate Urinal shall be of white vitreous chinaware conforming to IS 2556-(Part 6) and shall of one piece construction. Each urinal shall have an integral flushing rim of suitable type and inlet or supply horn for connecting the flush pipe. The flushing rim and inlet shall be of the self draining type.

11. Wash Basins: Wash basins shall be of white vitreous chinaware conforming to IS 2556 (Part-I) and IS 2556 (Part-4). Wash basins either of flat back or angle back as specified shall be of one piece construction, including a combined overflow. All internal angles shall be designed so as to facilitate cleaning.

12. Waste Fittings for Wash Basins and Sinks: The waste fittings shall be of nickel chromium plated brass, with thickness of plating not less than service grade 2 of IS 4827 which is capable of receiving polish and will not easily scale off.

13. Water Closets

13.1 Squatting Pans (Indian Type W.C.): Squatting pans shall be of white vitreous chinaware conforming to IS 2556 Part-I for General Requirements and relevant IS codes for each pattern shall be as described below:

13.1.1. Long pattern-conforming to IS 2556 (Part-3).

13.1.2 Orissa pattern-conforming to IS 2556 (Part-3).

13.1.3 Integrated type conforming to IS 2556 (Part-14).

13.2 Wash Down Type (European Type W.C.)*:* Water closets shall be of white vitreous chinaware conforming to IS 2556 (Part-1) and 2556 (Part-2), as specified and shall be of "Wash down type.

14. All exposed G.I., C.I. or lead pipes and fittings shall be painted with approved quality of paint and shade as specified.

15. All soil pipes shall be carried up above the roof and shall have sand cast iron terminal guard.

16. The ventilating pipe or shaft shall be carried to a height of at least 60 cms above the outer covering of the roof of the building. The pipes above the parapet shall be secured to the wall by means of M.S. stay and clamps.

17. The connections between the main pipe and branch pipes shall be made by using branches and bends with access doors for cleaning. The waste from lavatories, kitchen, basins, sinks, baths and other floor traps shall be separately connected to respective waste stack of upper floors.

18. Testing: All sand cast iron/cast iron (Spun) pipes and fittings including joint shall be tested by smoke test to the satisfaction of the Engineer-in-Charge and left in working order after completion.

	CHAPTER 22.0 - SANITARY INSTALLATIONS						
	WASH BASINS, KITCHEN SINKS AND HARDWARES						
22.1	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:						
	22.1.1	White vitreous chinaware Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps		each	449	0	1545	1994
	22.1.2	White vitreous chinaware Wash basin size 630x450 mm with a single 15 mm C.P. brass pillar tap		each	430	0	1309	1739
	22.1.3	White vitreous chinaware Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps		each	449	0	1339	1789
	22.1.4	White vitreous chinaware Flat back wash basin size 550x 400 mm with single 15 mm C.P. brass pillar tap		each	430	0	1103	1533
	22.1.5	White vitreous chinaware Angle back wash basin size 600 x 480 mm with single 15mm C.P. brass pillar tap		each	430	0	1309	1739
	22.1.6	White vitreous chinaware Angle back wash basin size 400 x 400 mm with single 15 mm C.P. brass pillar tap		each	430	0	966	1396
	22.1.7	White vitreous chinaware Flat back wash basin size 450x 300 mm with single 15mm C.P. brass pillar tap		each	430	0	814	1244
	22.1.8	White vitreous chinaware Surgeon type wash basin of size 660x460 mm with a pair of 15 mm C.P. brass pillar taps with elbow including operated levers		each	449	0	2368	2818
	22.1.9	White vitreous chinaware Surgeon type wash basin of size 660x460 mm with single 15 mm C.P. brass pillar taps with elbow operated levers ISI Marked		each	430	0	1877	2308
	22.1.10	Stainless Steel AISI-304(18/8) Round basin 405x355 mm with single 15 mm C.P. brass pillar tap		each	430	0	2194	2624
	22.1.11	Stainless Steel AISI-304(18/8) Wash basin 530x345 mm with single 15 mm C.P. brass pillar tap		each	430	0	2765	3195
22.2	Providing and fixing wash basin with C.I. brackets, 15 mm dia CP Brass single hole basin mixer of approved quality and make, including painting of fittings and brackets, cutting and making good the walls wherever required:-						
	22.2.1	White vitreous chinaware Wash basin size 550x400 mm with a 15 mm CP Brass single hole basin mixer		each	443	0	2694	3137
22.3	Providing and fixing white vitreous chinaware wash basin including making all connections but excluding the cost of fittings :						
	22.3.1	Flat back wash basin of size 630x450 mm		each	41	0	835	876
	22.3.2	Flat back wash basin of size 550x400 mm		each	41	0	629	670
	22.3.3	Angle back wash basin of size 600x480 mm		each	41	0	835	876
	22.3.4	Angle back wash basin of size 400x400 mm		each	41	0	492	533
	22.3.5	Flat back wash basin of size 450x300 mm		each	41	0	361	402
	22.3.6	Surgeon type wash basin of size 660x460 mm		each	41	0	1149	1190
22.4	Providing and fixing wash basin with C.I. brackets, 15 mm PTMT pillar cock, 32 mm PTMT waste coupling of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required. White vitreous chinaware Flat back wash basin size 550x400 mm with single 15 mm PTMT pillar cock.			each	449	0	957	1406
22.5	Providing and fixing white vitreous chinaware pedestal for wash basin completely recessed at the back for the reception of pipes and fittings.			each	30	0	1057	1087
22.6	Providing and fixing white vitreous chinaware laboratory sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P brass waste and 40mm C.P. brass trap with necessary C.P. brass unions complete, including painting of fittings and brackets, cutting and making good the wall wherever required :						
	22.6.1	Size 450x300x150 mm		each	382	0	2591	2973
	22.6.2	Size 600x450x200 mm		each	382	0	3733	4114
22.7	Providing and fixing white vitreous chinaware laboratory sink including making all connections excluding cost of fittings :						
	22.7.1	Size 450x300x150 mm		each	30	0	1721	1751
	22.7.2	Size 600x450x200 mm		each	30	0	2863	2893
22.8	Providing and fixing 15 mm C.P. brass Laboratory cock swan neck of best quality (to the approval of Engineer-in-charge).						
	22.8.1	One way		each	51	0	1298	1349
	22.8.2	Two way		each	51	0	2727	2777
	22.8.3	Three way		0.00	51	0	3246	3297
22.9	Providing and fixing kitchen sink with C.I. brackets, C.P. brass chain with rubber plug, 40 mm C.P. brass waste complete, including painting the fittings and brackets, cutting and making good the walls wherever required:						
	22.9.1	White glazed fire clay kitchen sink of size 600x450x 250 mm		each	382	0	1772	2154
22.10	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS:13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required :						
	22.10.1	Kitchen sink with drain board					
		22.10.1.1	510x1040 mm bowl depth 250 mm	each	576	0	3084	3660
		22.10.1.2	510x1040 mm bowl depth 225 mm	each	576	0	3678	4254
		22.10.1.3	510x1040 mm bowl depth 200 mm	each	576	0	3450	4026
		22.10.1.4	510x1040 mm bowl depth 178 mm	each	576	0	3107	3683
	22.10.2	Kitchen sink without drain board					
		22.10.2.1	610x510 mm bowl depth 200 mm	each	382	0	2197	2579
		22.10.2.2	610x460 mm bowl depth 200 mm	each	382	0	1512	1893
		22.10.2.3	470x420 mm bowl depth 178 mm	each	382	0	1341	1722
22.11	Providing and fixing draining board with C.I. brackets including painting of brackets, cutting and making good the walls wherever required :						
	22.11.1	White glazed fire clay draining board of size 600x450x 25 mm		each	160	0	737	896
22.12	Providing and fixing CP Brass Single lever telephonic wall mixer of quality & make as approved by Engineer in charge.						
	22.12.1	15 mm nominal dia		each	25	0	5139	5164
22.13	Providing and fixing kitchen sink including making all connections excluding cost of fittings.						
	22.13.1	White glazed fire clay sink of size 600x450x250 mm		each	30	0	1473	1503
22.14	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.						
	22.14.1	Semi rigid pipe					
		22.14.1.1	32 mm dia	each	16	0	29	45
		22.14.1.2	40 mm dia	each	16	0	38	54
	22.14.2	Flexible pipe					
		22.14.2.1	32 mm dia	each	16	0	40	56
		22.14.2.2	40 mm dia	each	16	0	40	56
22.15	Providing and fixing CP Brass 32mm size Bottle Trap of approved quality & make and as per the direction of Engineer-in-charge.			each	16	0	708	724
22.16	Providing and fixing 40mm i/d G.I. waste pipe embedded in walls upto floor level including cost of union and plumber joint			each	484	0	480	964
22.17	Providing and fixing 40mm i/d chromium plated trap with chromium plated pipe to wall with walflange completed for use with sinks						
	22.17.1	With Bottle Trap (Indian make)		each	64	0	805	869
	22.17.2	With C.P. Brass 'P" or 'S' Trap		each	64	0	390	454
22.18	Providing and fixing in position brass oxidized gas taps (to the approval of the Engineer-in-charge) complete in all respects.						
	22.18.1	One way		each	32	0	352	384
	22.18.2	Two way		each	32	0	521	553
	22.18.3	Three way		each	32	0	703	735
	22.18.4	Four way		each	32	0	885	916
22.19	Providing and fixing 100 mm sand cast Iron grating for gully trap.			each	3	0	29	32

22.20	Provinding and fixing in position C.I. plain Nahani Trap conforming to I.S.I. specifications and of self cleaning design with C.P. brass hinged grating with frame complete						
	22.20.1	50 mm i/d outlet plain Nahani trap	each	538	0	712	1249
	22.20.2	With 75 mm internal diameter outlet	each	538	0	815	1353
22.21	Providing and fixing in portion best Indian make vitreous chinaware drinking fountain consisting of: 15 mm self-closing non-concussive inlet valves with regulating device waste coupling with flush grating bottle trap with 32 min seal inlet coupling nut screwed and including cutting and making good the walls and floors etc. with 32 mm GI waste pipe up to floor level.						
	22.21.1	White	each	777	0	10812	11589
	22.21.2	Single Colour	each	777	0	12111	12888
	22.21.3	Mixed Colour	each	777	0	14058	14835
	WCs, URINALS AND URINAL PARTITIONS						
22.22	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required:						
	22.22.1	White vitreous chinaware Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests	each	1003	0	2433	3436
	22.22.2	Stainless Steel AISI-304(18/8) Orissa pattern W.C. pan of size 585x480 mm with flush pipe and integrated type foot rests	each	1003	0	6202	7204
22.23	Providing and fixing white vitreous chinaware pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :						
	22.23.1	W.C. pan with ISI marked white solid plastic seat and lid	each	1003	0	2296	3299
	22.23.2	W.C. pan with ISI marked black solid plastic seat and lid	each	1003	0	2194	3196
22.24	Providing and fixing white vitreous chinaware pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous chinaware flushing cistern & C.P. flush bend with fittings & C.I. brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :						
	22.24.1	W.C. pan with ISI marked white solid plastic seat and lid	each	1157	0	3160	4317
	22.24.2	W.C. pan with ISI marked black solid plastic seat and lid	each	1157	0	3057	4214
22.25	Providing and fixing white vitreous chinaware flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :						
	22.25.1	One urinal basin with 5 litre white P.V.C. automatic flushing cistern	each	1145	0	1651	2796
	22.25.2	One urinal basin with manually operated 5 litres PVC cistern and manually operated stop cock/ angle valve	each	1145	0	1652	2797
	22.25.3	Range of two urinal basins with 5 litre white P.V.C. automatic flushing cistern	each	1837	0	2559	4396
	22.25.4	Range of three urinal basins with 10litre white P.V.C. automatic flushing cistern	each	2518	0	3492	6010
	22.25.5	Range of four urinal basins with 10 litre white P.V.C. automatic flushing cistern	each	3675	0	4511	8185
22.26	Providing and fixing white vitreous chinaware flat back half stall urinal of size 580x380x350 mm with white PVC flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required :						
	22.26.1	Single half stall urinal with 5 litre P.V.C. automatic flushing cistern	each	2615	0	2031	4647
	22.26.2	Single half stall urinal with manually operated5 litre P.V.C. flushing cistern and manually operated stop cock/ angle valve	each	2615	0	2113	4728
	22.26.3	Range of two half stall urinals with 5 litre P.V.C. automatic flushing cistern	each	3869	0	3280	7148
	22.26.4	Range of three half stall urinals with 10 litre P.V.C. automatic flushing cistern	each	4549	0	4544	9093
	22.26.5	Range of four half stall urinals with 10 litre P.V.C. automatic flushing cistern	each	5230	0	5663	10893
22.27	Providing and fixing one piece construction white vitreous chinaware squatting plate with an integral longitudinal flushing pipe, white P.V.C. flushing cistern, with fittings, standard size G.I. / PVC flush pipe for back and front flush with standard spreader pipes with fittings, G.I clamps and C.P. brass coupling complete, including painting of fittings and cutting and making good the walls and floors etc. wherever required :						
	22.27.1	Single squatting plate with 5 litre P.V.C. automatic flushing cistern	each	1757	0	2014	3771
	22.27.2	Single squatting plate with manually operated 5 litre P.V.C. flushing cistern and stop cock / angle valve	each	1757	0	2016	3772
	22.27.3	Range of two squatting plates with 5 litre P.V.C. automatic flushing cistern	each	2414	0	3328	5742
	22.27.4	Range of three squatting plates with 10 litre P.V.C. automatic flushing cistern	each	3095	0	4660	7755
	22.27.5	Range of four squatting plates with 10 litre P.V.C. automatic flushing cistern	each	3542	0	6007	9549
22.28	Providing and fixing white vitreous chinaware water closet squatting pan (Indian type) :						
	22.28.1	Long pattern W.C. pan of size 580 mm	each	364	0	534	898
	22.28.2	Orissa pattern W.C. pan of size 580x440 mm	each	364	0	1391	1755
22.29	Extra for using coloured W.C. pan instead of white W.C. pan :						
	22.29.1	Orissa pattern W.C. pan 580x440 mm	each	0	0	628	628
22.30	Providing and fixing white vitreous chinaware pedestal type (European type/ wash down type) water closet pan.		each	364	0	1162	1526
22.31	Extra for using coloured pedestal type W.C pan (European type) with low level cistern of same colour instead of white vitreous chinaware W.C pan and cistern.		each	0	0	97	97
22.32	Providing and fixing vitreous chinaware dual purpose closet suitable for use as squatting pan or European type water closet (Anglo Indian W.C pan) with seat & lid fixed with C.P. brass hinges and rubber buffers, 10 litre low level flushing cistern with fitting and brackets, 40 mm flush bend, 20 mm over flow pipe, with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:						
	22.32.1	White vitreous chinaware dual purpose WC pan with white solid plastic seat and lid with white vitreous chinaware flushing cistern and C.P. flush bend.	each	1157	0	5251	6407
22.33	Providing and fixing white vitreous chinaware extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous chinaware cistern / PVC cistern (with brass fitting) into the wall with dual flush fitting, of flushing capacity 3 litre/ 6 litre (adjustable to 4 litre/ 8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.		each	1157	0	9485	10642
22.34	Providing and fixing floor mounted, white vitreous chinaware single piece, double traps syphonic water closet of approved brand/make, shape, size and pattern including integrated white vitreous chinaware cistern of capacity 10 litres with dual flushing system, including all fittings and fixtures with seat cover, cistern fittings, nuts, bolts and gasket etc including making connection with the existing P/S trap, complete in all respect as per directions of Engineer-in-Charge.		each	1157	0	10855	12012
22.35	Providing and fixing G.I. inlet connection for flush pipe connecting with W.C. pan.		each	10	0	69	79
22.36	Providing and fixing solid plastic seat with lid for pedestal type W.C. pan complete :						
	22.36.1	White solid plastic seat with lid	each	10	0	457	467
	22.36.2	Black solid plastic seat with lid	each	10	0	354	364
	22.36.3	Coloured (other than black & white) solid plastic seat with lid	each	10	0	445	456
22.37	Providing and fixing a pair of white vitreous chinaware foot rests of standard pattern for squatting pan water closet :						
	22.37.1	250x130x30 mm	each pair	31	0	120	151
	22.37.2	250x125x25 mm	each pair	31	0	120	151

22.38	Providing and fixing 8 mm dia C.P. / S.S. Jet with flexible tube upto 1 metre long with S.S. triangular plate to Eureopean type W.C. of quality and make as approved by Engineer - in - charge.				each	9	0	228	238
22.39	Providing and fixing P.V.C. low level flushing cistern with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete.								
	22.39.1	10 litre capacity - White			each	79	0	660	739
	22.39.2	10 litre capacity - coloured			each	79	0	633	712
22.40	Providing and fixing controlled flush, low level cistern made of vitreous chinaware with all fittings complete.								
	22.40.1	10 litre (full flush) capacity-white			each	317	0	810	1127
	22.40.2	10 litre (full flush) capacity-coloured			each	317	0	1323	1640
22.41	Providing and fixing in position 25 mm diameter mosquito proof coupling of approved municipal design.				each	1	0	34	35
22.42	Providing and fixing toilet paper holder :								
	22.42.1	C.P. brass			each	74	0	309	382
	22.42.2	vitreous chinaware			each	74	0	174	248
22.43	Providing and fixing in position best Indian make (as approved by the Engineer-in-charge) Bidet suite consisting of bidet suite in vitreous china ware 380 mm high and best chromium plated brass bidet fitting four holes basin mixer with pop-waste etc. complete in all respects including cutting and making good the walls and floors & painting of fittings etc.								
	22.43.1	White			each	777	0	29864	30641
	22.43.2	Single Colour			each	777	0	31812	32589
	22.43.3	Mixed Colour			each	777	0	43498	44275
22.44	Providing and fixing 32 mm diameter GI. extension pipe for Indian type Water Closet suite complete with accessories(as approved by the Engineer -in-charge)				each	97	0	904	1001
22.45	Providing & fixing white vitreous chinaware water less urinal of size 600 x 330 x 315 mm having antibacterial /germs free ceramic surface, fixed with cartridge having debris catcher and hygiene seal.				each	317	0	13642	13958
22.46	Providing and fixing white vitreous chinaware battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge.				each	317	0	5146	5462
22.47	Providing and fixing white vitreous chinaware flat back or wall corner type lipped front urinal basin of 430x260x350 mm or 340x410x265 mm sizes respectively.				each	241	0	532	773
22.48	Providing and fixing white vitreous chinaware squatting plate urinal with integral rim longitudinal flush pipe.				each	681	0	1221	1901
22.49	Providing and fixing in position best Indian make vitreous chinaware channel of size 600mmx150mm including laying and fixing in cement concrete 1:2:4 complete as required by the Engineer-in-charge.								
	22.49.1	White			each	127	0	1506	1633
	22.49.2	Single Colour			each	127	0	1896	2023
22.50	Providing and fixing partitions for different type of urinals.								
	22.50.1	Vetreous Chinaware Partition plate.							
		22.50.1.1	Small size 680mm x 330 mm						
			22.50.1.1.	White	each	226	0	740	966
			22.50.1.1.2	Single Colour	each	226	0	854	1081
			22.50.1.1.3	Mixed Colour	each	226	0	911	1138
		22.50.1.2	Large size 835mm x 355 mm						
			22.50.1.2.1	White	each	226	0	968	1195
			22.50.1.2.2	Single Colour	each	226	0	1083	1309
			22.50.1.2.3	Mixed Colour	each	226	0	1197	1423
	SEWERAGE DISPOSAL SYSTEMS								
22.51	Providing and fixing soil, waste and vent pipes :								
	22.51.1	100 mm dia							
		22.51.1.1	Sand cast iron S&S pipe as per IS: 1729		metre	26	0	789	816
		22.51.1.2	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989		metre	27	0	859	886
		22.51.1.3	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905		metre	25	0	829	854
	22.51.2	75 mm diameter :							
		22.51.2.1	Sand cast iron S&S pipe as per IS: 1729		metre	22	0	728	750
		22.51.2.2	Centrifugally cast (spun) iron socketed pipe as per IS: 3989		metre	22	0	785	807
		22.51.2.3	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905		metre	21	0	676	697
22.52	Providing and filling the joints with spun yarn, cement slurry and cement mortar 1:2 (1 cement : 2 fine sand) in S.C.I./ C.I. Pipes :								
	22.52.1	75 mm dia pipe			each	44	0	1	46
	22.52.2	100 mm dia pipe			each	52	0	1	54
22.53	Providing and fixing M.S. holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including cost of cutting holes and making good the walls etc. :								
	22.53.1	For 100 mm dia pipe			each	104	0	38	142
	22.53.2	For 75 mm dia pipe			each	104	0	35	139
22.54	Providing and fixing M.S. holder bat clamp of approved design to sand cast iron/ cast iron (spun) pipes comprising of M.S. flat brackets made of 50x5 mm flat of specified shape, projecting 75 mm outside the wall surface and fixed on wall with 4Nos., 6mm dia expansion hold fasteners, including drilling necessary holes in brick wall/ CC/ RCC surface and the cost of bolts etc. The pipes shall be fixed to the already fixed brackets with the help of 30 mm x1.6 mm galvanised M.S. flats of specified shape and of total length 420 mm and shall be fixed with M.S. nuts, bolts, & washers of size 25x6 mm, one bolts on each side of the pipe.								
	22.54.1	Total bracket length 580 mm of approved shape and design (for single 100 mm dia pipe)			each	43	0	133	175
	22.54.2	Total bracket length 810 mm of approved shape and design (for two 100 mm dia pipes)			each	48	0	170	218
	22.54.3	Total bracket length 1040 mm of approved shape and design (for three 100 mm dia pipes)			each	53	0	207	260
22.55	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.								
	22.55.1	100 mm dia							
		22.55.1.1	Sand cast iron S&S as per IS - 1729		each	10	0	363	373
		22.55.1.2	Sand cast iron S&S as per IS - 3989		each	10	0	363	373
		22.55.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905		each	10	0	437	448
	22.55.2	75 mm dia							
		22.55.2.1	Sand cast iron S&S as per IS - 1729		each	8	0	292	300
		22.55.2.2	Sand cast iron S&S as per IS- 3989		each	8	0	304	312
		22.55.2.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905		each	8	0	349	357
22.56	Providing and fixing plain bend of required degree.								
	22.56.1	100 mm dia							
		22.56.1.1	Sand cast iron S&S as per IS - 1729		each	10	0	295	305
		22.56.1.2	Sand cast iron S&S as per IS : 3989		each	10	0	303	313
		22.56.1.3	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905		each	10	0	263	273

	22.56.2	75 mm dia						
		22.56.2.1	Sand cast iron S&S as per IS -1729	each	8	0	240	248
		22.56.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	223	231
		22.56.2.3	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	each	8	0	183	191
22.57	Providing and fixing heel rest sanitary bend							
	22.57.1	100 mm dia						
		22.57.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	396	407
		22.57.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	338	348
	22.57.2	75 mm dia						
		22.57.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	313	321
		22.57.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	285	293
22.58	Providing and fixing double equal junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete :							
	22.58.1	100x100x100x100 mm						
		22.58.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	837	847
		22.58.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	723	733
	22.58.2	75x75x75x75 mm						
		22.58.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	589	597
		22.58.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	566	574
22.59	Providing and fixing double equal plain junction of required degree.							
	22.59.1	100x100x100x100 mm						
		22.59.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	674	684
		22.59.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	708	718
		22.59.1.3	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	each	10	0	582	593
	22.59.2	75x75x75x75 mm						
		22.59.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	436	444
		22.59.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	528	536
		22.59.2.3	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	each	8	0	314	322
22.60	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.							
	22.60.1	100x100x100 mm						
		22.60.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	483	493
		22.60.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	586	596
	22.60.2	75x75x75 mm						
		22.60.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	384	392
		22.60.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	444	452
22.61	Providing and fixing single equal plain junction of required degree :							
	22.61.1	100x100x100 mm						
		22.61.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	411	421
		22.61.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	539	549
		22.61.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	457	467
	22.61.2	75x75x75 mm						
		22.61.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	317	325
		22.61.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	377	385
		22.61.2.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	8	0	246	254
22.62	Providing and fixing double unequal junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete:							
	22.62.1	100x100x75x75 mm						
		22.62.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	820	830
		22.62.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	991	1001
22.63	Providing and fixing double unequal plain junction of required degree :							
	22.63.1	100x100x75x75 mm						
		22.63.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	702	713
		22.63.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	914	924
		22.63.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	457	467
22.64	Providing and fixing single unequal junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete :							
	22.64.1	100x100x75 mm						
		22.64.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	649	659
		22.64.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	751	762
22.65	Providing and fixing single unequal plain junction of required degree :							
	22.65.1	100x100x75 mm						
		22.65.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	564	574
		22.65.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	651	661
		22.65.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	428	439
22.66	Providing and fixing double equal plain invert branch of required degree:							
	22.66.1	100x100x100x100 mm						
		22.66.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	628	638
		22.66.1.2	Sand cast iron S&S as per IS 3989	each	10	0	605	616
		22.66.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	714	724
	22.66.2	75x75x75x75 mm						
		22.66.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	468	476
		22.66.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	485	493
22.67	Providing and fixing single equal plain invert branch of required degree :							
	22.67.1	100x100x100 mm						
		22.67.1.1	Sand cast iron S&S as per iron 1729	each	10	0	468	478
		22.67.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	485	496
		22.67.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	445	456
	22.67.2	75x75x75 mm						
		22.67.2.1	Sand cast iron S&S as per IS - 1729	each	21	0	365	387
		22.67.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	369	377
		22.67.2.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	8	0	297	305
22.68	Providing and fixing double unequal invert branch of required degree :							

	22.68.1	100x100x75x75 mm						
		22.68.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	651	661
		22.68.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	828	838
22.69	Providing and fixing single unequal plain invert branch of required degree :							
	22.69.1	100x100x75 mm						
		22.69.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	565	576
		22.69.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	622	633
		22.69.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	491	501
22.70	Providing and fixing sand cast iron S&S off sets as per IS: 1729							
	22.70.1	76 mm off sets						
		22.70.1.1	With 75 mm dia pipe	each	8	0	249	257
		22.70.1.2	With 100 mm dia pipe	each	8	0	415	423
	22.70.2	114 mm off sets						
		22.70.2.1	With 75 mm dia pipe	each	10	0	343	353
		22.70.2.2	With 100 mm dia pipe	each	10	0	437	448
	22.70.3	152 mm off sets						
		22.70.3.1	With 75 mm dia pipe	each	14	0	409	423
		22.70.3.2	With 100 mm dia pipe	each	14	0	520	533
22.71	Providing and fixing Hubless centrifugally cast iron offsets epoxy coated inside & outside as per IS:15905							
	22.71.1	65 mm offsets						
		22.71.1.1	With 100 mm dia pipe	each	8	0	411	419
		22.71.1.2	With 75 mm dia pipe	each	8	0	337	345
22.72	Providing and fixing sand cast iron S&S off sets as per IS: 3989 :							
	22.72.1	75 mm off sets						
		22.72.1.1	With 75 mm dia pipe	each	8	0	257	265
	22.72.2	150 mm off sets						
		22.72.2.1	With 75 mm dia pipe	each	11	0	325	337
		22.72.2.2	With 100 mm dia pipe	each	11	0	445	457
22.73	Providing and fixing Hubless centrifugally cast iron offsets epoxy coated inside & outside as per IS:15905							
	22.73.1	130 mm offsets						
		22.73.1.1	With 100 mm dia	each	10	0	502	513
		22.73.1.2	With 75 mm dia	each	8	0	354	362
22.74	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts & nuts complete :							
	22.74.1	100 mm						
		22.74.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	563	573
		22.74.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	477	488
	22.74.2	75 mm						
		22.74.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	341	349
		22.74.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	355	363
22.75	Providing and fixing terminal guard :							
	22.75.1	100 mm						
		22.75.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	273	283
		22.75.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	301	312
		22.75.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	308	319
	22.75.2	75 mm						
		22.75.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	218	226
		22.75.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	240	248
22.76	Providing and fixing collar :							
	22.76.1	100 mm						
		22.76.1.1	Sand cast iron S&S as per IS - 1729	each	10	0	281	291
		22.76.1.2	Sand cast iron S&S as per IS - 3989	each	10	0	319	329
	22.76.2	75 mm						
		22.76.2.1	Sand cast iron S&S as per IS - 1729	each	8	0	202	210
		22.76.2.2	Sand cast iron S&S as per IS - 3989	each	8	0	194	202
22.77	Providing and fixing shielded coupling for Hubless centrifugally cast iron pipe							
	22.77.1	100 mm dia						
		22.77.1.1	SS 304 grade coupling with EPDM rubber gasket	each	10	0	314	324
	22.77.2	75 mm dia						
		22.77.2.1	SS 304 grade coupling with EPDM rubber gasket	each	8	0	285	293
22.78	Providing lead caulked joints to sand cast iron/centrifugally cast (spun) iron pipes and fittings of diameter :							
	22.78.1	100 mm		each	75	0	163	238
	22.78.2	75 mm		each	60	0	145	205
	22.78.3	50 mm		each	48	0	123	171
22.79	Providing and fixing M.S. stays and clamps for sand cast iron/ centrifugally cast (spun) iron pipes of diameter :							
	22.79.1	100 mm		each	10	0	77	87
	22.79.2	75 mm		each	8	0	42	50
	22.79.3	50 mm		each	7	0	40	47
22.80	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :							
	22.80.1	100 mm inlet and 100 mm outlet						
		22.80.1.1	Sand cast iron S&S as per IS: 3989	each	364	0	526	890
		22.80.1.2	Sand Cast Iron S&S as per IS: 1729	each	364	0	322	686
		22.80.1.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	617	627
	22.80.2	100 mm inlet and 75 mm outlet						
		22.80.2.1	Sand cast iron S&S as per IS - 3989	each	466	0	584	1049
		22.80.2.2	Sand Cast Iron S&S as per IS- 1729	each	364	0	262	625
		22.80.2.3	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	each	10	0	440	450
22.81	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement : 3 coarse sand :6 graded stone aggregate 12.5 mm nominal size), including necessary plaster and pointing in cement mortar 1:4 (1 cement : 4 coarse sand) :							
	22.81.1	100 mm dia		metre	152	0	73	224
	22.81.2	75 mm dia		metre	109	0	50	159
	22.81.3	50 mm dia		metre	74	0	29	103

22.82	Cutting holes up to 30x30 cm in walls including making good the same:						
	22.82.1	With common burnt clay non-modular bricks	each	72	0	105	177
22.83	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete so as to make it leak proof.		each	130	0	7	136
22.84	Making hole up to 20x20 cm and embedding pipes up to 150 mm diameter in masonry and filling with cement concrete 1:3:6 (1 cement : 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) including disposal of malba.		metre	25	0	61	86
	C.P.V.C. PIPES						
22.85	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.						
	Internal work - Exposed on wall						
	22.85.1	15 mm nominal outer dia Pipes	metre	61	0	67	128
	22.85.2	20 mm nominal outer dia Pipes	metre	68	0	110	178
	22.85.3	25 mm nominal outer dia Pipes	metre	68	0	161	228
	22.85.4	32 mm nominal outer dia Pipes	metre	74	0	230	305
	22.85.5	40 mm nominal outer dia Pipes	metre	95	0	327	421
	22.85.6	50 mm nominal outer dia Pipes	metre	95	0	542	637
22.86	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.						
	Concealed work, including cutting chases and making good the walls etc.						
	22.86.1	15 mm nominal outer dia Pipes	metre	104	0	101	205
	22.86.2	20 mm nominal outer dia Pipes	metre	104	0	159	263
	22.86.3	25 mm nominal outer dia Pipes	metre	104	0	227	331
	22.86.4	32 mm nominal outer dia Pipes	metre	104	0	321	425
22.87	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge.						
	External work						
	22.87.1	15 mm nominal outer dia Pipes	metre	34	0	67	100
	22.87.2	20 mm nominal outer dia Pipes	metre	34	0	110	144
	22.87.3	25 mm nominal outer dia Pipes	metre	37	0	160	198
	22.87.4	32 mm nominal outer dia Pipes	metre	37	0	230	267
	22.87.5	40 mm nominal outer dia Pipes	metre	41	0	327	367
	22.87.6	50 mm nominal outer dia Pipes	metre	41	0	542	582
	22.87.7	62.50 mm nominal inner dia Pipes	metre	51	0	1158	1209
	22.87.8	75 mm nominal inner dia Pipes	metre	51	0	1507	1558
	22.87.9	100 mm nominal inner dia Pipes	metre	68	0	2153	2221
	22.87.10	150 mm nominal inner dia Pipes	metre	105	0	4528	4633
	GI PIPES						
22.88	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc.						
	Internal work - Exposed on wall						
	22.88.1	15 mm dia nominal bore	metre	55	0	113	167
	22.88.2	20 mm dia nominal bore	metre	61	0	148	209
	22.88.3	25 mm dia nominal bore	metre	68	0	211	279
	22.88.4	32 mm dia nominal bore	metre	74	0	271	345
	22.88.5	40 mm dia nominal bore	metre	95	0	314	409
	22.88.6	50 mm dia nominal bore	metre	115	0	389	504
22.89	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps, i/c making good the walls etc. concealed pipe, including painting with anti corrosive bitumastic paint, cutting chases and making good the wall :						
	22.89.1	15 mm dia nominal bore	metre	107	0	124	231
	22.89.2	20 mm dia nominal bore	metre	107	0	160	267
22.90	Making chases up to 7.5x7.5 cm in walls including making good and finishing with matching surface after housing G.I. pipe etc.		metre	50	0	11	61
22.91	Providing and fixing G.I. pipes complete with G.I. fittings including trenching upto 0.30m to 1.00m depth and refilling etc.						
	External work						
	22.91.1	15 mm dia nominal bore	metre	47	0	100	147
	22.91.2	20 mm dia nominal bore	metre	47	0	131	178
	22.91.3	25 mm dia nominal bore	metre	51	0	187	238
	22.91.4	32 mm dia nominal bore	metre	51	0	240	290
	22.91.5	40 mm dia nominal bore	metre	54	0	278	332
	22.91.6	50 mm dia nominal bore	metre	54	0	345	399
	22.91.7	65 mm dia nominal bore	metre	51	0	444	496
	22.91.8	80 mm dia nominal bore	metre	51	0	555	606
22.92	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :						
	22.92.1	25 to 40 mm nominal bore	each	209	0	78	287
	22.92.2	50 to 80 mm nominal bore	each	285	0	549	834
22.93	Providing and filling sand envelope of grading zone IV or coarser grade,100mm alround the G.I. pipes in external work :						
	22.93.1	15 mm diameter pipe	metre	3	0	85	88
	22.93.2	20 mm diameter pipe	metre	3	0	86	89
	22.93.3	25 mm diameter pipe	metre	3	0	88	92
	22.93.4	32 mm diameter pipe	metre	3	0	91	94
	22.93.5	40 mm diameter pipe	metre	3	0	92	95
	22.93.6	50 mm diameter pipe	metre	3	0	95	99
	22.93.7	65 mm diameter pipe	metre	5	0	151	156
	22.93.8	80 mm diameter pipe	metre	6	0	155	161
	22.93.9	100 mm diameter pipe	metre	6	0	164	170
	22.93.10	150 mm diameter pipe	metre	9	0	245	253
22.94	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New						
	22.94.1	15 mm nominal bore	each	70	0	53	122
	22.94.2	20 mm nominal bore	each	70	0	83	153

	22.94.3	25 mm nominal bore		each	70	0	138	208
	22.94.4	32 mm nominal bore		each	70	0	184	254
	22.94.5	40 mm nominal bore		each	70	0	247	316
	22.94.6	50 mm nominal bore		each	95	0	298	393
	22.94.7	65 mm nominal bore		each	95	0	629	724
	22.94.8	80 mm nominal bore		each	95	0	686	781
22.95	Fixing water meter and stop cock in G.I. pipe line including cutting and threading the pipe and making long screws etc. complete (cost of water meter and stop cock to be paid separately).			each	209	0	21	230
	BRASS FITTINGS							
22.96	Providing and fixing brass bib cock of approved quality :							
	22.96.1	15 mm nominal bore		each	7	0	240	247
	22.96.2	20 mm nominal bore		each	7	0	257	264
22.97	Providing and fixing brass stop cock of approved quality :							
	22.97.1	15 mm nominal bore		each	6	0	240	246
	22.97.2	20 mm nominal bore		each	7	0	257	264
22.98	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :							
	22.98.1	25 mm nominal bore		each	8	0	400	408
	22.98.2	20 mm nominal bore		each	7	0	371	378
	22.98.3	32 mm nominal bore.		each	9	0	468	477
	22.98.4	40 mm nominal bore		each	10	0	548	558
	22.98.5	50 mm nominal bore		each	11	0	708	719
	22.98.6	65 mm nominal bore		each	13	0	1233	1246
	22.98.7	80 mm nominal bore		each	14	0	1850	1864
22.99	Providing and fixing gun metal non- return valve of approved quality (screwed end) :							
	22.99.1	25 mm nominal bore						
		22.99.1.1	Horizontal	each	10	0	377	387
		22.99.1.2	Vertical	each	10	0	400	410
	22.99.2	32 mm nominal bore						
		22.99.2.1	Horizontal	each	11	0	514	525
		22.99.2.2	Vertical	each	11	0	571	582
	22.99.3	40 mm nominal bore						
		22.99.3.1	Horizontal	each	13	0	639	652
		22.99.3.2	Vertical	each	13	0	799	812
	22.99.4	50 mm nominal bore						
		22.99.4.1	Horizontal	each	14	0	936	950
		22.99.4.2	Vertical	each	14	0	1028	1041
22.100	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main :							
	22.100.1	15 mm nominal bore		each	30	0	160	190
	22.100.2	20 mm nominal bore		each	37	0	183	219
	22.100.3	25 mm nominal bore		each	41	0	251	292
22.101	Providing and fixing uplasticised PVC connection pipe with brass unions :							
	22.101.1	30 cm length						
		22.101.1.1	15 mm nominal bore	each	9	0	34	43
		22.101.1.2	20 mm nominal bore	each	9	0	40	49
	22.101.2	45 cm length						
		22.101.2.1	15 mm nominal bore	each	10	0	40	50
		22.101.2.2	20 mm nominal bore	each	10	0	55	65
22.102	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet :							
	22.102.1	100 mm diameter		each	5	0	114	119
	22.102.2	150 mm diameter		each	6	0	143	148
22.103	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :							
	22.103.1	15 mm nominal bore		each	16	0	240	256
	22.103.2	20 mm nominal bore		each	21	0	268	289
	22.103.3	25 mm nominal bore		each	25	0	263	288
	C.P. BRASS FITTINGS							
22.104	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931 :							
	22.104.1	15 mm nominal bore		each	9	0	331	340
22.105	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms.							
	22.105.1	15 mm nominal bore		each	13	0	491	504
22.106	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.							
	22.106.1	15 mm nominal bore		each	10	0	440	450
22.107	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.							
	22.107.1	15 mm nominal bore		each	9	0	491	500
22.108	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931							
	22.108.1	15mm nominal bore		each	9	0	428	437
22.109	Providing and fixing C.P. Brass extension nipple (size 15mmx50mm) of approved make and quality as per direction of Engineer-in-charge.			each	2	0	46	48
22.110	Providing & fixing chrome plated brass battery based infrared sensor operated pillar cock, having foam flow technology.							
	22.110.1	15 mm nominal bore		each	6	0	6623	6629
	PTMT FITTINGS							
22.111	Providing and fixing PTMT bib cock of approved quality and colour.							
	22.111.1	15mm nominal bore, 86 mm long, weighing not less than 88 gms		each	6	0	81	87
	22.111.2	15 mm nominal bore, 122mm long, weighing not less than 99 gms		each	6	0	120	126
	22.111.3	15 mm nominal bore, 165 mm long, weighing not less than 110 gms		each	6	0	132	139
	22.111.4	15 mm nominal bore, 90 mm long, weighing not less than 93 gms		each	6	0	176	183
22.112	Providing and fixing PTMT stop cock of approved quality and colour.							
	22.112.1	15 mm nominal bore, 86 mm long, weighing not less than 88 gms		each	6	0	81	87
	22.112.2	20 mm nominal bore, 89 mm long, weighing not less than 88 gms		each	6	0	111	117
	22.112.3	Concealed stop cock, 15 mm nominal bore, 108 mm long, weighing not less than 108 gms		each	6	0	152	159
22.113	Providing and fixing PTMT pillar cock of approved quality and colour.							
	22.113.1	15 mm nominal bore, 107 mm long, weighing not less than 110 gms		each	7	0	143	150

	22.113.2	15 mm nominal bore, 125 mm long foam flow, weighing not less than 120 gms		each	7	0	158	164
22.114	Providing and fixing PTMT, push cock of approved quality and colour.							
	22.114.1	15 mm nominal bore, 98 mm long, weighing not less than 75 gms		each	6	0	71	77
	22.114.2	15 mm nominal bore, 80 mm long, weighing not less than 46 gms		each	6	0	65	71
22.115	Providing and fixing PTMT Waste Coupling for wash basin and sink, of approved quality and colour.							
	22.115.1	Waste coupling 31 mm dia of 79 mm length and 62mm breadth weighing not less than 45 gms		each	16	0	39	55
	22.115.2	Waste coupling 38 mm dia of 83 mm length and 77mm breadth, weighing not less than 60 gms		each	16	0	55	71
22.116	Providing and fixing PTMT Bottle Trap for Wash basin and sink.							
	22.116.1	Bottle trap 31mm single piece moulded with height of 270 mm, effective length of tail pipe 260 mm from the centre of the waste coupling, 77 mm breadth with 25 mm minimum water seal, weighing not less than 260 gms		each	16	0	240	256
	22.116.2	Bottle trap 38 mm single piece moulded with height of 270 mm, effective length of tail pipe 260 mm from the centre of the waste coupling, 77 mm breadth with 25 mm minimum water seal, weighing not less than 263 gms		each	16	0	251	267
22.117	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour, weighing not less than 105 gms.			each	5	0	120	125
22.118	Providing and fixing PTMT towel ring trapezoidal shape 215 mm long, 200 mm wide with minimum distances of 37 mm from wall face with concealed fittings arrangement of approved quality and colour, weighing not less than 88 gms.			each	16	0	148	164
22.119	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour.							
	22.119.1	450 mm long towel rail with total length of 495 mm, 78 mm wide and effective height of 88 mm, weighing not less than 170 gms		each	104	0	214	319
	22.119.2	600 mm long towel rail with total length of 645 mm, width 78 mm and effective height of 88 mm, weighing not less than 190 gms.		each	104	0	249	353
22.120	Providing and fixing PTMT shelf 440 mm long, 124 mm width and 36 mm height of approved quality and colour, weighing not less than 300 gms.			each	104	0	289	393
22.121	Providing and fixing PTMT 15 mm Urinal spreader size 95x69x100 mm with 1/2" BSP thread and shapes, weighing not less than 60 gms.			each	6	0	87	92
22.122	Providing and fixing PTMT urinal cock of approved quality and colour.							
	22.122.1	15 mm nominal bore, 80 mm long, 42 mm high and 30mm wide with BSP female threads weighing not less than 48 gms		each	6	0	122	127
22.123	Providing and fixing PTMT grating of approved quality and colour.							
	22.123.1	Circular type						
		22.123.1.1	100 mm nominal dia	each	3	0	23	26
		22.123.1.2	125 mm nominal dia with 25 mm waste hole	each	3	0	34	38
	22.123.2	Rectangular type with openable circular lid						
		22.123.2.1	150 mm nominal size square 100 mm diameter of the inner hinged round grating	each	3	0	135	138
22.124	Providing and fixing PTMT Ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./ H.P.H.D. plastic ball.							
	22.124.1	15 mm nominal bore, 105 mm long, weighing not less than 138 gms		each	16	0	114	130
	22.124.2	20 mm nominal bore, 120 mm long, weighing not less than 198 gms		each	21	0	154	175
	22.124.3	25 mm nominal bore, 152mm long, weighing not less than 440 gms		each	25	0	331	356
	22.124.4	40 mm nominal bore, 206mm long, weighing not less than 690 gms		each	25	0	548	573
	22.124.5	50 mm nominal bore, 242mm long, weighing not less than 1240 gms		each	25	0	993	1019
22.125	Providing and fixing PTMT angle stop cock 15 mm nominal bore, weighing not less than 85 gms			each	6	0	114	120
22.126	Providing and fixing PTMT swivelling shower, 15 mm nominal bore, weighing not less than 40 gms			each	5	0	80	85
22.127	Providing and fixing PTMT soap Dish Holder having length of 138mm, breadth 102mm, height of 75mm with concealed fitting arrangements, weighing not less than 106 gms.			each	5	0	96	100
22.128	Providing and fixing unplasticised P.V.C. connection pipe with PTMT Nuts, collar and bush of approved quality and colour.							
	22.128.1	15 mm nominal bore with 30cm length		each	9	0	53	62
	22.128.2	15 mm nominal bore with 45 cm length		each	10	0	65	75
22.129	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.							
	22.129.1	15 mm nominal bore, weighing not less than 32 gms		each	2	0	34	37
	22.129.2	20 mm nominal bore, weighing not less than 40 gms		each	3	0	62	65
	22.129.3	25mm nominal bore, weighing not less than 62 gms		each	3	0	89	92
	STAINLESS STEEL PIPES & FITTINGS							
22.130	Providing and fixing Stainless Steel pipe and fitting of grade AISI 304 as per JIS standard 3448 complete with press type fitting (fitting shall be paid for separately) i/c fixing of the pipe with clamps at 1.00 m spacing including cutting and making good the walls including testing of joints complete as per direction of Engineer-in-charge. (The pipe length inserted in the fitting shall not be measured for payment)							
	Inernal work - Exposed on wall							
	22.130.1	15.88 mm outer dia pipe		metre	55	0	156	211
	22.130.2	22.22 mm outer dia Pipe		metre	55	0	292	346
	22.130.3	28.58 mm outer dia Pipe		metre	55	0	356	411
	22.130.4	34.00 mm outer dia Pipe		metre	55	0	508	562
	22.130.5	42.70 mm outer dia Pipe		metre	55	0	529	584
	22.130.6	48.60 mm outer dia Pipe		metre	55	0	732	787
22.131	Providing and fixing Stainless Steel pipe and fitting of grade AISI 304 as per JIS standard 3448 complete with press type fitting (fitting shall be paid for separately) i/c fixing of the pipe with clamps at 1.00m spacing and also including cutting of chases and making good the walls including testing of joints complete as per direction of Engineer -in-charge. (The pipe length inserted in the fitting shall not be measured for payment)							
	Internal work - Concealed Pipe							
	22.131.1	15.88 mm outer dia .Pipes.		metre	104	0	167	271
	22.131.2	22.22 mm Outer dia pipes		metre	104	0	303	407
22.132	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.							
	Coupling/Socket							
	22.132.1	For 15.88 mm outer dia pipe		each	0	0	67	67
	22.132.2	For 22.22 mm outer dia pipe		each	0	0	72	72
	22.132.3	For 28.58 mm outer dia pipe		each	0	0	102	102
	22.132.4	For 34.00 mm outer dia pipe		each	0	0	150	150
	22.132.5	For 42.70 mm outer dia pipe		each	0	0	180	180
	22.132.6	For 48.60 mm outer dia pipe		each	0	0	206	206
22.133	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per dirction of Engineer-in-charge.							
	Reducer							

	22.133.1	For 22.22 mm x 15.88 mm outer dia pipe	each	0	0	118	118
	22.133.2	For 28.58 mm x 15.88 mm outer dia pipe	each	0	0	161	161
	22.133.3	For 28.58 mm x 22.22 mm outer dia pipe	each	0	0	166	166
	22.133.4	For 34.00 mm x 15.88 mm outer dia pipe	each	0	0	210	210
	22.133.5	For 34.00 mm x 22.22 mm outer dia pipe	each	0	0	214	214
	22.133.6	For 34.00 mm x 28.58 mm outer dia pipe	each	0	0	217	217
	22.133.7	For 42.70 mm x 15.88 mm outer dia pipe	each	0	0	410	410
	22.133.8	For 42.70 mm x 22.22 mm outer dia pipe	each	0	0	413	413
	22.133.9	For 42.70 mm x 28.58 mm outer dia pipe	each	0	0	413	413
	22.133.10	For 42.70 mm x 34.00 mm outer dia pipe	each	0	0	442	442
	22.133.11	For 48.60 mm x 15.88 mm outer dia pipe	each	0	0	468	468
	22.133.12	For 48.60 mm x 22.22 mm outer dia pipe	each	0	0	468	468
	22.133.13	For 48.60 mm x 28.58 mm outer dia pipe	each	0	0	468	468
	22.133.14	For 48.60 mm x 34.00 mm outer dia pipe	each	0	0	468	468
	22.133.15	For 48.60 mm x 42.70 mm outer dia pipe	each	0	0	468	468
22.134	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Slip Coupling/ Socket						
	22.134.1	For 15.88 mm outer dia pipe	each	0	0	54	54
	22.134.2	For 22.22 mm outer dia pipe	each	0	0	72	72
	22.134.3	For 28.58 mm outer dia pipe	each	0	0	102	102
	22.134.4	For 34.00 mm outer dia pipe	each	0	0	150	150
	22.134.5	For 42.70 mm outer dia pipe	each	0	0	180	180
	22.134.6	For 48.60 mm outer dia pipe	each	0	0	194	194
22.135	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Elbow 90°						
	22.135.1	For 15.88mm outer dia pipe	each	0	0	66	66
	22.135.2	For 22.22 mm outer dia pipe	each	0	0	72	72
	22.135.3	For 28.58 mm outer dia pipe	each	0	0	110	110
	22.135.4	For 34.00 mm outer dia pipe	each	0	0	124	124
	22.135.5	For 42.70 mm outer dia pipe	each	0	0	132	132
	22.135.6	For 48.60 mm outer dia pipe	each	0	0	171	171
22.136	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Reducing Elbow 90°						
	22.136.1	For22.22 mm x 15.88 mm outer dia pipe	each	0	0	169	169
	22.136.2	For 28.58 mm x 15.88 mm outer dia pipe	each	0	0	218	218
	22.136.3	For 28.58 mm x 22.22 mm outer dia pipe	each	0	0	252	252
	22.136.4	For 34.00 mm x 22.22 mm outer dia pipe	each	0	0	328	328
	22.136.5	For 34.00 mm x 28.58 mm outer dia pipe	each	0	0	394	394
	22.136.6	For 42.70 mm x 34.00 mm outer dia pipe	each	0	0	204	204
22.137	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Equal Tee						
	22.137.1	For 15.88 mm outer dia pipe	each	0	0	182	182
	22.137.2	For 22.22 mm outer dia pipe	each	0	0	264	264
	22.137.3	For 28.58 mm outer dia pipe	each	0	0	312	312
	22.137.4	For 34.00 mm outer dia pipe	each	0	0	499	499
	22.137.5	For 42.70 mm outer dia pipe	each	0	0	780	780
	22.137.6	For 48.60 mm outer dia pipe	each	0	0	1013	1013
22.138	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Reducing Tee						
	22.138.1	For 22.22 mm x 15.88 mm outer dia pipe	each	0	0	204	204
	22.138.2	For 28.58 mm x 15.88 mm outer dia pipe	each	0	0	312	312
	22.138.3	For 28.58 mm x 22.22 mm outer dia pipe	each	0	0	312	312
	22.138.4	For 34.00 mm x 15.88 mm outer dia pipe	each	0	0	499	499
	22.138.5	For 34.00 mm x 22.22 mm outer dia pipe	each	0	0	499	499
	22.138.6	For 34.00 mm x 28.58 mm outer dia pipe	each	0	0	499	499
	22.138.7	For 42.70 mm x 15.88 mm outer dia pipe	each	0	0	780	780
	22.138.8	For 42.70 mm x 22.22 mm outer dia pipe	each	0	0	780	780
	22.138.9	For 42.70 mm x 28.58 mm outer dia pipe	each	0	0	780	780
	22.138.10	For 42.70 mm x 34.00 mm outer dia pipe	each	0	0	780	780
	22.138.11	For 48.60 mm x 15.88 mm outer dia pipe	each	0	0	1013	1013
	22.138.12	For 48.60 mm x 22.22 mm outer dia pipe	each	0	0	1013	1013
	22.138.13	For 48.60 mm x 28.58 mm outer dia pipe	each	0	0	1013	1013
	22.138.14	For 48.60 mm x 34.00 mm outer dia pipe	each	0	0	1013	1013
	22.138.15	For 48.60 mm x 42.70 mm outer dia pipe	each	0	0	1013	1013
22.139	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Male Thread Tee						
	22.139.1	For 15.88 mm outer dia x 15 mm nominal dia threaded	each	0	0	204	204
	22.139.2	For 22.22 mm outer dia x 15 mm nominal dia threaded	each	0	0	228	228
	22.139.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	234	234
	22.139.4	For 28.58 mm outer dia x 15 mm nominal dia threaded	each	0	0	312	312
	22.139.5	For 28.58 mm outer dia x 20 mm nominal dia threaded	each	0	0	312	312
	22.139.6	For 28.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	312	312
	22.139.7	For 34.00 mm outer dia x 15 mm nominal dia threaded	each	0	0	499	499
	22.139.8	For 34.00 mm outer dia x 20 mm nominal dia threaded	each	0	0	499	499

	22.139.9	For 34.00 mm outer dia x 25 mm nominal dia threaded	each	0	0	499	499
	22.139.10	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	499	499
	22.139.11	For 42.70 mm outer dia x 15 mm nominal dia threaded	each	0	0	780	780
	22.139.12	For 42.70 mm outer dia x 20 mm nominal dia threaded	each	0	0	780	780
	22.139.13	For 42.70 mm outer dia x 25 mm nominal dia threaded	each	0	0	780	780
	22.139.14	For 42.70 mm outer dia x 32 mm nominal dia threaded	each	0	0	780	780
	22.139.15	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	780	780
	22.139.16	For 48.60 mm outer dia x 15 mm nominal dia threaded	each	0	0	1013	1013
	22.139.17	For 48.60 mm outer dia x 20 mm nominal dia threaded	each	0	0	1013	1013
	22.139.18	For 48.60 mm outer dia x 25 mm nominal dia threaded	each	0	0	1013	1013
	22.139.19	For 48.60 mm outer dia x 32 mm nominal dia threaded	each	0	0	1013	1013
	22.139.20	For 48.60 mm outer dia x 40 mm nominal dia threaded	each	0	0	1013	1013
	22.139.21	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	1013	1013
22.140	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Female Thread Tee						
	22.140.1	For 15.88 mm outer dia x15 mm nominal dia threaded	each	0	0	204	204
	22.140.2	For 22.22 mm outer dia x 15 mm nominal dia threaded	each	0	0	228	228
	22.140.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	228	228
	22.140.4	For 28.58 mm outer dia x 15 mm nominal dia threaded	each	0	0	312	312
	22.140.5	For 28.58 mm outer dia x 20 mm nominal dia threaded	each	0	0	312	312
	22.140.6	For 28.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	312	312
	22.140.7	For 34.00 mm outer dia x 15 mm nominal dia threaded	each	0	0	499	499
	22.140.8	For 34.00 mm outer dia x 20 mm nominal dia threaded	each	0	0	499	499
	22.140.9	For 34.00 mm outer dia x 25 mm nominal dia threaded	each	0	0	499	499
	22.140.10	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	499	499
	22.140.11	For 42.70 mm outer dia x 15 mm nominal dia threaded	each	0	0	780	780
	22.140.12	For 42.70 mm outer dia x 20 mm nominal dia threaded	each	0	0	780	780
	22.140.13	For 42.70 mm outer dia x 25 mm nominal dia threaded	each	0	0	780	780
	22.140.14	For 42.70 mm outer dia x 32 mm nominal dia threaded	each	0	0	780	780
	22.140.15	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	780	780
	22.140.16	For 48.60 mm outer dia x 15 mm nominal dia threaded	each	0	0	1013	1013
	22.140.17	For 48.60 mm outer dia x 20 mm nominal dia threaded	each	0	0	1013	1013
	22.140.18	For 48.60 mm outer dia x 25 mm nominal dia threaded	each	0	0	1013	1013
	22.140.19	For 48.60 mm outer dia x 32 mm nominal dia threaded	each	0	0	1013	1013
	22.140.20	For 48.60 mm outer dia x 40 mm nominal dia threaded	each	0	0	1013	1013
	22.140.21	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	1013	1013
22.141	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Female Thread Connector/ Adapter						
	22.141.1	For 15.88 mm outer dia x 15 mm nominal dia threaded	each	0	0	217	217
	22.141.2	For 22.22 mm outer dia x 15 mmnominal dia threaded	each	0	0	263	263
	22.141.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	271	271
	22.141.4	For 28.58 mm outer dia x 15 mm nominal dia threaded	each	0	0	316	316
	22.141.5	For 28.58 mm outer dia x 20 mm nominal dia threaded	each	0	0	327	327
	22.141.6	For 28.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	385	385
	22.141.7	For 34.00 mm outer dia x 25 mm nominal dia threaded	each	0	0	467	467
	22.141.8	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	614	614
	22.141.9	For 42.70 mm outer dia x 32 mm nominal dia threaded	each	0	0	658	658
	22.141.10	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	778	778
	22.141.11	For 48.60 mm outer dia x 40 mm nominal dia threaded	each	0	0	957	957
	22.141.12	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	1102	1102
22.142	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Male Thread Connector/ Adapter						
	22.142.1	For 15.88 mm outer dia x 15 mm nominal dia threaded	each	0	0	220	220
	22.142.2	For 22.22 mm outer dia x 15 mm nominal dia threaded	each	0	0	259	259
	22.142.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	283	283
	22.142.4	For 28.58 mm outer dia x 20 mm nominal dia threaded	each	0	0	357	357
	22.142.5	For 28.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	365	365
	22.142.6	For 34.00 mm outer dia x 25 mm nominal dia threaded	each	0	0	526	526
	22.142.7	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	645	645
	22.142.8	For 42.70 mm outer dia x 32 mm nominal dia threaded	each	0	0	741	741
	22.142.9	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	829	829
	22.142.10	For 48.60 mm outer dia x 40 mm nominal dia threaded	each	0	0	959	959
	22.142.11	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	1300	1300
22.143	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Valve Connector						
	22.143.1	For 15.88 mm outer dia x 15 mm nominal dia threaded	each	0	0	267	267
	22.143.2	For 22.22 mm outer dia x 15 mm nominal dia threaded	each	0	0	315	315
	22.143.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	337	337
	22.143.4	For 28.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	484	484
	22.143.5	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	718	718
	22.143.6	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	999	999
	22.143.7	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	1343	1343
22.144	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Female Threaded Elbow 90°						
	22.144.1	For 15.88 mm outer dia x 15 mm nominal dia threaded	each	0	0	171	171

	22.144.2	For 22.22 mm outer dia x 15 mm nominal dia threaded	each	0	0	218	218
	22.144.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	218	218
	22.144.4	For 25.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	234	234
	22.144.5	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	328	328
	22.144.6	For 42.70 mm outer dia x 32 mm nominal dia threaded	each	0	0	546	546
	22.144.7	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	546	546
	22.144.8	For 48.60 mm outer dia x 40 mm nominal dia threaded	each	0	0	780	780
	22.144.9	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	780	780
22.145	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Male Threaded Elbow 90°						
	22.145.1	For 15.88 mm outer dia x 15 mm nominal dia threaded	each	0	0	218	218
	22.145.2	For 22.22 mm outer dia x 15 mm nominal dia threaded	each	0	0	234	234
	22.145.3	For 22.22 mm outer dia x 20 mm nominal dia threaded	each	0	0	234	234
	22.145.4	For 28.58 mm outer dia x 25 mm nominal dia threaded	each	0	0	234	234
	22.145.5	For 34.00 mm outer dia x 25 mm nominal dia threaded	each	0	0	328	328
	22.145.6	For 34.00 mm outer dia x 32 mm nominal dia threaded	each	0	0	328	328
	22.145.7	For 42.70 mm outer dia x 32 mm nominal dia threaded	each	0	0	546	546
	22.145.8	For 42.70 mm outer dia x 40 mm nominal dia threaded	each	0	0	546	546
	22.145.9	For 48.60 mm outer dia x 40 mm nominal dia threaded	each	0	0	780	780
	22.145.10	For 48.60 mm outer dia x 50 mm nominal dia threaded	each	0	0	780	780
22.146	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Cap						
	22.146.1	For 15.88 mm outer dia pipe	each	0	0	51	51
	22.146.2	For 22.22 mm outer dia pipe	each	0	0	73	73
	22.146.3	For 28.58 mm outer dia pipe	each	0	0	96	96
	22.146.4	For 34.00 mm outer dia pipe	each	0	0	186	186
	22.146.5	For 42.70 mm outer dia pipe	each	0	0	269	269
	22.146.6	For 48.60 mm outer dia pipe	each	0	0	341	341
22.147	Providing and fixing required Stainless Steel Fitting of press fit design of grade AISI 304 conforming to JWWA G116 standard with V-profile or M-profile and with O-ring sealing gasket of EPDM material of required dia as per direction of Engineer-in-charge.						
	Pipe Bridge						
	22.147.1	For 15.88 mm outer dia pipe	each	0	0	244	244
	22.147.2	For 22.22 mm outer dia pipe	each	0	0	309	309
	22.147.3	For 28.58 mm outer dia pipe	each	0	0	465	465
	CI/DUCTILE IRON PIPES AND SPECIALS						
22.148	Laying in position centrifugally cast (spun) iron S&S or flanged pipes (excluding cost of pipe).		quintal	83	0	0	83
22.149	Laying in position S&S or flanged C.I. special such as tees, bends, collars, tapers and caps etc.(excluding cost of specials).		quintal	170	0	0	170
22.150	Providing and laying S&S C.I. standard specials such as tees, bends, collars, tapers, caps etc. (Heavy class):						
	22.150.1	Up to 300 mm dia	quintal	170	0	4122	4292
22.151	Providing and laying flanged C.I. standard specials such as tees, bends, collars, tapers, caps etc., suitable for flanged jointing as per IS : 1538 :						
	22.151.1	Up to 300 mm dia	quintal	170	0	6291	6461
22.152	Providing and laying S&S centrifugally cast (spun) iron pipes (Class LA) conforming to IS - 1536 :						
	22.152.1	100 mm dia pipe	metre	16	0	786	802
	22.152.2	125 mm dia pipe	metre	21	0	979	1000
	22.152.3	150 mm dia pipe	metre	27	0	1179	1206
	22.152.4	200 mm dia pipe	metre	39	0	2008	2047
	22.152.5	250 mm dia pipe	metre	53	0	2621	2673
	22.152.6	300 mm dia pipe	metre	68	0	3537	3605
22.153	Providing lead caulked joints to spun iron or C.I. pipes and specials, including testing of joints but excluding the cost of pig lead :						
	22.153.1	100 mm diameter pipe	each	125	0	29	153
	22.153.2	125 mm diameter pipe	each	187	0	38	225
	22.153.3	150 mm diameter pipe	each	187	0	43	230
	22.153.4	200 mm diameter pipe	each	249	0	55	305
	22.153.5	250 mm diameter pipe	each	312	0	69	381
	22.153.6	300 mm diameter pipe	each	374	0	86	460
22.154	Supplying pig lead at site of work.		quintal	0	0	14856	14856
22.155	Providing flanged joints to double flanged C.I./ D.I. pipes and specials, including testing of joints :						
	22.155.1	80 mm diameter pipe	each	29	0	69	98
	22.155.2	100 mm diameter pipe	each	41	0	121	163
	22.155.3	125 mm diameter pipe	each	41	0	133	174
	22.155.4	150 mm diameter pipe	each	48	0	160	208
	22.155.5	200 mm diameter pipe	each	48	0	184	232
	22.155.6	250 mm diameter pipe	each	60	0	265	325
	22.155.7	300 mm diameter pipe	each	60	0	271	331
22.156	Labour for cutting C.I. pipe with steel saw.						
	22.156.1	80 mm diameter C.I. pipe	each	39	0	0	39
	22.156.2	100 mm diameter C.I. pipe	each	53	0	0	53
	22.156.3	125 mm diameter C.I. pipe	each	73	0	0	73
	22.156.4	150 mm diameter C.I. pipe	each	99	0	0	99
	22.156.5	200 mm diameter C.I. pipe	each	132	0	0	132
	22.156.6	250 mm diameter C.I. pipe	each	164	0	0	164
	22.156.7	300 mm diameter C.I. pipe	each	197	0	0	197
22.157	Providing and laying S&S C.I. Standard specials such as tees, bends, collars tapers and caps etc, suitable for flanged jointing as per IS : 1538 :						
	22.157.1	Up to 300 mm dia	quintal	170	0	4752	4922
	22.157.2	Above 300 mm dia	quintal	170	0	7556	7726
22.158	Providing push-on-joints to Centrifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes including testing of joints and the cost of rubber gasket :						

	22.158.1	100 mm dia pipes		each	21	0	26	47
	22.158.2	150 mm dia pipes		each	37	0	33	71
	22.158.3	200 mm dia pipes		each	50	0	57	107
	22.158.4	250 mm dia pipes		each	62	0	67	130
	22.158.5	300 mm dia pipes		each	75	0	100	175
22.159	Providing and laying Double Flanged (screwed / welded) Centrifugally (Spun) Cast Iron, Class B (IS : 1536) :							
	22.159.1	100 mm dia C.I. Double Flanged Pipe		metre	22	0	1199	1222
	22.159.2	150 mm dia C.I. Double Flanged Pipe		metre	37	0	1875	1912
	22.159.3	200 mm dia C.I. Double Flanged Pipe		metre	53	0	2965	3018
	22.159.4	250 mm dia C.I. Double Flanged Pipe		metre	71	0	3578	3649
	22.159.5	300 mm dia C.I. Double Flanged Pipe		metre	91	0	4571	4663
22.160	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS : 8329 :							
	22.160.1	100 mm dia Ductile Iron Class K-7 pipes		metre	13	0	928	940
	22.160.2	150 mm dia Ductile Iron Class K-7 pipes		metre	19	0	1046	1065
	22.160.3	200 mm dia Ductile Iron Class K-7 pipes		metre	25	0	1286	1311
	22.160.4	250 mm dia Ductile Iron Class K-7 pipes		metre	33	0	1655	1687
	22.160.5	300 mm dia Ductile Iron Class K-7 pipes		metre	40	0	2068	2108
22.161	Providing and laying Double Flanged (Screwed/ Welded) Centrifugally (Spun) Ductile Iron Pipes of Class K - 9 conforming to IS : 8329 :							
	22.161.1	100 mm dia Ductile Iron Double Flanged		metre	18	0	1008	1026
	22.161.2	150 mm dia Ductile Iron Double Flanged		metre	27	0	1512	1539
	22.161.3	200 mm dia Ductile Iron Double Flanged		metre	37	0	1976	2013
	22.161.4	250 mm dia Ductile Iron Double Flanged		metre	49	0	2705	2755
	22.161.5	300 mm dia Ductile Iron Double Flanged		metre	63	0	3475	3538
	C.I. SLUICE VALVES/ FIRE HYDRANTS & FIXTURES							
22.162	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately) :							
	22.162.1	100 mm diameter						
		22.162.1.1	Class I	each	158	0	4807	4965
		22.162.1.2	Class II	each	178	0	2715	2894
	22.162.2	125 mm diameter						
		22.162.2.1	Class I	each	178	0	5171	5349
		22.162.2.2	Class II	each	199	0	3196	3395
	22.162.3	150 mm diameter						
		22.162.3.1	Class I	each	218	0	7382	7600
		22.162.3.2	Class II	each	242	0	3984	4226
	22.162.4	200 mm diameter						
		22.162.4.1	Class I	each	302	0	11624	11926
		22.162.4.2	Class II	each	351	0	8515	8866
	22.162.5	250 mm diameter						
		22.162.5.1	Class I	each	426	0	18199	18624
		22.162.5.2	Class II	each	511	0	13802	14313
	22.162.6	300 mm diameter						
		22.162.6.1	Class I	each	532	0	22048	22580
		22.162.6.2	Class II	each	636	0	17201	17837
	STONE WARE PIPES AND FITTINGS							
22.163	Providing, laying and jointing glazed stoneware pipes class SP-1 with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :							
	22.163.1	100 mm diameter		metre	60	0	169	230
	22.163.2	150 mm diameter		metre	84	0	267	351
	22.163.3	200 mm diameter		metre	97	0	346	443
	22.163.4	250 mm diameter		metre	122	0	530	652
	22.163.5	300 mm diameter		metre	134	0	760	895
22.164	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design :							
	22.164.1	100 mm diameter S.W. pipe		metre	163	0	328	491
	22.164.2	150 mm diameter S.W. pipe		metre	200	0	401	601
	22.164.3	200 mm diameter S.W. pipe		metre	233	0	467	700
	22.164.4	250 mm diameter S.W. pipe		metre	269	0	541	810
22.165	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design :							
	22.165.1	100 mm diameter S.W. pipe		metre	78	0	156	233
	22.165.2	150 mm diameter S.W. pipe		metre	126	0	253	378
	22.165.3	200 mm diameter S.W. pipe		metre	148	0	297	445
	22.165.4	250 mm diameter S.W. pipe		metre	172	0	346	518
	22.165.5	300 mm diameter S.W. pipe		metre	199	0	399	597
22.166	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:							
	22.166.1	100x100 mm size P type						
		22.166.1.1	With common burnt clay non-modular bricks of class designation 7.5	each	245	0	1571	1815
		22.166.1.2	With Sewer bricks conforming to IS : 4885	each	229	0	1463	1692
	22.166.2	150 x 100 mm size P type						
		22.166.2.1	With common burnt clay non-modular bricks of class designation 7.5	each	235	0	1600	1834
		22.166.2.2	With sewer bricks conforming to IS : 4885	each	219	0	1492	1711
	22.166.3	180x150 mm size P type						
		22.166.3.1	With common burnt clay non-modular bricks of class designation 7.5	each	219	0	1710	1930
		22.166.3.2	With Sewer bricks conforming to IS : 4885	each	204	0	1603	1806
22.167	Providing and fixing S.W. intercepting trap in manholes with stiff mixture of cement mortar 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete :							
	22.167.1	100 mm dia		each	36	0	226	262
	22.167.2	150 mm dia		each	52	0	299	352
22.168	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :							
	22.168.1	100 mm dia. R.C.C. pipe		metre	48	0	203	251

	22.168.2	150 mm dia. R.C.C. pipe	metre	58	0	221	279
	22.168.3	250 mm dia. R.C.C. pipe	metre	89	0	366	455
	22.168.4	300 mm dia. R.C.C. pipe	metre	87	0	487	574
	22.168.5	450 mm dia. R.C.C. pipe	metre	112	0	837	949
22.169	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete						
	22.169.1	450 mm dia RCC pipes.	metre	93	0	1893	1986
	22.169.2	600 mm dia RCC pipes.	metre	90	0	2745	2835
	22.169.3	900 mm dia RCC pipes.	metre	134	0	4380	4514
22.170	Providing and laying Non Pressure NP-4 class (Heavy duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete						
	22.170.1	450 mm dia RCC pipes.	metre	93	0	2017	2111
	22.170.2	600 mm dia RCC pipes.	metre	90	0	2694	2784
	22.170.3	900 mm dia RCC pipes.	metre	134	0	5216	5350
	SOAK PITS						
22.171	Making soak pit 2.5 m diameter 3.0 metre deep with 45 x 45 cm dry brick honey comb shaft with bricks and S.W. drain pipe 100 mm diameter, 1.8m long complete as per standard design.						
	22.171.1	With common burnt clay non-modular bricks of class designation 7.5	each	3807	0	13071	16878
22.172	Constructing soak pit 1.20x1.20x1.20 m filled with brickbats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.		each	341	0	1307	1648
	MASONRY CHAMBERS						
22.173	Constructing masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement :4 coarse sand) for stop cock, with C. I. surface box 100x100 x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick, finished with a floating coat of neat cement complete as per standard design :						
	22.173.1	With common burnt clay non-modular bricks of class designation 7.5	each	213	0	833	1046
22.174	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :						
	22.174.1	With common burnt clay non-modular bricks of class designation 7.5	each	1720	0	4940	6661
22.175	Constructing masonry Chamber 90x90x100 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :						
	22.175.1	With common burnt clay non-modular bricks of class designation 7.5	each	3081	0	8434	11514
22.176	Constructing masonry Chamber 120x120x100 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :						
	22.176.1	With common burnt clay non-modular bricks of class designation 7.5	each	4383	0	11341	15724
22.177	Constructing masonry Chamber 60x60x75 cm, inside in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for fire hydrants, with C.I. surface box 350x350 mm top and 165 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand:10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :						
	22.177.1	With common burnt clay non-modular bricks of class designation 7.5	each	1645	0	4668	6312
22.178	Constructing masonry Chamber 60x45x50 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for water meter complete with C.I. double flap surface box 400x200x200 mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand:10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :						
	22.178.1	With common burnt clay non-modular bricks of class designation 7.5	each	1518	0	4279	5797
22.179	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:5:10 fine sand : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design:						
	22.179.1	Inside dimensions 455x610 mm and 45 cm deep for single pipe line :					
		22.179.1.1 With common burnt clay non-modular bricks of class designation 7.5	each	839	0	3545	4384
	22.179.2	Inside dimensions 500x700 mm and 45 cm deep for pipe line with one or two inlets :					
		22.179.2.1 With common burnt clay non-modular bricks of class designation 7.5	each	952	0	4097	5050
	22.179.3	Inside dimensions 600x 850 mm and 45 cm deep for pipe line with three or more inlets :					
		22.179.3.1 With common burnt clay non-modular bricks of class designation 7.5	each	1126	0	4671	5797
22.180	Extra for depth beyond 45 cm of brick masonry chamber :						
	22.180.1	For 455x610 mm size					
		22.180.1.1 With common burnt clay non-modular bricks of class designation 7.5	metre	802	0	3469	4271
	22.180.2	For 500x700 mm size					
		22.180.2.1 With common burnt clay non-modular bricks of class designation 7.5	metre	880	0	3773	4653
	22.180.3	For 600x850 mm size					
		22.180.3.1 With common burnt clay non-modular bricks of class designation 7.5	metre	1032	0	4377	5409
	LOFT AND TERRACE WATER TANKS						
22.181	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, IS : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.		litre	0	0	7	7
22.182	Providing and fixing rectangular high density polyethylene water storage loft tank with cover, conforming to ISI : 12701, colour of opaque white or as approved by Engineer-in-charge. The rate includes making necessary holes for inlet, outlet & over flow pipes. The base support i/c fittings & fixtures for tank shall be paid separately.		litre	0	0	7	7

22.183	Labour only for fixing in position mild steel storage tanks (to be supplied by the Engineer-in-charge-Ex-Store) including hoisting etc. and carriage from store to site of work complete with providing and fixing and 15 mm or 20 mm internal diameter flanges for inlet and outlet. 25 mm for overerflow and 40 mm for scour pipe including 25 mm brass perforated masquito proof cap for overflow and plug for scour pipe and labour for making pipe connections and small masonry supports on the top of the roof where these tanks are to be fixed complete in all respects including cutting and making good the walls and floors etc.							
	22.183.1	Tank made out of 3.00 mm thick plates :						
		22.183.1.1	Upto 275 litres capacity	each	793	0	961	1754
		22.183.1.2	More than 275 litres capacity	each	793	0	987	1780
	22.183.2	Tank made out of 3.00 mm thick plates with 40 mm x 40 mm angle iron frame : -						
		22.183.2.1	Upto 680 litres capacity	each	832	0	1065	1896
		22.183.2.2	Greater than 680 litres upto 910 litres capacity	each	871	0	1143	2013
		22.183.2.3	More than 910 litres capacity	each	910	0	1182	2091
22.184	Labour only for fixing in position pressed steel storage tanks capacity as given below (to be supplied by the Department Ex-Stores in unassembled condition) including carriage from stores to site of work, hoisting and placing the tanks in position assembling, making inlet, outlet scour and overflow connections including providing and fixing in position brass perforated cap for overflow and plug for scour pipe and small masonry supports on the roof where these tanks are to be fixed complete in all respects including cutting and making good the walls and floors etc.							
	22.184.1	1800 Litres capacity		each	1296	0	1402	2698
	22.184.2	3600 Litres capacity		each	2127	0	1449	3576
	22.184.3	5400 Litres capacity		each	2836	0	1620	4456
	22.184.4	7200 Litres capacity		each	3789	0	1792	5581
	AIR VALVE & WATER METER (BULK TYPE)							
22.185	Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc if required will be paid separately) :							
	22.185.1	50 mm dia		each	32	0	4313	4345
	22.185.2	80 mm dia		each	32	0	5238	5270
	22.185.3	100 mm dia		each	45	0	6751	6796
22.186	Providing and fixing enclosed type water meter (bulk type) conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber insertions etc. (The tail pieces if required will be paid separately) :							
	22.186.1	80 mm dia nominal bore		each	88	0	2579	2666
	22.186.2	100 mm dia nominal bore		each	123	0	3955	4078
	22.186.3	150 mm dia nominal bore		each	146	0	5911	6057
	22.186.4	200 mm dia nominal bore		each	175	0	6403	6579
22.187	Providing and fixing C.I. dirt box strainer for bulk type water meter with nuts, bolts, rubber insertions etc. complete conforming to IS : 2373 :							
	22.187.1	80 mm dia		each	88	0	3218	3306
	22.187.2	100 mm dia		each	123	0	5254	5376
	22.187.3	150 mm dia		each	146	0	6676	6822
	22.187.4	200 mm dia		each	175	0	9384	9559
	DISINFECTION OF PIPES							
22.188	Disinfecting C.I. water mains by flushing with water containing bleaching powder @ 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory.							
	22.188.1	80 mm diameter C.I. pipe		100 metres	416	0	15	431
	22.188.2	100 mm diameter C.I. pipe		100 metres	556	0	23	579
	22.188.3	125 mm diameter C.I. pipe		100 metres	700	0	34	734
	22.188.4	150 mm diameter C.I. pipe		100 metres	840	0	51	891
	22.188.5	200 mm diameter C.I. pipe		100 metres	1120	0	89	1208
	22.188.6	250 mm diameter C.I. pipe		100 metres	1401	0	139	1540
	22.188.7	300 mm diameter C.I. pipe		100 metres	1544	0	200	1744
22.189	Extra for every operation of disinfecting the C.I. main by flushing with water containing bleaching powder @ 0.5 gms per litre of water and cleaning the same with fresh water, including getting the samples of water tested in the municipal laboratory :							
	22.189.1	80 mm diameter C.I. pipe		100 metres	151	0	6	156
	22.189.2	100 mm diameter C.I. pipe		100 metres	189	0	8	196
	22.189.3	125 mm diameter C.I. pipe		100 metres	233	0	11	245
	22.189.4	150 mm diameter C.I. pipe		100 metres	273	0	17	290
	22.189.5	200 mm diameter C.I. pipe		100 metres	440	0	30	470
	22.189.6	250 mm diameter C.I. pipe		100 metres	490	0	47	538
	22.189.7	300 mm diameter C.I. pipe		100 metres	534	0	66	600
	BRICK MASONRY MANHOLES							
22.190	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (Zone-III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :							
	22.190.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :						
		22.190.1.1	With common burnt clay non-modular bricks of class designation 7.5	each	1548	0	6266	7814
		22.190.1.2	With Sewer bricks conforming to IS : 4885	each	1506	0	5986	7492
	22.190.2	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) :						
		22.190.2.1	With common burnt clay non-modular bricks of class designation 7.5	each	2863	0	14419	17282
		22.190.2.2	With Sewer bricks conforming to IS : 4885	each	2749	0	13652	16401
	22.190.3	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (heavy duty) 560 mm internal diameter, total weight of cover and frame to be not less than 208 kg (weight of cover 108 kg and weight of frame 100 kg) :						
		22.190.3.1	With common burnt clay non-modular bricks of class designation 7.5	each	2818	0	19236	22054
		22.190.3.2	With Sewer bricks conforming to IS : 4885	each	2720	0	18576	21296
22.191	Extra for depth for manholes :							
	22.191.1	Size 90x80 cm						
		22.191.1.1	With common burnt clay non-modular bricks of class designation 7.5	metre	1176	0	4934	6111
		22.191.1.2	With Sewer bricks conforming to IS : 4885	metre	1055	0	4118	5173
	22.191.2	Size 120x90 cm						
		22.191.2.1	With common burnt clay non-modular bricks of class designation 7.5	metre	1418	0	5892	7310

		22.191.2.2	With Sewer bricks conforming to IS : 4885	metre	1274	0	4919	6192
22.192	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :						
	22.192.1	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :						
		22.192.1.1	With common burnt clay non-modular bricks of class designation 7.5	each	1666	0	6118	7784
		22.192.1.2	With Sewer bricks conforming to IS : 4885	each	1596	0	5666	7262
22.193	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m							
	22.193.1	With common burnt clay non-modular bricks of class designation 7.5		metre	1024	0	4190	5214
	22.193.2	With Sewer bricks conforming IS : 4885		metre	922	0	3507	4428
22.194	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :						
	22.194.1	1.68 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :						
		22.194.1.1	With common burnt clay non-modular bricks of class designation 7.5	each	3384	0	11875	15260
		22.194.1.2	With Sewer bricks conforming IS : 4885	each	3220	0	10797	14017
22.195	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.68 m to 2.29 m :							
	22.195.1	With common burnt clay non-modular bricks of class designation 7.5		metre	1339	0	5427	6766
	22.195.2	With Sewer bricks conforming IS : 4885		metre	1206	0	4535	5740
22.196	Constructing brick masonry circular manhole 1.52 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :						
	22.196.1	2.30 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :						
		22.196.1.1	With common burnt clay non-modular bricks of class designation 7.5	each	7072	0	26991	34063
		22.196.1.2	With Sewer bricks conforming IS : 4885	each	6609	0	23927	30536
22.197	Extra depth for circular type manhole 1.52 m internal dia (at bottom) beyond 2.30 m :							
	22.197.1	With common burnt clay non-modular bricks of class designation 7.5		metre	2793	0	13600	16393
	22.197.2	With Sewer bricks conforming IS : 4885		metre	2450	0	11292	13742
22.198	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) as per standard design :							
	22.198.1	With 20x20 mm square bar		each	96	0	147	242
	22.198.2	With 20 mm diameter round bar		each	96	0	111	207
22.199	Replacement of M.S. foot rests in manholes including dismantling concrete blocks and fixing with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size):							
	22.199.1	With 20x20 mm square bar		each	136	0	147	282
	22.199.2	With 20 mm diameter round bar		each	136	0	111	247
22.200	Supplying and fixing C.I. cover without frame for manholes :							
	22.200.1	455x610 mm rectangular C.I. cover (light duty) the weight of the cover to be not less than 23 kg		each	25	0	1045	1069
	22.200.2	500 mm diameter C.I. cover (medium duty) the weight of the cover to be not less than 58 kg		each	25	0	2637	2661
	22.200.3	560 mm diameter C.I. cover (heavy duty) the weight of the cover to be not less than 108 kg		each	25	0	5721	5746
22.201	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality							
	22.201.1	L D- 2.5						
		22.201.1.1	Rectangular shape 600x450 mm internal dimensions	each	54	0	850	904
		22.201.1.2	Square shape 450 mm internal dimensions	each	43	0	714	758
		22.201.1.3	Circular shape 450 mm internal diameter	each	43	0	714	758
	22.201.2	M D - 10						
		22.201.2.1	Square shape 450 mm internal dimension	each	57	0	844	901
		22.201.2.2	Circular shape 500 mm internal diameter	each	46	0	714	760
	22.201.3	H D - 20						
		22.201.3.1	Circular shape 560 mm internal diameter	each	49	0	1056	1105
	22.201.4	EHD - 35						
		22.201.4.1	Circular shape 560 mm internal dia	each	22	0	1365	1387
22.202	Supplying and fixing C.I. cover 300x300 mm without frame for gully trap (standard pattern) the weight of cover to be not less than 4.5 kg			each	6	0	547	553
22.203	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid, sand cast iron drop pipe and bend encased all-round with cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement : 4 coarse sand) plastered with cement mortar 1:3 (1 cement : 3 coarse sand) on inside of the manhole wall, lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement : 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications :							
	22.203.1	100 mm dia sand cast iron drop connection		each	2300	0	2759	5059
	22.203.2	150 mm dia sand cast iron drop connection		each	2998	0	3010	6008
22.204	Extra for depths beyond 60 cm of sand cast iron drop connection complete:							
	22.204.1	For 100 mm dia sand cast iron drop connection		metre	558	0	1172	1729
	22.204.2	For 150 mm dia sand cast iron drop connection		metre	652	0	1660	2312
	STORM WATER DRAINAGE							
22.205	Constructing brick masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :							
	22.205.1	With common burnt clay non-modular bricks of class designation 7.5		each	799	0	2924	3723

22.206	Constructing brick masonry road gully chamber 45x45x77.5 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) with precast R.C.C. vertical grating complete as per standard design :							
	22.206.1	With common burnt clay non-modular bricks of class designation 7.5		each	1033	0	3344	4377
22.207	Constructing brick masonry road gully chamber 110x50x77.5 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm precast R.C.C. horizontal grating with frame and vertical grating complete as per standard design :							
	22.207.1	With common burnt clay non-modular bricks of class designation 7.5		each	1595	0	5506	7101
	BATHROOM ACCESSORIES							
22.208	Providing and fixing in position best Indian make white or coloured fibre glass bath tubs of sizes given below complete with outer side wall of plain design with legs essco mixer no. 518 with each tub including waste plug chain and overflow of best Indian make complete in all respects consisting of :-							
	22.208.1	Size 1800mm x 750 mm		each	1075	0	5590	6665
	22.208.2	Size 1650 mmx750 mm		each	1075	0	5476	6551
	22.208.3	Size 1650 mm X 700 mm		each	1075	0	5361	6436
	22.208.4	Size 1575 mm x 750 mm		each	1075	0	5247	6322
	22.208.5	Size 1500 mm x 750 mm		each	1075	0	5133	6208
	22.208.6	Size 1450 mm x 700 mm		each	1075	0	5019	6094
22.209	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.			each	241	0	555	796
22.210	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :							
	22.210.1	Circular shape 450 mm dia		each	202	0	586	788
	22.210.2	Rectangular shape 453x357 mm		each	202	0	482	684
	22.210.3	Oval shape 450x350 mm (outer dimensions)		each	202	0	538	740
	22.210.4	Rectangular shape 1500x450 mm		each	202	0	1050	1253
22.211	Providing and fixing 600x120x5 mm glass shelf with edges round off, supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.			each	153	0	359	513
22.212	Providing and fixing in position best Indian make coat and hat hooks fixed into wall with C.P. brass screws and rawl plugs etc. complete including cutting and making good the walls etc.							
	22.212.1	C.P Brass						
		22.212.1.1	One Way	per set	17	0	69	87
		22.212.1.2	Two Way	per set	17	0	92	110
		22.212.1.3	Three Way	per set	17	0	115	132
	22.212.2	Aluminium coat and hat hooks						
		22.212.2.1	One way	per set	17	0	87	104
		22.212.2.2	Two Way	per set	17	0	115	132
		22.212.2.3	Three Way	per set	17	0	144	161
22.213	Providing and fixing in position best Indian make C.P. brass Tooth Brush cum Tooth Paste Holder fixed in with rawl plugs with C.P. brass screws complete including cutting and making good the walls etc.							
	22.213.1	Tooth Brush-cum-Tooth Paste holder		per set	11	0	212	223
	22.213.2	ToothBrush Holder		per set	11	0	144	155
22.214	Providing and fixing in position best Indian make C.P. brassTumbler cum Tooth Brash holder fixed in with rawl plugs with C.P. brass screws and complete including cutting and making good the walls etc.			per set	11	0	292	303
22.215	Providing and fixing in position best Indian make vitreous chinaware brass Tumbler cum Tooth Brash holder fixed in with rawl plugs with C.P. brass screws and complete including cutting and making good the walls etc.							
	22.215.1	vitreous chinaware (White)		per set	11	0	121	132
	22.215.2	Vitreous Chinaware (Single Colour)		per set	11	0	178	189
22.216	Providing and fixing in position best Indian make (to the approval of the engineer-in-charge) storage type automatic electric water heater, pressure/non-pressure type thermostatically controlled, suitable for operation on 230 volts, 50 cycles single phase vertical wall mounting fitted with with-drawable and adjustable type AC, thermostate. Thermostate knob to be readly accessible through the opening of suitable cover for and adjustment of temperature in the installed position of heater and the thermostate should be withdrawn without having to drain the water, electric heating element made out of copper tube (heating element should be easily removed and replaced in the installed position of heater) A neon indicator 1 AMP, inner container made out of coppertinned both from inside and outside, outer container made out of mild steel sheet finished in gleaming white stove enamel paint, insulated between the inner and outer with fibre glass wool with 1 metre length of suitable capacity 3 core flexible cord with plug and non return valve plastic/lead connections or pressure release valve (where required). Complete including fixing and testing for a week (as required by Engineer-in-charge.							
	22.216.1	25 Litres capacity		each	787	0	8396	9183
	22.216.2	30 Litres capacity		each	787	0	9694	10481
	22.216.3	35 Litres capacity		each	787	0	10993	11779
	22.216.4	40 Litres capacity		each	787	0	12291	13078
	22.216.5	50 Litres capacity		each	787	0	13589	14376
	22.216.6	70 Litres capacity		each	787	0	15537	16324
	22.216.7	80 Litres capacity		each	787	0	16836	17622
	22.216.8	90 Litres capacity		each	787	0	18134	18921
	22.216.9	100 Litres capacity		each	787	0	20082	20869
	22.216.10	140 Litres capacity		each	787	0	22679	23465

CHAPTER NO. 23

ELECTRICAL INSTALLATIONS
AND
FIRE FIGHTING DETECTION
AND
ALARM SYSTEM

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CHAPTER NO. 23 ELECTRICAL INSTALLATIONS, FIRE FIGHTING DETECTION AND ALARM SYSTEM

NOTES:

1. In this chapter items have been broadly categorised as follows:

- **a.** Copper Wiring in MS CONDUIT (surface/recess)
- **b.** Copper Wiring with MODULAR SWITCHES in MS CONDUIT (surface/recess)
- **c.** Copper Wiring in PVC CONDUIT (surface/recess)
- **d.** Copper Wiring with MODULAR SWITCHES in PVC CONDUIT (surface/recess)
- **e.** Copper Wiring in existing PVC/MS Conduit pipe Surface/Recessed for Electrical Points
- **f.** MS Conduit pipe only (surface or in Recessed) for electrical points
- **g.** PVC Conduit pipe only (surface or in Recessed) for electrical points
- **h.** Fittings and Accessories
- **i.** Erection , Carriage and Repairing of Fans and Luminaries
- **j.** MCCB, Distribution Boards MCB's RCCB's Change over etc.
- **k.** Miscellaneous
- **l.** MS Stand, Bus Bar Chamber and PANELS
- **m.** Dismantling

2. Obsolete items in earlier edition of HSR 1988 (Chapter 31) have been deleted

3. Items still being used from earlier HSR have been retained after slightly modifying the nomenclature to suit present day need

4. New items have been added to meet present requirements

5. Distinction between surface and recess wiring has been eliminated, as most of the time at the time of planning exact method is not known. More-over there is insignificant difference in costing of such items

6. For point wiring purpose, earlier classification of Short, Medium, long has been done away with to elliminate intentional or unintentional errors and contractual disputes.

7. New classification of point wiring as Group A, Group B, Group C has been adopted wherein:

Group A : Residential Qtrs Type I, II, III, Hostels

Group B: Residential Qtrs Type IV and above, Barracks, Guest House

Group C: Non-Residential Buildings

8. This system has neither any ambiguity in measurement nor requires physical tape measurement

9. Nowadays due to Architectural requirement and LED fittings, many a times individual switches of luminaries is not provided and one switch controls many fittings. To be just in measurement in such cases, loop point wiring without switch for Group A, GROUP B, GROUP C – has also been provided

10. As cost of capital items like luminaries, vary significantly on continuous basis , only fixing of such items has been kept in the HSR.

11. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 23.0 - ELECTRICAL INSTALLATIONS, FIRE DETECTION AND							
23.1	**COPPER WIRING IN MS CONDUIT (SURFACE/RECESS)**							
	23.1.1	Wiring for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick MS conduit pipe.						
		23.1.1.1	Group A	each	257		317	**574**
		23.1.1.2	Group B	each	257		418	**674**
		23.1.1.3	Group C	each	340		519	**859**
	23.1.2	Wiring for Twin control light point with 2 nos , 2-ways, 5 amp. switch in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick MS conduit pipe.						
		23.1.2.1	Group A	each	340		412	**752**
		23.1.2.2	Group B	each	340		520	**860**
		23.1.2.3	Group C	each	340		627	**967**
	23.1.3	Wiring for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick MS conduit pipe, without separate control switch						
		23.1.3.1	Group A	each	128		166	**294**
		23.1.3.2	Group B	each	129		268	**397**
		23.1.3.3	Group C	each	129		362	**492**
	23.1.4	Wiring in MS conduit system for 3-pin 5amp. Plug point by using 2 no 1.5 sqmm FRLS copper wire and 1 no 1.5 Sqmm FRLS copper wire , including providing 1 no 5/6 Amp 3/5 pin socket and 1 no 5/6 Amp switch required MS Box etc complete as required						
		23.1.4.1	Group A	each	257		595	**852**
		23.1.4.2	Group B	each	257		796	**1053**
		23.1.4.3	Group C	each	257		999	**1255**
	23.1.5	Wiring in MS conduit system for 3-pin 15amp. Plug point by using 2 no 4 sqmm FRLS copper wire and 1 no 4 Sqmm FRLS copper wire for earthling , including providing 1 no 15/16 Amp 3/6 pin socket and 1 no 15/16 Amp switch required MS Box etc complete as required						
		23.1.5.1	Group A	each	342		803	**1145**
		23.1.5.2	Group B	each	342		1044	**1387**
		23.1.5.3	Group C	each	342		1288	**1630**
	23.1.6	Wiring main ,sub mains and Circuit wiring in two single core for phase and neutral wire and one single core for earth wire PVC insulated Copper conductor cable 1100 Volts grade in MS Conduit etc as required.						
		23.1.6.1	1 run of Size 1.50 Sqmm(1/1.40mm)	metre	27		108	**135**
		23.1.6.2	1 run of Size 2.50 Sqmm(1.1.80mm)	metre	27		132	**160**
		23.1.6.3	1 run of Size 4 Sqmm(1/2.24mm)	metre	27		163	**190**
		23.1.6.4	1 run of Size 6 Sqmm(1/2.80mm)	metre	27		207	**234**
		23.1.6.5	1 run of Size 10 Sqmm(1/3.50 mm)	metre	32		372	**404**
		23.1.6.6	2 run of Size 1.50 Sqmm(1/1.40mm)	metre	34		148	**181**
		23.1.6.7	2 run of Size 2.50 Sqmm(1.1.80mm)	metre	36		212	**248**
		23.1.6.8	2 run of Size 4 Sqmm(1/2.24mm)	metre	40		273	**313**
		23.1.6.9	3 run of Size 1.50 Sqmm(1/1.40mm)	metre	42		202	**244**
		23.1.6.10	3 run of Size 2.50 Sqmm(1.1.80mm)	metre	50		276	**326**
23.2	**COPPER WIRING WITH MODULAR SWITCHES IN MS CONDUITS (SURFACE/RECESS)**							
	23.2.1	Wiring for Light/Fan/call bell point with modular type switch/socket and GI box, Modular type face plate etc in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick MS conduit pipe.						
		23.2.1.1	Group A	each	257		376	**633**
		23.2.1.2	Group B	each	257		477	**733**
		23.2.1.3	Group C	each	340		578	**918**
	23.2.2	Wiring for Twin control light point with 2 nos , 2-ways, 5 amp. Modular switch GI box and modular face plate in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick MS conduit pipe.						
		23.2.2.1	Group A	each	340		596	**936**
		23.2.2.2	Group B	each	340		703	**1043**
		23.2.2.3	Group C	each	340		811	**1151**
	23.2.3	Wiring for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick MS conduit pipe, without separate control switch , Modular type Switch/sockets wiring						
		23.2.3.1	Group A	each	128		166	**294**
		23.2.3.2	Group B	each	129		268	**397**
		23.2.3.3	Group C	each	129		362	**492**
	23.2.4	Wiring in MS conduit system for 3-pin 5amp. Plug point by using 2 no 1.5 sqmm FRLS copper wire and 1 no 1.5 Sqmm FRLS copper wire , including providing 1 no 5/6 Amp 3/5 pin Modular type socket and 1 no 5/6 Amp Modular type switch required GI Box ,modular face plate etc complete as required						
		23.2.4.1	Group A	each	257		701	**957**
		23.2.4.2	Group B	each	257		902	**1159**
		23.2.4.3	Group C	each	257		1104	**1361**
	23.2.5	Wiring in MS conduit system for 3-pin 15amp. Plug point by using 2 no 4 sqmm FRLS copper wire and 1 no 4 Sqmm FRLS copper wire for earthling , including providing 1 no 15/16 Amp 3/6 pin Modular socket and 1 no 15/16 Amp Modular switch required GI Box , modular face plate etc complete as required						
		23.2.5.1	Group A	each	342		884	**1227**
		23.2.5.2	Group B	each	342		1126	**1468**
		23.2.5.3	Group C	each	342		1370	**1712**
23.3	**COPPER WIRING IN PVC CONDUIT (SURFACE/RECESS)**							
	23.3.1	Wiring for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick PVC conduit pipe.						
		23.3.1.1	Group A	each	257		194	**450**
		23.3.1.2	Group B	each	257		245	**502**
		23.3.1.3	Group C	each	340		297	**638**
	23.3.2	Wiring for Twin control light point with 2 nos , 2-ways, 5 amp. switch in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick PVC conduit pipe.						
		23.3.2.1	Group A	each	340		701	**1041**
		23.3.2.2	Group B	each	340		759	**1099**
		23.3.2.3	Group C	each	340		817	**1158**
	23.3.3	Wiring for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick PVC conduit pipe, without separate control switch						
		23.3.3.1	Group A	each	128		92	**221**
		23.3.3.2	Group B	each	129		145	**274**
		23.3.3.3	Group C	each	129		190	**320**
	23.3.4	Wiring in PVC conduit system for 3-pin 5amp. Plug point by using 2 no 1.5 sqmm FRLS copper wire and 1 no 1.5 Sqmm FRLS copper wire , including providing 1 no 5/6 Amp 3/5 pin socket and 1 no 5/6 Amp switch required MS Box etc complete as required						
		23.3.4.1	Group A	each	257		349	**606**

		23.3.4.2	Group B	each	257		452	**709**
		23.3.4.3	Group C	each	257		556	**813**
	23.3.5	Wiring in PVC conduit system for 3-pin 15amp. Plug point by using 2 no 4 sqmm FRLS copper wire and 1 no 4 Sqmm FRLS copper wire for earthling , including providing 1 no 15/16 Amp 3/6 pin socket and 1 no 15/16 Amp switch required MS Box etc complete as required						
		23.3.5.1	Group A	each	342		557	**899**
		23.3.5.2	Group B	each	342		700	**1043**
		23.3.5.3	Group C	each	342		846	**1188**
	23.3.6	Wiring main and sub mains in two single core for phase and neutral wire and one single core for earth wire PVC insulated Copper conductor cable 1100 Volts grade in PVC Conduit etc as required.						
		23.3.6.1	1 run of Size 1.50 Sqmm(1/1.40mm)	metre	27		59	**86**
		23.3.6.2	1 run of Size 2.50 Sqmm(1.1.80mm)	metre	27		83	**111**
		23.3.6.3	1 run of Size 4 Sqmm(1/2.24mm)	metre	27		114	**141**
		23.3.6.4	1 run of Size 6 Sqmm(1/2.80mm)	metre	27		142	**170**
		23.3.6.5	1 run of Size 10 Sqmm(1/3.50 mm)	metre	32		308	**340**
		23.3.6.6	2 run of Size 1.50 Sqmm(1/1.40mm)	metre	34		98	**132**
		23.3.6.7	2 run of Size 2.50 Sqmm(1.1.80mm)	metre	36		153	**189**
		23.3.6.8	2 run of Size 4 Sqmm(1/2.24mm)	metre	40		215	**255**
		23.3.6.9	3 run of Size 1.50 Sqmm(1/1.40mm)	metre	42		144	**186**
		23.3.6.10	3 run of Size 2.50 Sqmm(1.1.80mm)	metre	50		218	**267**
23.4	**COPPER WIRING WITH MODULAR SWITCHES IN PVC CONDUIT (SURFACE/RECESS)**							
	23.4.1	Wiring for Light/Fan/call bell point with modular type switch/socket and GI box, Modular type face plate etc in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick PVC conduit pipe.						
		23.4.1.1	Group A	each	257		253	**510**
		23.4.1.2	Group B	each	257		304	**561**
		23.4.1.3	Group C	each	340		357	**697**
	23.4.2	Wiring for Twin control light point with 2 nos , 2-ways, 5 amp. Modular switch GI box and modular face plate in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick PVC conduit pipe.						
		23.4.2.1	Group A	each	340		448	**788**
		23.4.2.2	Group B	each	340		507	**847**
		23.4.2.3	Group C	each	340		565	**905**
	23.4.3	Wiring for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable in 1.6 mm thick PVC conduit pipe, without separate control switch						
		23.4.3.1	Group A	each	128		92	**221**
		23.4.3.2	Group B	each	129		145	**274**
		23.4.3.3	Group C	each	129		190	**320**
	23.4.4	Wiring in PVC conduit system for 3-pin 5amp. Plug point by using 2 no 1.5 sqmm FRLS copper wire and 1 no 1.5 Sqmm FRLS copper wire , including providing 1 no 5/6 Amp 3/5 pin Modular type socket and 1 no 5/6 Amp Modular type switch required GI Box ,modular face plate etc complete as required						
		23.4.4.1	Group A	each	257		455	**712**
		23.4.4.2	Group B	each	257		558	**815**
		23.4.4.3	Group C	each	257		662	**919**
	23.4.5	Wiring in PVC conduit system for 3-pin 15amp. Plug point by using 2 no 4 sqmm FRLS copper wire and 1 no 4 Sqmm FRLS copper wire for earthling , including providing 1 no 15/16 Amp 3/6 pin Modular socket and 1 no 15/16 Amp Modular switch required GI Box , modular face plate etc complete as required						
		23.4.5.1	Group A	each	342		639	**981**
		23.4.5.2	Group B	each	342		782	**1125**
		23.4.5.3	Group C	each	342		928	**1270**
23.5	**COPPER WIRING IN EXISTING PVC/MS CONDUIT PIPE SURFACE/RECESSED FOR ELECTRICAL POINTS**							
	23.5.1	Wiring only in 1.5 sqmm PVC insulated copper conductor cable for LIGHT/FAN/Call bell point in existing conduit pipe and MS boxes including cost of Bakelite cover for MS box, switch, wall socket, ceiling rose/connector etc.						
		23.5.1.1	Group A	each	129		124	**253**
		23.5.1.2	Group B	each	129		157	**287**
		23.5.1.3	Group C	each	171		191	**362**
	23.5.2	Wiring only in existing conduit and MS box for Twin control light point with 2 nos , 2-ways, 5 amp. switch in 1.5 sqmm FRLS PVC insulated copper conductor cable .						
		23.5.2.1	Group A	each	171		599	**770**
		23.5.2.2	Group B	each	171		639	**810**
		23.5.2.3	Group C	each	171		678	**849**
	23.5.3	Wiring only in existing conduit and MS Box for Light/Fan/call bell point in 1.5 sqmm FRLS PVC insulated copper conductor cable , without separate control switch						
		23.5.3.1	Group A	each	75		64	**139**
		23.5.3.2	Group B	each	75		98	**173**
		23.5.3.3	Group C	each	75		125	**200**
	23.5.4	Wiring in existing conduit and MS box for 3-pin 5amp. Plug point by using 2 no 1.5 sqmm FRLS copper wire and 1 no 1.5 Sqmm FRLS copper wire , including providing 1 no 5/6 Amp 3/5 pin socket and 1 no 5/6 Amp switch etc complete as required						
		23.5.4.1	Group A	each	88		221	**308**
		23.5.4.2	Group B	each	108		286	**395**
		23.5.4.3	Group C	each	129		353	**482**
	23.5.5	Wiring in existing conduit system for 3-pin 15amp. Plug point by using 2 no 4 sqmm FRLS copper wire and 1 no 4 Sqmm FRLS copper wire for earthling , including providing 1 no 15/16 Amp 3/6 pin socket and 1 no 15/16 Amp switch etc complete as required						
		23.5.5.1	Group A	each	160		421	**581**
		23.5.5.2	Group B	each	152		527	**679**
		23.5.5.3	Group C	each	152		635	**787**
	23.5.6	Wiring main and sub mains in two single core for phase and neutral wire and one single core for earth wire PVC insulated Copper conductor cable 1100 Volts grade in existing MS/PVC Conduit etc as required.						
		23.5.6.1	1 run of Size 1.50 Sqmm(1/1.40mm)	metre	12		40	**52**
		23.5.6.2	1 run of Size 2.50 Sqmm(1.1.80mm)	metre	12		65	**77**
		23.5.6.3	1 run of Size 4 Sqmm(1/2.24mm)	metre	12		95	**107**
		23.5.6.4	1 run of Size 6 Sqmm(1/2.80mm)	metre	12		124	**136**
		23.5.6.5	1 run of Size 10 Sqmm(1/3.50 mm)	metre	16		289	**305**
		23.5.6.6	2 run of Size 1.50 Sqmm(1/1.40mm)	metre	34		80	**114**
		23.5.6.7	2 run of Size 2.50 Sqmm(1.1.80mm)	metre	36		129	**165**
		23.5.6.8	2 run of Size 4 Sqmm(1/2.24mm)	metre	40		190	**230**
		23.5.6.9	3 run of Size 1.50 Sqmm(1/1.40mm)	metre	42		119	**162**

		23.5.6.10	3 run of Size 2.50 Sqmm(1.1.80mm)	metre	50		193	**243**
23.6	**MS CONDUIT PIPE ONLY (SURFACE OR RECESSED) FOR ELECTRICAL POINTS**							
	23.6.1.1	MS CONDUIT and MS/GI BOX only for LIGHT/FAN/Call bell point wiring						
		23.6.1.1	Group A	each	129		198	**328**
		23.6.1.2	Group B	each	129		266	**396**
		23.6.1.3	Group C	each	129		334	**463**
	23.6.2	MS CONDUIT and MS/GI BOX only for Twin Control light point with 2 way 5amp single pole switch.						
		23.6.2.1	Group A	each	171		255	**426**
		23.6.2.2	Group B	each	171		323	**494**
		23.6.2.3	Group C	each	171		391	**562**
	23.6.3	MS CONDUIT only for Light point without control,						
		23.6.3.1	Group A	each	128		107	**236**
		23.6.3.2	Group B	each	129		175	**305**
		23.6.3.3	Group C	each	129		243	**372**
	23.6.4	MS CONDUIT and MS/GI BOX only for 3 pin 5 amp. plug point						
		23.6.4.1	Group A	each	129		380	**510**
		23.6.4.2	Group B	each	129		516	**645**
		23.6.4.3	Group C	each	129		651	**781**
	23.6.5	MS CONDUIT and MS/GI BOX only for 3 pin 15 amp. plug point						
		23.6.5.1	Group A	each	129		387	**517**
		23.6.5.2	Group B	each	129		523	**652**
		23.6.5.3	Group C	each	129		659	**788**
	23.6.6	Supply and erection of MS conduit pipe 1.6 mm thick , ISI marked surface/recessed in slab/wall/ceiling etc. including cost of MS bends, inspection box and all other material required to complete the job in all respect up to the entire satisfaction of Engineer-in-Charge of work.						
		23.6.6.1	MS Pipe of 20 mm dia.	metre	25		65	**90**
		23.6.6.2	MS pipe of 25 mm dia.	metre	25		79	**105**
		23.6.6.3	MS Pipe of 32 mm dia.	metre	25		115	**141**
		23.6.6.4	MS pipe of 40 mm dia.	metre	25		194	**219**
23.7	**PVC CONDUIT PIPE ONLY (SURFACE OR RECESSED) FOR ELECTRICAL POINTS**							
	23.7.1	PVC CONDUIT and MS/GI BOX only for LIGHT/FAN/Call bell point wiring						
		23.7.1.1	Group A	each	49		75	**124**
		23.7.1.2	Group B	each	49		94	**143**
		23.7.1.3	Group C	each	49		113	**162**
	23.7.2	PVC CONDUIT and MS/GI BOX only for Twin Control light point with 2 way 5amp single pole switch.						
		23.7.2.1	Group A	each	49		108	**157**
		23.7.2.2	Group B	each	49		126	**175**
		23.7.2.3	Group C	each	49		145	**194**
	23.7.3	PVC CONDUIT only for Light point without control,						
		23.7.3.1	Group A	each	38		34	**72**
		23.7.3.2	Group B	each	38		52	**91**
		23.7.3.3	Group C	each	38		71	**109**
	23.7.4	PVC CONDUIT and MS/GI BOX only for 3 pin 5 amp. plug point						
		23.7.4.1	Group A	each	49		134	**183**
		23.7.4.2	Group B	each	49		172	**221**
		23.7.4.3	Group C	each	49		209	**258**
	23.7.5	PVC CONDUIT and MS/GI BOX only for 3 pin 15 amp. plug point						
		23.7.5.1	Group A	each	49		142	**191**
		23.7.5.2	Group B	each	49		179	**228**
		23.7.5.3	Group C	each	49		216	**265**
	23.7.6	Supply and erection of PVC CONDUIT ISI marked (Medium) recessed in wall/ceiling etc. including the cost of PVC bends, inspection boxes, iron hooks and cement concrete etc. complete in all respect up to the entire satisfaction of Engineer-in-Charge of work.						
		23.7.6.1	PVC pipe of 20 mm dia.	metre	7		18	**26**
		23.7.6.2	PVC pipe of 25 mm dia.	metre	7		24	**31**
		23.7.6.3	PVC pipe of 32 mm dia.	metre	7		36	**44**
		23.7.6.4	PVC pipe of 40 mm dia.	metre	7		49	**57**
23.8	**FITTING AND ACCESSORIES**							
	23.8.1	Providing and fixing Piano type accessories of approved make in existing box and Bakelite sheet including fixing and making necessary connections, complete in all respect.						
		23.8.1.1	Switch 5 amp. on existing sheet.	each	4		11	**16**
		23.8.1.2	Wall socket 5 amp on existing sheet.	each	6		22	**28**
		23.8.1.3	15 amp. switch on existing sheet.	each	6		54	**60**
		23.8.1.4	6 pin 15 multi socket on existing sheet	each	8		69	**77**
		23.8.1.5	Ceiling rose flush/surface type	each	4		14	**18**
		23.8.1.6	Call bell 220/230 volts musical type	each	8		80	**89**
		23.8.1.7	Electric buzzer 220/230 volts A.C. Bakelite with double coil.	each	8		40	**49**
		23.8.1.8	Bell push with 4 metres 2-core, 0.50 sqmm (16/0.20 mm) PVC flexible wire.	each	13		14	**26**
		23.8.1.9	Bell push	each	4		14	**18**
		23.8.1.10	Bed switch with 4 metres 2 core, 0.50 sqmm (16/0.20mm) PVC flexible wire.	each	13		21	**33**
		23.8.1.11	Bed switch	each	4		21	**25**
		23.8.1.12	Bakelite angle/straight button holder large size.	each	13		32	**45**
		23.8.1.13	Socket size rotary step type Electronic regulator for A.C. ceiling fan	each	13		172	**185**
		23.8.1.14	telephone socket	each	4		23	**27**
	23.8.2	Supply and Fixing Bakelite sheet on existing MS/GI/wooden/PVC box etc including fixing with brass screws and washers.						
		23.8.2.1	5 mm thick	sqcm	0		0	**0**
		23.8.2.2	3 mm thick	sqcm	0		0	**0**
	23.8.3	Supply and erection of suitable MS/GI Box covered with 3 mm thick Bakelite sheet as below			0		0	**0**
		23.8.3.1	75 mm x 75 mm x 60 mm deep M.S. box	each	28		38	**66**
		23.8.3.2	100 mm x 100 mm x 60 mm deep M.S. box	each	28		54	**82**
		23.8.3.3	180 mm X 100 mm X 60 mm	each	28		74	**102**
		23.8.3.4	200 mm X 150 mm X 60 mm deep metal box	each	28		116	**144**
		23.8.3.5	200 mm X 150 mm X 60 mm deep metal box	each	34		176	**210**
	23.8.4	Supply and erection of 10.5 cm dia M.S.Fan box including 8 mm dia 30 cm long M.S. Road made into suitable suspension hook and erected in R.C.C. slab for the erection of fan complete with all labour and material required to complete the job.		each	13		81	**93**
	23.8.5	Supply and erection 5-30 A single phase A.C. energy metre , LCD display and optical port , with rag bolts on wall/existing pedestal including the cost of rag bolts required to complete the job in all respect with necessary connections and bonding to earth.		each	42		1461	**1503**

	23.8.6	Supply and erection 10-60 A single phase A.C. energy metre , LCD display and optical port , with RFID or similar remote reading features with rag bolts on wall/existing pedestal including the cost of rag bolts required to complete the job in all respect with necessary connections and bonding to earth.	each	42		3362	**3404**
	23.8.7	Supply and erection 5-30 A Three phase A.C. energy metre , LCD display and optical port , with rag bolts on wall/existing pedestal including the cost of rag bolts required to complete the job in all respect with necessary connections and bonding to earth.	each	42		1723	**1765**
	23.8.8	Supply and erection 10-60 A Three phase A.C. energy metre , LCD display and optical port , with rag bolts on wall/existing pedestal including the cost of rag bolts required to complete the job in all respect with necessary connections and bonding to earth.	each	42		1898	**1940**
	23.8.9	Supply and erection direct reading LCD Display Digital Ammetre/Voltmetre (without CT or PT) on wall/existing penal complete in all respect with necessary connections	each	42		936	**978**
	23.8.10	Providing and fixing GI concealed sheet metal boxes with inner and outer face plate including concealing the box in wall and fixing in position with inner plate and face plate with all labour and material required for the job complete in all respects.					
		23.8.10.1 1 & 2 Modules including combined plate for Telephone and data	each	17		75	**92**
		23.8.10.2 3 Modules	each	21		104	**125**
		23.8.10.3 4 Modules	each	26		112	**138**
		23.8.10.4 6 Modules	each	30		153	**182**
		23.8.10.5 8 Modules	each	34		195	**229**
		23.8.10.6 12 Modules	each	39		239	**278**
	23.8.11	Providing and fixing modular type accessories of approved make in existing box including fixing and making necessary connections, complete in all respect.					
		23.8.11.1 5 amp 1 way switch	each	8		32	**40**
		23.8.11.2 5 amp 2 way switch	each	8		65	**73**
		23.8.11.3 15 amp 1 way switch	each	8		72	**81**
		23.8.11.4 5 amp Socket	each	13		68	**81**
		23.8.11.5 15 amp 6 pin Socket	each	13		110	**122**
		23.8.11.6 Bell Push	each	8		67	**75**
		23.8.11.7 step type Fan Regulator 2 modules 300 watt	each	13		240	**253**
		23.8.11.8 Telephone Socket outlet modular type	each	13		61	**74**
		23.8.11.9 T.V. Socket outlet modular type	each	13		61	**74**
		23.8.11.10 Blanking plate	each	4		14	**18**
		23.8.11.11 RJ 45 Computer DATA socket outlet for CAT 6 or CAT6e cable Modular type	each	13		286	**299**
		23.8.11.12 USB Charger, 1000mA, 5V, 1 Module	each	13		286	**299**
		(For Non residential use only)					
		23.8.11.13 32A D.P. Main Switch With Key Ring Tag 2 Module	each	13		310	**323**
		(For Guest room or similar use only)					
	23.8.12	Supply and Fixing 3 mm thick Bakelite sheet cover on existing MS/PVC junction box/tee etc including fixing with brass screws and washers.	each	2		5	**8**
	23.8.13	Supplying,installation,testing and commissioning of Passive Infrared(PIR) based occupancy sensor , non regulating programmable type, suitable for connected load upto 10Amp , for mounting height up to 2.8 mtr and for 5 m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	each	83		3546	**3630**
	23.8.14	Supplying,installation,testing and commissioning of Passive Infrared(PIR) based occupancy sensor with automatic day light dimming feature , programmable type, suitable for connected load upto 10Amp , for mounting height up to 2.8 mtr and for 5 m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	each	83		5364	**5447**
23.9	Erection of exhaust fan in existing opening ,complete with necessary earthling of fan including carriage from PWD store to the site of work.		each	83		23	**106**
23.10	Erection of cabin fan complete with necessary earthling including carriage from PWD store to the site of work.		each	42		13	**54**
23.11	Making suitable hole in the wall suitable for exhaust fan up to 450 mm sweep including finishing the same and fixing of Stainless stell wire mesh 2 mm thick having about 50 meshes per inch at exhaust side complete as required		each	88		287	**375**
23.12	Providing and fixing outdoor duty Ply of 8 mm thick frame suitable for exhaust fan up to 450 mm sweep etc complete as required		each	41		157	**198**
23.13	Supply, erection and fixing of 8 mm thick ply wood board having a circular /rectangular hole etc as required including the cost of making hole, nuts and bolts, painting and other petty material with all labour etc. complete in all respect up to the entire satisfaction of Engineer-in-charge of the work.		sqft	20		79	**100**
23.14	Replacement of rubber reel and Locking Split/safety Pin .		each	21		69	**90**
23.15	Replacement of ball bearing of a ceiling fan including greasing, re-assembling and testing etc.		each	21		62	**83**
23.16	Replacement of a bush bearing of any fan including turning, oiling, re-assembling & testing etc.		each	21		62	**83**
23.17	Replacement of a fan condenser complete with connections and testing etc.						
	23.17.1	2 to 3.5 mfd.	each	17		32	**49**
	23.17.2	4 to 6 mfd	each	17		37	**53**
	23.17.3	7 to 8 mfd	each	17		40	**57**
23.18	Painting of ceiling fan complete with blades and suspension rod etc.						
	23.18.1	With hand painting using enamelled paint.	each	46		19	**65**
	23.18.2	With spray painting using enamelled paint..	each	46		30	**76**
23.19	Painting of pole with brackets etc with 2 coats of enamelled paint or other approved paint.						
	23.19.1	3 metre and above ,Up to the height of 5 metres.	each	46		19	**65**
	23.19.2	Above 5 metres but up to the height of 8 metres	each	71		28	**99**
	23.19.3	Above 8 metres	each	133		38	**170**
23.20	Fixing of LED Tube light/ 2*2 ft square panel fitting directly on wall /ceiling or false ceiling including making connections etc as required		each	42		24	**66**
23.21	Fixing of LED Down lighter 7 to 28 Watt on ceiling or in false ceiling , including cutting/making hole in ceiling including making connections etc as required		each	42		6	**47**
23.22	**MCCB ,DISTRIBUTION BOARDS, MCB's, RCCB's, CHANGE OVER etc.**						
	23.22.1	Supply and erection of Modular case circuit breaker single pole/4 pole on existing wall/pedestal/Panel including bounding to earth and making necessary connections required to complete the job in all respect up to the entire satisfaction of the Engineer-in-charge of the work.					
		23.22.1.1 Double pole MCCB 16 to 63 Amp	each	83		1138	**1222**
		23.22.1.2 Double pole MCCB 100 to 125 Amp	each	83		1772	**1855**
		23.22.1.3 TRIPLE POLE MCCB 16 to 100 Amp	each	125		1570	**1695**
		23.22.1.4 TRIPLE POLE MCCB 125 to 160 Amp	each	125		2506	**2631**

		23.22.1.5	TRIPLE POLE MCCB 200 to 250 Amp	each	125		7088	**7213**
		23.22.1.6	TRIPLE POLE MCCB 300 Amp	each	125		7978	**8103**
		23.22.1.7	TRIPLE POLE MCCB 400 Amp	each	167		14708	**14875**
		23.22.1.8	TRIPLE POLE MCCB 600 to 800 Amp	each	167		43609	**43776**
		23.22.1.9	4 pole MCCB 6 amp to 100 amp	each	125		2075	**2200**
		23.22.1.10	4 pole MCCB 125 to 160 amp	each	125		3296	**3421**
		23.22.1.11	4 pole MCCB 200 to 250 amp	each	167		8924	**9091**
		23.22.1.12	4 pole MCCB 300 to 400 amp	each	209		18389	**18598**
		23.22.1.13	4 pole MCCB 600 to 800 Amp	each	209		43609	**43818**
	23.22.2	MCCB Enclosure made of Sheet Steel suitable for mounting MCCB of following ratings						
		23.22.2.1	MCCB up to 125 A FP	each	171		1432	**1603**
		23.22.2.2	MCCB up to 250 A FP	each	257		3296	**3553**
	23.22.3	Supply and erection of sheet steel enclosures 2 pole/4 pole including providing SP/DP/TP/FP MCB on wall/on existing pedestal complete with necessary connections etc, :-						
		23.22.3.1	S.P.N. enclosure along with single pole MCB up to 32 amp	each	86		413	**498**
		23.22.3.2	S.P.N. enclosure along with single pole MCB up to 63 amp	each	86		574	**659**
		23.22.3.3	DP enclosure along with 6 to 32 Amp DP MCB	each	86		686	**771**
		23.22.3.4	DP enclosure along with 40 to 63 A TPN MCB	each	86		932	**1018**
		23.22.3.5	T.P.N. enclosure along with 6 to 32 Amp TP MCB	each	86		996	**1081**
		23.22.3.6	T.P.N. enclosure along with 63 Amp TP MCB	each	86		1346	**1431**
		23.22.3.7	T.P.N. enclosure along with 6 to 32 Amp FP MCB	each	86		1219	**1305**
		23.22.3.8	T.P.N. enclosure along with 63 Amp FP MCB	each	86		1595	**1681**
	23.22.4	Supply and erection of double door sheet steel enclosure distribution board suitable for MCBS and ELCBS etc. recessed in wall including bonding to earth with all labour and material required to complete the job in all respect up to to the entire satisfaction of the Engineer-in-Charge of the work.						
		23.22.4.1	SPN DB Double Door 4 way (2 incoming and 2 outgoing)	each	171		981	**1152**
		23.22.4.2	SPN DB Double Door 8 way (2 incoming and 6 outgoing)	each	171		1212	**1383**
		23.22.4.3	SPN DB Double Door 12 way (2 incoming and 10 outgoing)	each	215		1463	**1678**
		23.22.4.4	SPN DB Double Door 16 way (2 incoming and 14 outgoing)	each	215		1832	**2047**
		23.22.4.5	TPN DB Horizontal type Double Door 4 way (8 incoming and 3phase*4 outgoing)	each	257		2407	**2663**
		23.22.4.6	TPN DB Horizontal type Double Door 6 way (8 incoming 3phase*6 outgoing)	each	257		2968	**3225**
		23.22.4.7	TPN DB Horizontal type Double Door 8 way (8 incoming 3phase*8 outgoing)	each	342		3553	**3895**
		23.22.4.8	TPN DB Horizontal type Double Door 12 way (8 incoming 3phase*12 outgoing)	each	342		5323	**5665**
		23.22.4.9	Vertical TPN DB Double Door 4 way (8 incoming and 3phase*4 outgoing)	each	342		5650	**5992**
		23.22.4.10	Vertical TPN DB Double Door 6 way (8 incoming 3phase*6 outgoing)	each	342		6769	**7111**
		23.22.4.11	Vertical TPN DB Double Door 8 way (8 incoming 3phase*8 outgoing)	each	386		7571	**7957**
		23.22.4.12	Vertical TPN DB Double Door 12 way (8 incoming 3phase*12 outgoing)	each	386		10263	**10649**
	23.22.5	Supply and erection of miniature circuit Breaker/isolator 240/415 V in the existing distribution board including making necessary connections:-						
		23.22.5.1	6 amp. to 32 amp Single Pole	each	17		126	**142**
		23.22.5.2	40 amp to 63 amp. Single Pole	each	17		287	**304**
		23.22.5.3	6 amp. to 32 amp Double POLE	each	21		399	**420**
		23.22.5.4	40 amp to 63 amp. Double pole	each	21		646	**666**
		23.22.5.5	6 amp. to 32 amp MCB's TRIPLE POLE	each	21		651	**672**
		23.22.5.6	40 amp to 63 amp. MCB's TRIPLE POLE	each	21		1001	**1022**
		23.22.5.7	6 amp. to 32 amp MCB's FOUR POLE	each	21		875	**896**
		23.22.5.8	40 amp to 63 amp. MCB's FOUR POLE	each	21		1251	**1272**
	23.22.6	Supply and erection double pole/Four pole Residual (RCCB/ELCB) on 240/415V, 5Hz. AC supply installed in existing sheet steel enclosures including making necessary connections and bonding to earth with all labour and material required to complete the job in all respect up to the entire satisfaction of the Engineer-in-Charge of the work.						
		23.22.6.1	DP RCCB 30ma sensitivity , 25 A	each	21		1435	**1455**
		23.22.6.2	DP RCCB 30ma sensitivity , 40 A	each	21		1624	**1645**
		23.22.6.3	DP RCCB 30ma sensitivity , 63 A	each	21		2023	**2044**
		23.22.6.4	TP RCCB 30ma sensitivity , 25 A	each	21		1899	**1920**
		23.22.6.5	FP RCCB 30ma sensitivity , 40 A	each	21		1908	**1929**
		23.22.6.6	FP RCCB 30ma sensitivity , 63 A	each	21		2189	**2210**
	23.22.7	Supply and erection of blanking sheet in existing distribution board.		each	2		6	**8**
	23.22.8	SITC Four pole ON LOAD Manual change over switch in SS enclosure of following Ratings						
		23.22.8.1	63 amp 415 volts	each	255		5995	**6250**
		23.22.8.2	100 amp 415 volts	each	299		7648	**7946**
		23.22.8.3	200 amp 415 volts	each	342		14386	**14729**
		23.22.8.4	300 amp 415 volts	each	342		20960	**21302**
		23.22.8.5	400 amp 415 volts	each	342		30545	**30887**
23.23	**MISCELLANEOUS**							
	23.23.1	Supply and fixing Galvanised Iron flexible pipe complete with socket nipples and check nuts etc. at both ends (Up to length of one metre):-						
		23.23.1.1	Size 15 mm dia	metre	8		30	**38**
		23.23.1.2	Size 20 mm dia	metre	8		33	**41**
		23.23.1.3	Size 25 mm dia	metre	8		50	**58**
	23.23.2	Supply of GI pipe (B-Class) for suspension rod of ceiling fan including threading if required.						
		23.23.2.1	15 mm dia	metre	17		116	**133**
		23.23.2.2	20 mm dia	metre	17		149	**166**
	23.23.3	Supply and erection of girder clamp for ceiling fan including painting (up to 15 cm section)						
		23.23.3.1	Girder clip complete for girder up to 100 mm deep	each	8		23	**31**
		23.23.3.2	Girder clip complete for girder up to 300 mm deep	each	8		46	**54**
	23.23.4	Providing and fixing fan hook made from 8 mm dia MS rod 75 cm long of required shape and size		each	33		38	**71**
	23.23.5	Supply and erection of U- PVC Trunking/Channel of following size including cost of fixing on wall, floor and ceiling etc. with required material complete the job in all respect up to entire satisfaction of the Engineer-in-charge of work.						
		23.23.5.1	25x12 mm	metre	8		13	**21**
		23.23.5.2	38x12 mm	metre	8		16	**24**
		23.23.5.3	38x25 mm	metre	8		37	**46**
		23.23.5.4	50x50 mm	metre	8		66	**74**

	23.23.6	Supply and erection of MS cable tray , duly pained as required including erection of the same on wall or ceiling with necessary fixture and other material required to complete the job in all respect up to the entire satisfaction of Engineer-in Charge of the work.						
		23.23.6.1	MS perforated cable tray painted with powder coating 100 X 50 X 1.6 mm3	metre	21		165	**186**
		23.23.6.2	MS perforated cable tray painted with powder coating 200 X 50 X 1.6 mm3	metre	21		259	**281**
		23.23.6.3	MS perforated cable tray painted with powder coating 375 X 50 X 2 mm3	metre	21		296	**317**
		23.23.6.4	MS perforated cable tray painted with powder coating 600 X 50 X 2 mm3	metre	21		357	**378**
	23.23.7	Supply and laying of multicore telephone cable conductor size 0.51 mm bright annealed copper conductor PVC insulated and sealed in existing pipe/channel and making necessary connection complete in all respect up to the entire satisfaction of the Engineer-in charge of the work.						
		23.23.7.1	2 pair telephone wire	metre	3		3	**7**
		23.23.7.2	4 pair telephone wire	metre	3		10	**14**
	23.23.8	Supplying and drawing of 1 no UTP 4 pair CAT 6 LAN Cable in the existing surface/recess MS/PVc conduit as required		metre	3		28	**31**
	23.23.9	Supplying and drawing of 1 no UTP 4 pair CAT 6a LAN Cable in the existing surface/recess MS/PVc conduit as required		metre	3		40	**43**
23.24	**MS STAND, BUS BAR CHAMBER AND PANELS**							
	23.24.1	Supply and erection of M.S. angle iron frame duly welded for housing M.S. sheet & main switches etc. on it, fixed on wall by means of suitable size of rag bolts with cement concrete, duly painted with three coats of approved paint including one coat of red oxide.		kg	21		62	**83**
	23.24.2	Erection of Cubical type Electrical Panels/ Feeder Pillars including necessary mounting Frame made of suitable size I section of required size on existing foundation/platform etc as required						
		23.24.2.1	Panels/Feeder Pillars having incomers up to Four pole 200 A , Base Mounting frame made of ISMC 100*50*5 mm	each	1037		1415	**2453**
		23.24.2.2	Panels/Feeder Pillars having incomers of more than 200 A and up to Four pole 400 A , Base Mounting frame made of ISMC 150*75*5.7 mm	each	1556		4663	**6219**
		23.24.2.3	Panels/Feeder Pillars having incomers of more than 400 A and up to Four pole 800 A , Base Mounting frame made of ISMC 150*75*5.7 mm	each	2075		5181	**7256**
		23.24.2.4	Panels/Feeder Pillars having incomers of more than 800 A and up to Four pole 1600 A , Base Mounting frame made of ISMC 200*75*6.2 mm	each	4150		13756	**17905**
		23.24.2.5	Panels/Feeder Pillars having incomers of more than 1600 A and up to Four pole 4000 A , Base Mounting frame made of ISMC 200*75*6.2 mm	each	4150		16507	**20656**
	23.24.3	Supply and erection of metal clad bus bar chamber made from 1.6 mm thick M.S. sheet and fixing with rag bolts on wall or on existing pedestal/angle iron frame including bonding, detachable top and bottom including painting and necessary connection etc. (Aluminium bars).						
		23.24.3.1	100 amp 2 bars of 40 cm each (cross section 25 mm x6 mm) chamber over all size 45 cm x 20 cm x 18cm	each	417		1018	**1435**
		23.24.3.2	100 amp 4 bars of 55 cm each (cross section 25 mm x6 mm) chamber over all size 60 cm x 45 cm x 18cm	each	667		2382	**3049**
		23.24.3.3	100 amp 4 bars of 100 cm each (cross section 25 mm x 6 mm) chamber over all size 1.10 m x 45 cm x 18cm	each	834		4233	**5067**
		23.24.3.4	200 amp 2 bars of 40 cm each (cross section 38 mm x 6 mm) chamber over all size 45 cm x 20 cm x 18cm	each	417		1382	**1799**
		23.24.3.5	200 amp 4 bars of 55 cm each (cross section 38 mm x 6 mm) chamber over all size 60 cm x 45 cm x 18cm	each	667		3382	**4049**
		23.24.3.6	200 amp 4 bars of 100 cm each (cross section 38 mm x 6mm) chamber over all size 1.10 m x 45 cm x 18cm	each	834		6053	**6887**
		23.24.3.7	300 amp 2 bars of 55 cm each (cross sec tion 51 mm x 6 mm) chamber over all size 60 cm x 25 cm x 23 cm	each	417		1746	**2163**
		23.24.3.8	300 amp 4 bars of 55 cm each (cross section 51 mm x6 mm) chamber over all size 60 cm x 55 cm x 23 cm	each	667		4383	**5050**
		23.24.3.9	300 amp 4 bars of 100 cm each (cross section 51 mm x 6 mm) chamber over all size 1.10 m x 55 cm x 23 cm	each	834		7872	**8706**
		23.24.3.10	400 amp 4 bars of 55 cm each (cross section 63 mm x 6 mm) chamber over all size 60 cm x 55 cm x 23 cm	each	834		5765	**6599**
		23.24.3.11	400 amp 4 bars of 100 cm each (cross section 63 mm x6 mm) chamber over all size 1.10 m x 55 cm x 23 cm	each	1001		9791	**10792**
		23.24.3.12	600 amp 4 bars of 55 cm each (cross section 102 mm x 6 mm) chamber over all size 60 cm x 70 cm x 38 cm.	each	1001		9259	**10259**
		23.24.3.13	600 amp 4 bars of 100 cm each (cross section 102 mm x 6 mm) chamber over all size 1.10 m x 70 cm x 38 cm.	each	1251		16514	**17765**
		23.24.3.14	800 amp 4 bars of 55 cm each (cross section 127 mm x 6 mm) chamber over all size 60 cm x 70 cm x 38 cm.	each	1001		11183	**12184**
		23.24.3.15	800 amp 4 bars of 100 cm each (cross section 127 mm x 6 mm) chamber over all size 1.10 m x 70 cm x 38 cm.	each	1251		20012	**21263**
23.25	**DISMANTLING**							
	23.25.1	Dismantling old wiring points (surface wiring system) including necessary repairs to wall etc.						
		23.25.1.1	Light, fan or call bell Point including circuit/sub main wiring	each	8		11	**20**
		23.25.1.2	Wall socket point including circuit/submain wiring	each	8		11	**20**
	23.25.2	Dismantling old wiring points (Recess wiring or partly recess partly surface system , recess Conduit and box not to be dismantled) including necessary repairs to wall etc.						
		23.25.2.1	Light, fan or call bell Point including circuit/sub main wiring	each	7		6	**12**
		23.25.2.2	Wall socket point including circuit/submain wiring	each	7		6	**12**
23.26	**SAFETY ITEMS**							**0**
	23.26.1	Supply and erection of Medium Voltage caution notice plate of size 200*150 mm in three languages.		each	17		58	**75**
	23.26.2	Supply and erection of High Tension Voltage caution notice plate of size 250*200 mm in three languages.		each	17		75	**91**
	23.26.3	Supply and erection of shock restoration chart in glass frame.		each	17		241	**258**
	23.26.4	Supply & Erection of mild steel bucket stand suitable for 6 Nos. fire buckets,(but without bucket) including the cost of welding and painting of complete stand will one coat of red oxide and 2 coats of approved paint of red colour with all labour and material required to complete the job in all respect up to the entire Satisfaction engineer in charge of the work (size 6'x4' made of GI pipe 32mm dia).		set	209		2487	**2696**

CHAPTER NO. 24

CABLE LAYING
AND
STREET LIGHTING

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CHAPTER NO. 24.0 - CABLE LAYING AND STREET LIGHTING

NOTES:

1. In this chapter items have been broadly categorised as follows:

a. Earthing and Lightning Arrestor

b. Under Ground MV Cables

c. HT Cable

d. Street Light

e. Miscellaneous Items

f. Dismantling

g. Civil items

2. New Items for External work has been introduced.

3. Obsolete items of external works in HSR 1988 have been deleted.

4. Items still being used from earlier HSR have been retained after slightly modifying the nomenclature to suit present day need.

5. Copper items used in exposed external work have been omitted as these are prone to theft. Technically also we can get the same results using GI items, by increasing size slightly, which is quite cost effective and less prone to theft.

6. New items have been added to meet present requirements.

7. Items which could not be classified in any specific broad category have been included in Miscellaneous.

8. Commonly used Civil Items being used in external electrical works have been incorporated for ready reference, for ease of estimation by electrical engineers.

9. As cost of capital items like luminaries, LT cables, Electrical Panels vary significantly on continuous basis, only fixing of such items has been kept in the HSR

10. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 24.0 - CABLE LAYING AND STREET LIGHTING							
24.1	**EARTHING AND LIGHTENING ARRESTOR**							
	24.1.1	Earthing with GL earth pipe 4.5 m long and 40 mm dia with masonry enclosures on the top etc. (but without charcoal or coke and salt) as required.		each	800		1936	2736
	24.1.2	Extra for using salt and char coal/coke for pipe earth electrode as required.		each	8		633	642
	24.1.3	Earthing with G.I. earth plate 600 mmx 600 mm x 6 mm thick including accessories and providing masonry enclosures with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required.		each	703		2667	3370
	24.1.4	Earthing with tinned copper earth plate 600mmx600mmx3mm thick including accessories and providing masonry enclosures with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) etc. complete as required.		each	703		7499	8202
	24.1.5	Extra for charcoal or coke and salt for G.I. plate or copper plate earth electrode.		each	8		780	789
	24.1.6	Supplying and laying 25mm x 3mm G.I. strip at 0.5 metre below ground as strip earth electrode including soldering etc. as required.		metre	5		42	47
	24.1.7	Supplying and laying 25mm x 3 mm G.I. strip in 40 mm dia,GI pipe as/from earth electrode including soldering etc. as required.		metre	35		319	354
	24.1.8	Providing and fixing 25 mm x 3mm G.I. strip on surface or in recess for connections etc. as required with all labour and material.		metre	43		52	95
	24.1.9	Providing and fixing 25 mm x5 mm copper strip in 40 mm dia G.I. pipe from earth electrode as required.		metre	7		712	719
	24.1.10	Providing and fixing 25 mm x 5mm copper strip on surface or in recess for connections etc. as required with all labour and material.		metre	7		712	719
	24.1.11	Providing and laying earth connections from earth electrode with 4.00 mm dia G.I. wire in 15 mm dia G.I. pipe from earth electrode as required.		metre	16		170	187
	24.1.12	Supplying and laying 6 S.W.G G.I. wire at 0.50 m below ground level from earth electrode including thimbles, soldering etc. as required.		metre	16		108	124
	24.1.13	Providing and fixing 4.00 mm dia G1. Wire on surface or in recess for loop carthing as required.		metre	10		10	21
	24.1.14	Supply and erection of 20mm x 3 mm thick GI, tape fixed with suitable G.I. stapples of same size.		metre	21		40	61
	24.1.15	Erection only of lightning conductor GI. tape including supply of suitable GI. stapples of same size.		metre	21		7	28
	24.1.16	Supply and erection of 25mm dia 1.5 metre long lightning GI. tube rod tapered into a point at the top with 16cm x 16cm x 3mm thick G.I. base plate and necessary nuts and bolts with washers.		each	137		747	884
	24.1.17	Providing and fixing testing joints made of 20mm x 3mm thick G.I. strips 125 mm long with 4 nos. G.I. bolts and nuts with washers complete.		each	25		47	72
24.2	**LT CABLE**							
	24.2.1	Supply & erection of LT phase seprator on LT line complete in all respect up to entire satisfaction of the Engineer-in-charge of the work.		set	8		1	10
	24.2.2	Laying of underground cable 0.75 metre below ground level covered with sand and bricks including excavation and refilling of trenches.:-						
		24.2.2.1	2.5 Sq mm to 10 Sq mm 2 to 4 Core	metre	43		157	200
		24.2.2.2	16 Sq mm to 35 sqmm 2 to 4 Core	metre	47		157	204
		24.2.2.3	50 Sq mm to 150 sqmm 2 to 4 Core	metre	55		160	215
		24.2.2.4	185 sqmm to 240 sqmm 3 to 3½ Core	metre	63		157	220
		24.2.2.5	300 sqmm to 400 sqmm 3 to 3½ Core	metre	72		157	228
		Note:additional cable in same trench : 50% of Main cable cost						
	24.2.3	Laying of underground cable 0.75 metre below ground level covered without sand and bricks including excavation and refilling of trenches.:-						
		24.2.3.1	2.5 Sq mm to 10 Sq mm 2 to 4 Core	metre	43		0	43
		24.2.3.2	16 Sq mm to 35 sqmm 2 to 4 Core	metre	47		0	47
		24.2.3.3	50 Sq mm to 150 sqmm 2 to 4 Core	metre	55		0	55
		24.2.3.4	185 sqmm to 240 sqmm 3 to 3½ Core	metre	63		0	63
		24.2.2.5	300 sqmm to 400 sqmm 3 to 3½ Core	metre	72		0	72
		Note:additional cable in same trench : 50% of Main cable cost						
	24.2.4	Laying of underground cable in pipe /existing open/closed tench tc as required:-						
		24.2.4.1	2.5 Sq mm to 10 Sq mm 2 to 4 Core	metre	8		0	8
		24.2.4.2	16 Sq mm to 35 sqmm 2 to 4 Core	metre	12		0	12
		24.2.4.3	50 Sq mm to 150 sqmm 2 to 4 Core	metre	21		0	21
		24.2.4.4	185 sqmm to 240 sqmm 3 to 3½ Core	metre	25		0	25
		24.2.4.5	300 sqmm to 400 sqmm 3 to 3½ Core	metre	29		0	29
	24.2.5	Laying and fixing of cable on surface/ cable tray etc as required:-						
		24.2.5.1	2.5 Sq mm to 10 Sq mm 2 to 4 Core	metre	8		3	12
		24.2.5.2	16 Sq mm to 35 sqmm 2 to 4 Core	metre	12		7	20
		24.2.5.3	50 Sq mm to 150 sqmm 2 to 4 Core	metre	21		10	30
		24.2.5.4	185 sqmm to 240 sqmm 3 to 3½ Core	metre	29		10	38
		24.2.5.5	300 sqmm to 400 sqmm 3 to 3½ Core	metre	37		10	46
	24.2.6	Supply and erection of copper lugs including crimping etc. entire satisfaction of Engineer-in- Charge of the work.						
		24.2.6.1	1.5 sqmm	each	2		1	3
		24.2.6.2	2.5 sqmm	each	2		2	3
		24.2.6.3	4 sqmm	each	2		3	5
		24.2.6.4	6 sqmm	each	3		4	8
		24.2.6.5	10 sqmm	each	4		5	9
		24.2.6.6	16 sqmm	each	6		7	13
	24.2.7	Supply and erection of suitable compression type brass cable glands for underground Cable :-						
		24.2.7.1	Upto 6 Sq mm cable 2 to 4 Core	set	8		23	31
		24.2.7.2	10 sqmm to 16 sqmm Cable 2 to 4 Core	set	13		31	43
		24.2.7.3	25 sqmm to 50 sqmm Cable 2 to 4 Core	set	17		59	75
		24.2.7.4	70 sqmm to 95 sqmm Cable 3 to 3½ Core	set	25		77	102
		24.2.7.5	120 sqmm to 185 sqmm Cable 3 to 32 Core	set	33		98	131
		24.2.7.6	240 sqmm to Cable 3 to 32 Core	set	42		120	162
		24.2.7.7	300 sqmm to 400 sqmm Cable 3 to 3½ Core	set	42		181	223
	24.2.8	Supply and erection of aluminium lugs heavy duty including crimping etc. upto the entire satisfaction of the Engineer-in-charge of the work.						
		24.2.8.1	1.5 sqmm to 2.5 sqmm	each	2		1	3
		24.2.8.2	4 sqmm to 6 sqmm	each	2		1	4
		24.2.8.3	10 sqmm	each	4		2	6
		24.2.8.4	16 sqmm	each	5		2	8
		24.2.8.5	25 sqmm	each	6		3	9
		24.2.8.6	35 sqmm	each	7		4	11
		24.2.8.7	50 sqmm	each	8		6	15
		24.2.8.8	70 sqmm	each	10		10	20
		24.2.8.9	95 sqmm	each	13		10	23
		24.2.8.10	120 sqmm	each	17		14	31
		24.2.8.11	150 sqmm	each	21		19	39
		24.2.8.12	185 sqmm	each	25		23	48
		24.2.8.13	240 sqmm	each	29		40	69
		24.2.8.14	300 sqmm	each	33		56	90
		24.2.8.15	400 sqmm	each	42		81	123

	24.2.9	Supply and erection of straight through joint (cable jointing kit) 1.1 KV grade complete with required quantity of resin, hardner, plastic mould G.P. Putty, adhesive, earth continuity, connections and fixing the same in postion complete with joint etc. - Straight through Joint.						
		24.2.9.1	For 1.5 to to 6 sqmm Cable 2 Core	set	42		404	446
		24.2.9.2	For 1.5 to to 6 sqmm Cable 3 to 4 Core	set	42		694	736
		24.2.9.3	For 10 to 16 sqmm Cable 2 Core	set	42		1094	1136
		24.2.9.4	For 10 to 16 sqmm Cable 3 to 4 Core	set	42		1238	1279
		24.2.9.5	For 25 sqmm to 50 sqmm Cable 3 to 4 Core	set	63		2295	2358
		24.2.9.6	For 70 sqmm to 150 sqmm Cable 3 to 4 Core	set	83		3523	3606
		24.2.9.7	For 185 sqmm Cable 300 sqmm cable 3 to 4 Core	set	125		6512	6637
		24.2.9.8	For 400 sqmm Cable 3 to 4 core	set	125		6885	7010
	22.2.10	Supply and erection of cable route marker made of 50 cm long 10 mm dia M.S. Rod welded/revitted at the top with 10 cm dia 3 mm thick MS plate inscribed with 'cable' word on it, having a cross arm 30 cm long of the same dia welded at the bottom, in exiting trench 45 cm below ground level.		each	125		110	235
24.3	**HT CABLE**							
	24.3.1	Laying and erection of XLPE (E)II kv HT aluminium conductor armoured cable 1 metre below ground level with sand & bricks with all labour and material including digging and refilling of trench as required						
		24.3.1.1	up to 120 sqmm 3 core XLPE Cable	metre	64		158	222
		24.3.1.2	above 120 and up to 3000 sqmm 3 core XLPE Cable	metre	68		158	226
	24.3.2	Laying and erection of XLPE II or 33 kv HT aluminium conductor armoured cable ISI mark laid on surface/pipe/cable tray with all labour and material as required						
		24.3.2.1	up to 120 sqmm 3 core XLPE Cable	metre	64		11	75
		24.3.2.2	above 120 and up to 3000 sqmm 3 core XLPE Cable	metre	68		14	82
	24.3.3	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :						
		24.3.3.1	70 to 120 sqmm	set	83		6957	7041
		24.3.3.2	150 to 185 sqmm	set	104		8499	8603
		24.3.3.3	240 to 400 sqmm	set	125		9998	10123
	24.3.4	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :						
		24.3.4.1	70 to 120 sqmm	set	83		11258	11341
		24.3.4.2	150 to 185 sqmm	set	104		12895	12999
		24.3.4.3	240 to 400 sqmm	set	125		17143	17269
	24.3.5	Supplying and making straight through cable jointing with heat shrinkable jointing kit complete with all accessories including ferrules suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :						
		24.3.5.1	70 to 95 sqmm	set	83		25309	25392
		24.3.5.2	120 to 150 sqmm	set	104		26708	26812
		24.3.5.3	185 to 240 sqmm	set	104		33826	33930
		24.3.5.4	300 to 400 sqmm	set	125		37666	37792
	24.3.6	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 33 KV grade as required :						
		24.3.6.1	70 to 95 sqmm	set	83		9149	9232
		24.3.6.2	120 to 185 sqmm	set	104		13834	13938
		24.3.6.3	240 to 400 sqmm	set	125		15687	15812
	24.3.7	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 33 KV grade as required :						
		24.3.7.1	70 to 95 sqmm	set	83		14830	14914
		24.3.7.2	120 to 185 sqmm	set	104		19223	19327
		24.3.7.3	240 to 400 sqmm	set	125		25443	25568
	24.3.8	Supplying and making straight through cable jointing with heat shrinkable jointing kit complete with all accessories including ferrules suitable for following size of 3 core, XLPE aluminium conductor cable of 33 KV grade as required :						
		24.3.8.1	95 to 150 sqmm	set	104		32998	33103
		24.3.8.2	185 to 300 sqmm	set	125		46864	46989
24.4	**STREET LIGHT**							
	24.4.1	3 metres long 50 mm dia pole duly embeded 0.6 m below ground level.						
		24.4.1.1	3 metres long 50 mm dia pole duly embeded 0.6 m below ground level.	each	578		1297	1875
		24.4.1.2	4.5metres long 50 mm dia pole duly embeded 0.75 m below ground level.	each	717		1805	2522
		24.4.1.3	6 metres long 65 mm dia pole duly embeded 1 m below ground level.	each	798		2898	3696
	24.4.2	Supply and erection of GI bracket made of 32 mm dia medium class GI pipe, having 15 deg angle from horizontal, suitable for fixing on top of Street Light pole						
		24.4.2.1	60 cm long	each	83		324	407
		24.4.2.2	90 cm long, with 20 cm high suitable size pole cap	each	83		394	478
		24.4.2.3	120 cm long, with 30 cm high suitable size pole cap	each	104		499	603
		24.4.2.4	150 cm long, with 30 cm high suitable size pole cap	each	104		569	673
	24.4.3	Supply and erection of 32mm dia metre 1.5 m long bracket (B-class) making an angle of 10° to 15° with horizontal plane for mounting street light fitting fixing of GI. bracket on wall with 2 nos. 32 mm x 3 mm thick M.S. clamps including cost of cutting, welding of G.I. pipe complete with cement sand mixture, bolts and nuts etc. including necessary connections.		each	104		399	503
	24.4.4	Erection of street light fitting on the pole including the cost of petty material required (irrespective of height/length of bracket)						
		24.4.4.1	At Pole upto the height of 4.5 metres	each	83		0	83
		24.4.4.2	At Pole above 4.5 metres but upto the height of 7 metres.	each	104		0	104
		24.4.4.3	At Pole above 7 metres but upto the height of 9 metres.	each	118		0	118
		24.4.4.4	At Pole above 9 metres	each	138		0	138
	24.4.5	Supply and erection of Single Phase weather proof M.S. box of size 20 cm x 15 cm x 10 cm with hinged cover made of 2 mm thick MS sheet, locking arrangements, housed in wall/fixed on pole , including the cost of 1 no 4 way 16 A bakellite connector, 1 no. 6 amp SP MCB and 1 Nos. 16 amp. neutral links fixed on bakellite sheet in the M.S. box including painting and necessary connections.		each	83		479	562
	24.4.6	Supply and erection of Three Phase weather proof M.S. box of size 30 cm x 20 cm x 15 cm with hinged cover made of 2 mm thick MS sheet, locking arrangements, housed in wall/fixed on pole , including the cost of 1 no 4 way 16 A bakellite connector, 1 no. 16 amp TP MCB and 4 Nos. 16 amp. neutral links fixed on bakellite sheet in the M.S. box and necessary connections.		each	104		1184	1288
	24.4.7	Supplying and embedding following dia G.I. pipe (medium class) in pole collar/ foundation (during casting) for cable entry including bending the pipe to the required shape complete as required.						
		24.4.7.1	32 mm dia	metre	18		258	276
		24.4.7.2	40 mm dia	metre	18		361	379
	24.4.8	Supply of Hot Dip Galvanized octagonal pole of 3mm thickness, with base plate including cost of nut and bolts , earthing studs, Integral Cable termination arrangement 5 mm thick Bakellite base plate on suitable welded MS/GI bracket 32 A four way connector 2 no 10 A SP MCB , end cover and all accessories as supplied by the manufacture						

		24.4.8.1	3 Mtr Long pole with top dia 65 mm and bottom dia 130mm with base plate of size 200 x 200 x 12 mm	each	0		3186	3186
		24.4.8.2	4 Mtr Long pole with top dia 65 mm and bottom dia 130 mm with base plate of size 225 x 225 x12 mm	each	0		4182	4182
		24.4.8.3	5 Mtr Long pole with top dia 65 mm and bottom dia 130mm with base plate of size 250 x 250 x 16 mm	each	0		5374	5374
		24.4.8.4	6 Mtr Long pole with top dia 75 mm and bottom dia 150 mm with base plate of size 275 x 275 x 16 mm	each	0		7012	7012
		24.4.8.5	7 Mtr Long pole with top dia 75 0mm and bottom dia 150 mm with base plate of size 300 x 300 x 20 mm	each	0		8487	8487
		24.4.8.6	8 Mtr Long pole with top dia 100 mm and bottom 200 mm with base plate of size 325 x 325 x 20 mm.	each	0		12248	12248
		24.4.8.7	9 Mtr Long pole with top dia 100 mm and bottom 200 mm with base plate of size 350 x 350 x 20 mm.	each	0		13818	13818
	24.4.9	Erection of High mast (Labour only) on existing CC foundation (foundation to be paid separately and foundation bolt shall be provided)						
		24.4.9.1	12 to 15 Mtr Hgh mast	each	1038		0	1038
		24.4.9.2	16 to 20 Mtr Hgh mast	each	1445		0	1445
		24.4.9.3	21 to 25 Mtr Hgh mast	each	1852		0	1852
	24.4.10	Erection of RCC/ PCC pole of following length in brick ballast and ramming the foundation, finishing with 150mm thick cement concrete (1:3:6) layer on top with including excavation and refilling etc as required.						
		24.4.10.1	Above 2.5 metre and upto 4 metre	each	731		349	1080
		24.4.10.2	Above 4 metre and upto 6 metre	each	1104		464	1568
		24.4.10.3	Above 6 metre and upto 8.0 metre	each	1428		634	2062
		24.4.10.4	Above 8.0 metre and upto 11.0 metre	each	1428		697	2125
	24.4.11	Erection of MS/GI/Swaged (excluding Octagonal) metallic pole of following length in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) foundation including excavation and refilling etc. as required.						
		24.4.11.1	Above 2.5 metre and upto 4 metre	each	185		363	548
		24.4.11.2	Above 4 metre and upto 6 metre	each	208		946	1153
		24.4.11.3	Above 6 metre and upto 8.0 metre	each	217		1182	1399
		24.4.11.4	Above 8.0 metre and upto 11.0 metre	each	250		2043	2293
	24.4.12	Erection of RCC/ PCC pole strut in brick ballast and ramming the foundation including excavation and refilling and secured with holding clamps, bolts, nuts, etc. as required.		each	731		1061	1792
	24.4.13	Erection of steel tubular or rail pole strut in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) foundation including excavation and refilling and secured with holding clamps, bolts, nuts, etc. as required.		each	661		1348	2010
	24.4.14	Providing and making steel pole collar with cement concrete (1 cement : 3 coarse sand: 6 stone aggregate 20mm) of specified size and shape including form work, plastering if required, curing etc as required. (volume of pole/ pipe not to be deducted)		cum	4		3783	3787
24.5	**MISCELLANEOUS ITEMS**							
	24.5.1	Supply and jointing three core submersible flat cables of approved make with bare bunched copper conductor insulated and sheathed with PVC for submersible pump motors /fountain lights etc with voltage grade 1100 volts markd with IS:694, 1990 including cost of jointing, materials as well as carriage, loading, unloading etc. complete in all respect upto the entire satisfaction of Engineer- in-Charge.						
		24.5.1.1	Submersible Copper Cable 3 Core 1.5 sqmm	metre	8		41	50
		24.5.1.2	Submersible Copper Cable 3 Core 2.5 sqmm	metre	8		61	69
		24.5.1.3	Submersible Copper Cable 3 Core 4 sqmm	metre	8		90	98
		24.5.1.4	Submersible Copper Cable 3 Core 6 sqmm	metre	8		132	140
		24.5.1.5	Submersible Copper Cable 3 Core 10 sqmm	metre	8		172	180
		24.5.1.6	Submersible Copper Cable 3 Core 16 sqmm	metre	8		268	277
		24.5.1.7	Submersible Copper Cable 3 Core 25 sqmm	metre	8		401	410
	24.5.2	S/E mark double walled corrugated (DWC) HDPE, pipe 10 Kg/Cm2 ,laid 0.75 Mtr below ground level including diging and refilling of earth including cost of suitable size socket/cuppler for HDPE pipe including the cost of labour and material required to complete the job in all respect up to the entire satisfaction of Engineer in charge of the work.						
		24.5.2.1	DWC/HDPE pipe 40/32 mm outer dia/ inner dia	metre	38		60	98
		24.5.2.2	DWC/HDPE pipe 50/40 mm outer dia/ inner dia	metre	38		69	107
		24.5.2.3	DWC/HDPE pipe 63/50 mm outer dia/inner dia	metre	38		84	122
		24.5.2.4	DWC/HDPE pipe 90/75 mm outer dia/inner dia	metre	38		120	158
		24.5.2.5	DWC/HDPE pipe 120/105 mm outer dia/ inner dia	metre	42		195	237
		24.5.2.6	DWC/HDPE pipe 145/123 mm outer dia/ inner dia	metre	42		250	292
		24.5.2.7	DWC/HDPE pipe 180/150 mm outer dia/ inner dia	metre	44		292	337
24.6	**DISMANTLING**							
	24.6.1	Dismantling of over head lines comprising of copper/ aluminium over head conductor, G.I. wire, cross arms, insulators etc. as required.		kg	4		0	4
	24.6.2	Dismantling of pole/ street light standard/ strut embedded in brick ballast foundation etc. as required.		each	123		0	123
	24.6.3	Dismantling of pole/ street light standard/ strut embedded in cement concrete foundation etc. as required.		each	225		0	225
24.7	**RCC FOUNDATIONS FOR DG SET**							
	24.7.1	**Note: As size and dynamic load of DG sets vary from manufacturer to manufacturer, item of DG set foundation have been included on the basis of cubic contents of RCC.**						
		Providing RCC foundation of M20 grade (1 Cement:1.5 Stone aggregate: 3 Coarse sand) i/c excavation, steel reinforcement (Fe 500) @ 50 kg/cum of concrete contents, concrete cover 50mm, over a bed of 75mm thick PCC 1:5:10, of required dimensions as per OEM recommendations as per following specifications for 250 KVA DG set to provide levelled surface for placement of the DG set complete in all respects and as per directions of Engineer-in-charge						
		Size of foundation = 5.0x1.8x1.0m		per cum	6513		2689	9202
24.8	**RCC FOUNDATIONS FOR OCTAGONAL POLES**							
	Providing RCC foundation of M25 grade (1 Cement:1 Stone aggregate: 2 Coarse sand) i/c excavation, steel reinforcement (Fe 500) @ 70 kg/cum of concrete contents, concrete cover 50mm, anchor bolts etc. over a bed of PCC 1:5:10 of required dimensions for octagonal poles of various heights as per following specifications complete in all respects and as per directions of Engineer-in-charge							
	24.8.1	3m high pole		per foundation	754		2019	2774
	24.8.2	4m high pole		per foundation	823		2152	2976
	24.8.3	5m high pole		per foundation	1091		2998	4089
	24,8.4	6m high pole		per foundation	1165		3909	5073
	24.8.5	7m high pole		per foundation	1295		4074	5369

	24.8.6	8m high pole	per foundation	1543		4716	6259
	24.8.7	9m high pole	per foundation	1686		6536	8222
	24.8.8	10m high pole	per foundation	1828		6737	8565
24.9	**RCC FOUNDATIONS FOR HIGH MAST OCTAGONAL POLES**						
	Providing RCC foundation of M25 grade (1 Cement:1 Stone aggregate: 2 Coarse sand) i/c excavation, steel reinforcement (Fe 500) @ 75 kg/cum of concrete contents, concrete cover 50mm, anchor bolts etc. over a bed of PCC 1:5:10 of required dimensions for high mast octagonal poles of various heights as per following specifications complete in all respects and as per directions of Engineer-in-charge						
	24.9.1	16m high mast pole	per foundation	11826		42872	54698
	24.9.2	20m high mast pole	per foundation	20139		58808	78947
	24.9.3	25m high mast pole	per foundation	36519		92951	129470
24.10	**CIVIL ITEMS (USED COMMONLY IN ELECTRICAL WORKS)**						
	24.10.1	Digging & refilling of trench 30 cm wide below ground level for erection of pipe/cable (up depth of 1 Mtr. underground cable excluding the cost of cable/pipe complete in all respect.	cum	173		0	173
	24.10.2	Earth work in excavation in foundations, trenches etc. in all kind of soils, not exceeding 2 metres depth including dressing of bottom and sides of trenches, staking the excavated soil clear from the edge of excavation and subsequent filling around masonary, in 15cm layers with compaction, including disposal of all surplus soil, as directed with in a lead of 30 mtrs.	cum	132		0	132
	24.10.3	cement concrete 1:3:6 with stone aggregate 20 mm nominal size in Kerbs and the like items, finished smooth with 6 mm thick cement plaster 1:3 on exposed surface including from work, placing and fixing in position, complete at the ground level or in first storey	cum	1233		2550	3783
	24.10.4	cement concrete 1:2:4 with stone aggregate 20 mm nominal size in Kerbs and the like items, finished smooth with 6 mm thick cement plaster 1:3 on exposed surface including from work, placing and fixing in position, complete at the ground level or in first storey	cum	1501		3096	4597
	24.10.5	Digging of pucca road of required size for making pit for of foundation for street light pole etc complete in all respect upto the entire satisfaction of Engineer-incharge.	cum	411		0	411
	24.10.6	Digging of pucca road in required width for laying of cable / pipe complete in all respect upto the entire satisfaction of Engineer-incharge	cum	310		0	310

CHAPTER NO. 25

HVAC

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CHAPTER NO. 25.0 - HVAC

NOTES:

1. High side equipment's in Central AC or completes VRV system requires detailed design and a no of parameters are specified, specific to site application, hence such items have not been included in HSR.

2. Cost of Widow/Split AC etc. vary significantly on continuous basis, and fixing of such items is generally included in the cost, hence such items has not been included in the HSR.

3. Items covered in this schedule are primarily piping and ducting.

4. The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 25.0 - HVAC						
	Central Air Conditioning : Low side Items						
25.1	Supplying, fixing, testing and commissioning of condenser water pipes / non insulated chilled water pipes of following sizes of MS 'C' class along with necessary clamps, vibration isolators and fittings such as bends,tees etc.but excluding valves, strainers, gauges etc. adequately supported on rigid supports duly painted/buried in ground excavation and refilling etc. as per specification and as required complete in all respect.						
	25.1.1	300mm dia.	metre	292		5721	6013
	25.1.2	250 mm dia	metre	236		4805	5041
	25.1.3	200mm dia.	metre	188		4052	4240
	25.1.4	150mm dia.	metre	148		2573	2721
	25.1.5	125mm dia.	metre	148		2199	2348
	25.1.6	100mm dia.	metre	100		1766	1866
	25.1.7	80mm dia.	metre	71		1493	1564
	25.1.8	65mm dia.	metre	48		1275	1323
	25.1.9	50mm dia.	metre	33		978	1012
	25.1.10	40mm dia.	metre	25		783	808
25.2	Extra for Supplying and fixing of insulation on following nominal dia pipes with FR quality expanded polystrene moulded pipe section of density 20 kg/cu.m after a thick coat of cold setting adhesive (CPRX compound) wrapping with 500 g polythene faced hessain and then applying 0.6 mm aluminium sheet cladding complete with feltstrip at joints repairing etc. as per specifications and as required complete in all respect..		each				Add 25% of cost of pipe
25.3	Supplying, fixing, testing and commissioning of Butterfly valves PN 16 rated without insulation for water circulation as per specifications.						
	25.3.1	300mm dia.	each	417		17071	17488
	25.3.2	250 mm dia	each	334		14451	14785
	25.3.3	200mm dia.	each	275		8527	8803
	25.3.4	150mm dia.	each	209		4272	4480
	25.3.5	125mm dia.	each	209		3276	3485
	25.3.6	100mm dia.	each	209		2413	2621
	25.3.7	80mm dia.	each	167		1830	1997
	25.3.8	65mm dia.	each	167		1626	1792
	25.3.9	50 mm dia.	each	119		1441	1560
	25.3.10	40mm dia.	each	119		1208	1327
25.4	Supplying, fixing, testing and commissioning o NON - RETURN VALVE with dual plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating as specified.						
	25.4.1	200mm dia.	each	275		11476	11751
	25.4.2	150mm dia.	each	209		7804	8012
	25.4.3	125mm dia.	each	209		5164	5373
	25.4.4	100mm dia.	each	209		3902	4110
	25.4.5	80mm dia.	each	167		3213	3380
	25.4.6	65mm dia.	each	167		2984	3151
	25.4.7	50mm dia.	each	119		2754	2874
	25.4.8	40mm dia.	each	119		2066	2185
25.5	Supplying, fixing, testing and commissioning o BALANCING VALVE flanged end & PN 16 pressure rating as specified.						
	25.5.1	200mm dia.	each	275		33397	33672
	25.5.2	150mm dia.	each	209		17661	17870
	25.5.3	125mm dia.	each	209		13026	13234
	25.5.4	100mm dia.	each	209		9138	9347
	25.5.5	80mm dia.	each	167		6143	6310
	25.5.6	65mm dia.	each	167		5229	5396
	25.5.7	50mm dia.	each	119		4757	4877
	25.5.8	40mm dia.	each	119		2868	2988
25.6	Supplying, fixing, testing and commissioning o STRAINER flanged end & PN 16 pressure rating as specified.						
	25.6.1	200mm dia.	each	275		11476	11751
	25.6.2	150mm dia.	each	209		7804	8012
	25.6.3	125mm dia.	each	209		5164	5373
	25.6.4	100mm dia.	each	209		3902	4110
	25.6.5	80mm dia.	each	167		3213	3380
	25.6.6	65mm dia.	each	167		2984	3151
	25.6.7	50mm dia.	each	119		2754	2874
	25.6.8	40mm dia.	each	119		2066	2185
25.7	Supply, installation, and commissioning of factory/site fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.						
	25.7.1	Thickness 0.63 mm sheet	sqm	167		505	672
	25.7.2	Thickness 0.80 mm sheet	sqm	167		631	798
	25.7.3	Thickness 1.00 mm sheet	sqm	209		757	966
	25.7.4	Thickness 1.25 mm sheet	sqm	239		947	1185
25.8	Insulation on Butterfly /balancing/Non return/Strainer Valves by providing moulded PUF sections of density 20Kg/m3 or using nitrile rubber 20 mm thick etc as required, complete		each				Add 10% of cost of valve

CHAPTER NO. 26

HORTICULTURE
AND
LANDSCAPING

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CHAPTER 26.0 - HORTICULTURE AND LANDSCAPING

Notes:

1. The rates given under this chapter are subject to the PWD specifications.

2. Stacks of well decayed farm yard manure will be reduced by 8% for determining the volume.

3. The through rates for planting and maintenance are excluding the cost of irrigation water since water is available in most of the buildings. Wherever water is not available, cost may be included as per item no. 26.53 and quality of water may be decided as per specifications, soil type and the season.

4. The rates noted below are applicable for gardening works in lawns of the buildings, road sides, high slopes, canal embankments and arboriculture. The depth required to be excavated for planting of trees / grass etc. shall be decided by the Engineer - in - Charge considering the size of root ball, site and climatic conditions. In exceptional circumstances, for any deviation from standard specifications, additional payment/deduction shall be made accordingly.

5. The procurement of earth / sludge or manure shall be from the sources as specified by the Engineer - in - Charge. In case these are imported from a distant place longer than ones specified in the item/s, additional rates shall be paid.

6. Rates are inclusive of loading/unloading and stacking unless specified otherwise.

7. The cost of saplings of trees/shrubs, potted plants and specimen plant or grass etc. of higher specifications, if procured specially for planting shall be paid accordingly.

8. The cost of specialized items for irrigation systems which are not included in this chapter, if procured specifically shall be paid separately.

9. The T&P including lawn mower will be arranged by the agency in labour or through rates. If T&P and lawn mowers are supplied by the Department, deduction shall be made from the rates.

10. For calculation of regular establishment per Mali output lawn area 4048 sqm; trees 500 nos.; shrubs 600 nos.; pot plant ,small size up to 30 cm- 1500 nos. and big size more than 30 cm- 400 nos.; beds 600 sqm, edge/hedge 1500 metres; open area two acres and rough grass three acres has been taken. One supervisor and Head Mali for 20 no. Mali’s is to be taken. For seasonal work 10% extra labour is to be taken.

11. The rates are exclusive of GST, ESI and EPF but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 26.0 - HORTICULTURE AND LANDSCAPING						
26.1	Supplying and stacking at site of work well-decayed farm-yard manure from any available source, approved by the Engineer-in-charge including screening through sieve of I.S.designation 16 mm with 5 km lead.		cum	54	0	476	531
26.2	Supplying and stacking of good quality top layer garden earth free from debris and weeds, at site including royalty and carriage/lead 5 km (good earth measured in stacks will be reduced by 20 % for payment) only for filling of pots and flower beds .		cum	144	0	196	340
26.3	**Supplying at site good earth /soil-less media and/ or organic matter, preparation of top dressing mixture or pot media**			0	0	0	0
	26.3.1	Supplying at site of work well-decayed farm-yard manure from any available source, approved by the Engineer-in-charge including screening through sieve of I.S.designation 16 mm with 5 km lead and supply of good earth making mixture in ratio of 1:2	cum	140	0	307	446
	26.3.2	Supplying at site of work well-decayed farm-yard manure from any available source, approved by the Engineer-in-charge including screening through sieve of I.S.designation 16 mm with 5 km lead and supply of good earth , FARM YARD MANURE and coco peat making mixture in ratio of 2:1:1	cum	87	0	822	909
	26.3.3	Supplying at site of work well-screened fine sand and vermi compost at site of work and making mixture in ratio 1:1	cum	50	0	2784	2833
	26.3.4	Supplying at site of work well-screened Yamuna sand and Neem Cake at site of work and making mixture in ratio 3:1	cum	50	0	3998	4048
	26.3.5	Supplying at site of work coco peat , vermiculite and perlite in ratio of 2:1:1, adding fertilizer DAP to make Potting media .	cum	50	0	4423	4473
	26.3.6	Spreading of sludge, farm-yard manure or/and good earth in required thickness (Cost of sludge, farm-yard manure or/and good earth to be paid for separately)	cum	29	0	0	29
	26.3.7	Mixing earth and sludge or farm yard manure in proportion specified or as directed.	cum	21	0	0	21
26.4	**SITE CLEARANCE**						
	26.4.1	Excavation in dumped stones or malba including stacking of serviceable and unserviceable material separately and disposal of unserviceable metreial, lead up to 50m and lift up to 1.5 m, disposed material to be neatly dressed	cum	251	0	0	251
	26.4.2	Surface dressing of ground including removing rank vegetation and inequalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m in all kind of soils .	sqm	12	0	0	12
	26.4.3	clearing jungle manually including uprooting rank vegetation , grass, woody vegetation up to 30cm girth measured at height 1 m above ground level and removal of rubbish up to a distance of 50 m out side the periphery of the area cleared	sqm	6	0	0	6
	26.4.4	Felling of trees of girth (measured at a height of 1 m above ground level) including cutting of trunks and branches, removing the roots and stacking of serviceable material , disposal of unserviceable material and filling in pits and repression- Beyond 30cm girth up to and including 60 cm girth .	each	168	0	0	168
	26.4.5	Felling of trees of girth (measured at a height of 1 m above ground level) including cutting of trunks and branches, removing the roots and stacking of serviceable material , disposal of unserviceable material and filling in pits and repression- Beyond 60cm girth up to and including 120 cm girth .	each	796	0	0	796
	26.4.6	Felling of trees of girth (measured at a height of 1 m above ground level) including cutting of trunks and branches, removing the roots and stacking of serviceable material , disposal of unserviceable material and filling in pits and dressing - Beyond 120cm girth up to and including 240 cm girth .	each	3561	0	0	3561
	26.4.7	Felling of trees of girth (measured at a height of 1 m above ground level) including cutting of trunks and branches, removing the roots and stacking of serviceable material , disposal of unserviceable material and filling in pits and dressing above 240 cm girth	each	6285	0	0	6285
	26.4.8	Uprooting rank vegetation and weeds by digging the area to a depth of 60 cm removing all weeds and other growth with roots by forking repeatedly, breaking clods, rough dressing, flooding with water, uprooting fresh growths after 10 to 15 days and then fine dressing for planting new grass, including disposal of all rubbish with all leads and lifts.	sqm	34	0	0	34
	26.4.9	Trenching in all kinds of soil up to a depth of 60 cm including removal and stacking of serviceable MATERIALs and then disposing of by spreading and neatly levelling with in a lead of 50 metres and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/an farm-yard manure before and after flooding trench with water (excluding cost of imported earth and sludge or farm-yard manure)	cum	44	0	0	44
	26.4.10	Rough dressing the trenched ground including breaking clods.	100 sqm	1	0	0	1
	26.4.11	Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted	sqm	3	0	0	3
	26.4.12	Fine dressing the ground	sqm	2	0	0	2
26.5	Making lawns with rough grassing including uprooting rank vegetation and weeds by digging area to a depth of 15 cm , removing all weeds and other growth with roots by forking repeatedly, ploughing and dragging with 'swagha' breaking of clods, removal of rubbish, dressing and supplying doob grass roots, and planting at 15 cm apart, including supplying and spreading of farm-yard manure at the rate of 0.18 cum per 100 sqm fertilizers etc		sqm	11	0	1	12
26.6	Maintenance of rough grassing, including fertilizer application , watering and mowing etc for a period of one year.		per sqm	17	0	0	17
26.7	Grassing of grounds with doob grass including uprooting rank vegetation and weeds by digging area to a depth of 15 cm , removing all weeds and other growth with roots by forking repeatedly, ploughing and dragging with 'swagha' breaking of clods, removal of rubbish, dressing and supplying doob grass roots, and planting at 10 cm apart in both directions , watering weeding including supplying and spreading of farm-yard manure at the rate of 0.18 cum per 100 sqm fertilizers etc and maintenance till weed free turf is formed		sqm	14	0	8	21
26.8	Maintenance of grassy grounds including fertilizer application, watering, weeding, top dressing with good earth and manure mixture, maintaining fine level, regular mowing and removal of rubbish with all lifts and leads.		per sqm per year	20	0	0	20
26.9	Turfing lawns with fine grassing (selection no.1/ Bermuda and Mexican/Neelgiri grass)including ploughing, dressing including breaking of clods, removal of rubbish, dressing and supplying of selection no. 1 / Bermuda doob grass and Mexican/Neelgiri grass roots, including supplying and spreading of farmyard manure at the rate of 0.60 cum per 100 sqm, maintenance till weed free turf is formed						
	26.9.1	Planting selection no. 1 grass roots in rows 5 cm apart in both directions .	sqm	26	0	27	53
	26.9.2	Planting selection no. 1 grass roots in rows 7.5 cm apart in both directions .	sqm	23	0	20	42
	26.9.3	Planting selection no. 1 grass roots in rows 10 cm apart in both directions .	sqm	17	0	14	31
	26.9.4	Providing and fixing Selection no. 1 grass turf with earth 50mm to 60mm thickness and ramming with required wooden tools, rolling with light roller to make the surface smooth and even	sqm	22	0	76	98
	26.9.5	Planting Neelgiri/ Mexican grass roots in rows 5 cm apart in both directions.	sqm	21	0	68	89
	26.9.6	Planting Neelgiri/ Mexican grass roots in rows 7.5 cm apart in both directions.	sqm	19	0	51	70
	26.9.7	Planting Neelgiri/ Mexican grass roots in rows 10 cm apart in both directions.	sqm	19	0	35	54
	26.9.8	Providing and fixing Neelgiri/ Mexican grass turf with earth 50mm to 60 mm thickness and ramming with required wooden tools, rolling with light roller to make the surface smooth and even.	sqm	18	0	203	222
26.10	Maintenance of fine grass lawn for one year including fertilizer application, DAP @ 20gm/sqm, urea 40gm/sqm, watering, weeding, top dressing with good earth and manure mixture 2:1 @ 0.01cum per sqm, maintaining fine level, regular mowing and removal of rubbish with all lifts and leads.		sqm	39	0	4	43
26.11	**Removal of weeds from grassy lawn**						
	26.11.1	Weeding out of lawn, where weeds are up to 50%, by removal of all weeds and other wild growth with roots by forking including disposal of garden rubbish with all leads and lifts complete.	sqm	12	0	0	12
	26.11.2	Weeding out of lawn, where weeds are up to 25%, by removal of all weeds and other wild growth with roots by forking including disposal of garden rubbish with all loads and lifts complete.	sqm	6	0	0	6

	26.11.3	Broadleaf Weed control in garden using weedicide, once, including cost of chemical.@3gm chemical per 1000sqm	sqm	0	0	0	0
	26.11.4	Nut grass (Motha) control in garden using weedicide, once, including cost of chemical Halosulfuron methyl 75% WD @8.40g per 1000 sqm	sqm	0	0	0	1
26.12	Renovating lawns including, weeding, cheeling the grass, forking the ground, top dressing with mixture of good earth and manure 2:1, mixing the same with forked soil, watering and maintaining the lawns, for 30 days or more, till the grass forms a thick lawn, free from weeds, and fit for mowing and disposal of rubbish as directed, including supplying good earth, if needed, including the cost of well decayed farm-yard manure1.25 cum, Yamuna sand 1.25 cum per 100 sqm .		sqm	25	0	9	34
26.13	Digging holes in all kinds of soil, and refilling the same, with the excavated earth, mixed with well decayed farmyard manure (cost of well decayed farm yard manure to be paid separately)						
	26.13.1	Hole 1.2 metre dia and 1.2 metre deep	per hole	159	0	0	159
	26.13.2	Hole 0.90 metre dia and 0.90 metre deep	per hole	78	0	0	78
	26.13.3	Hole 0.75 metre dia and 0.75 metre deep	per hole	45	0	0	45
	26.13.4	Hole 0.60 metre dia and 0.60 metre deep	per hole	23	0	0	23
	26.13.5	Hole 0.45 metre dia and 0.45 metre deep	per hole	10	0	0	10
	26.13.6	Digging of pits in all kinds of soil & refilling the same, with the excavated earth mixed with well decayed farm yard manure @ 30% of pit volume and insecticide for termite control (Excluding cost of FYM and Insecticide.)	cum	134	0	0	134
26.14	Supplying and planting in prepared pits and watering, healthy , vigorous growing , permanent trees including ,application of 10 ml chlorpyriphos 20% EC, planting desired disease free, 200 cm to 220 cm height ,4 cm to 5 cm calliper size stem , full of foliage ornamental tree sapling each to be supplied in 30cm x 30cm poly bags,		each	14	0	141	155
26.15	Maintenance of tree including fertilization, application of insecticide, watering, weeding, training, pruning,						
	26.15.1	Maintenance of tree for one year for the 1st three years of age including weeding, hoeing , plant protection , watering from Deptt. source , application of 4 ml chlorpyriphos four times, 0.0289 cum FYM each,50 gm urea twice ,replacement of casualty ,disposal of debris and other activities.etc.	each	339	0	41	380
	26.15.2	Maintenance of tree for one year for the age of tree of 4th, 5th and next years including weeding, hoeing, plant protection, the watering from Deptt. source, application of 4 ml chlorpyriphos four times, 0.0289 cum FYM each, 50 gm urea twice, replacement of casualty etc.	each	189	0	46	235
26.16	Pruning, trimming, shaping of mature trees /shrubs (ht 15 feet and above) including removal and disposal of cut materials up to 50m lead.		each	44	0	0	44
26.17	**Stacking of Trees**						
	26.17.1	Providing and fixing single stack for a tree with bamboo 38 mm dia, 1.80 m long	each	6	0	68	74
	26.17.2	Providing and fixing double stake for tree with bamboos 38 mm dia, 1.80 m long	each	12	0	135	147
	26.17.3	Three point guying of large palms and trees with coir ropes	each	12	0	113	124
26.18	Supply and planting of disease free healthy , vigorous growing more than 60 cm height permanent shrubs in already prepared pits, supplied in 25 cm x 20 cm poly bags , application of 10 ml chlorpyriphos 20% E.C. termiticide each and watering supplied through the tractor tanker.		each	2	0	57	59
26.19	Maintenance of shrub for one year including weeding, hoeing, plant protection, watering from Deptt. source, application of 4 ml chlorpyriphos four times in a year , 0.0289cum FYM each, 20 gm urea and 20 gm DAP twice, replacement of casualty etc.						
	26.19.1	Individual shrubs	each	240	0	41	282
	26.19.2	Shrubs planted in groups making continuous block.	sqm	257	0	23	280
26.20	Planting rare and specimen tree plants in already prepared pits (Ficus starlight, Terminalia menatalis , Michelia champaca ,Cyprus (Golden juniperous) ,more than 180cm height topiary of 10 to 12 no. well trimmed bolls of more than 30cm size of Ficus nuda, Ficus retusa, Ficus long island , Ficus panda, Golden bottle brush , casurina equistefolia , Bottle palm with stem circumference at base more than 40cm ,Washingtonia palm of healthy clear stem height below leaf more Thant 90 cm) including , fertilizer and insecticides chlorpyriphos 10 ml per pit, planting of 180cm to 210cm tall sapling in position and flooding with water .specie of plant will be decided by engineer in charge.		each	9	0	975	984
	26.21	Maintenance of specimen tree for one year including weeding, hoeing , plant protection , watering from Deptt. source , application of 10 ml chlorpyriphos four times, 0.0289 cum FYM each,50 gm urea and 50 gm DAP twice ,replacement of casualty ,disposal of debris and other activities.etc.	each	422	0	145	567
26.22	**Planting seasonal flower in beds**						
	26.22.1	Planting flower beds including digging 15 cm deep bed and refilling of beds with excavated soil and FYM 0.0508 cum per sqm , Fertilizer DAP 50 gms and insecticides chlorpyriphos 10 ml per sqm , planting of F1 hybrid flower saplings to be supplied in tray pots / thumb pots at 20 cm distance from plant to plant and row to row minimum 25 no . plants per sqm	sqm	41	0	173	213
	26.22.2	Planting flower beds including digging 15 cm deep bed and refilling of beds with excavated soil and FYM 0.0508 cum per sqm , Fertilizer DAP 50 gms and insecticides chlorpyriphos 10ml per sqm , planting of F1 hybrid well bloomed flower saplings to be supplied in polybags at 25cm distance from plant to plant and row to row minimum 15 no . plants per sqm	sqm	40	0	583	624
26.23	Maintenance of flower beds for one year including , application of FYM 0.050 cum , insecticide 10ml, fertilizer 20 gm ,per sqm , planting F1 Hybrid flower seedlings to be supplied in Plastic tray pots/thumb pots in winter, summer and rainy season @ 20cm apart row to row and plant to plant, 25 no. plants per sqm each time each season stacking with Kaanas and including all		sqm	153	0	327	479
26.24	Planting bulbous flower beds including digging 30 cm deep bed and refilling of beds with excavated soil and FYM 0.0508 cum per sqm , Fertilizer DAP 50 gms and insecticides chlorpyriphos 10 ml per sqm , planting of bold size flower bulbs of improved cultivars to be supplied and planted at 30 cm distance from plant to plant and row to row minimum 12 no . bulbs per sqm		sqm	41	0	353	394
26.25	Maintenance of bulbous flower beds for one year including , application of FYM 0.050 cum , insecticide 10ml, fertilizer 20 gm ,per sqm , planting bulbous flower bulbs to be supplied in Plastic tray pots/thumb pots in winter, summer season @ 30cm apart row to row and plant to plant, 11 no plants per sqm each time each season stacking with Kaanas and including all horticultural		sqm	166	0	707	873
26.26	Planting ground cover plants including digging 30 cm deep bed and refilling of beds with excavated soil and FYM 0.0508 cum per sqm , Fertilizer DAP 50 gms and insecticides chlorpyriphos 10ml per sqm , planting of saplings at 23cm distance from plant to plant and row to row, minimum 19 no. plants per sqm		sqm	40	0	202	242
26.27	Maintenance of ground cover plants for one year including application of FYM 0.0508 cum , insecticide 10ml, fertilizer 20 gm ,per sqm, replacement of casualty with same specie of plant and all horticultural practices.		sqm	124	0	52	176
26.28	Supply and planting healthy disease free 30 cm to 45 cm height ground cover of rare species plants .i.e. Rasselia, Chlorophytum, Juniperous prostata, Asparagus grass, cuphea chinensis, ipomea, Portulacaria (Jade plant)Zebrina Trades Cantia etc) including digging 30 cm deep bed and refilling of beds with excavated soil and FYM 0.075cum per sqm , Fertilizer DAP 100 gms and insecticides chlorpyriphos 10ml per sqm , planting of saplings of rare specie of plants to be supplied in 15cm x 20cm ' polybags with full of leaves and in healthy condition at 30cm distance from plant to plant and row to row minimum 11 to 15 no. plants per sqm ,and watering		sqm	57	0	353	411
26.29	Maintenance of Specimen ground cover plants for one year including application of FYM 0.0508 cum , insecticide 10ml four time in a year , fertilizer 20 gm DAP and Urea each per sqm twice in a year , replacement of casualty with same specie of plant and including all horticultural practices.		sqm	142	0	78	220
26.30	Supplying healthy, well branched, well bloomed and Planting rose beds including digging 15 cm deep bed and refilling of beds with excavated soil and FYM 0.0508 cum per sqm , Fertilizer DAP 50 gms and insecticides chlorpyriphos 10ml per sqm , planting of hybrid Budded rose saplings to be supplied in earthen pots /20cm x15cm polybags , planting of sapling at 45 to 60 cm distance from plant to plant and row to row and 5 no. plants per sqm		sqm	26	0	134	161
26.31	Maintenance of rose beds for one year including application of FYM 0.0289 cum, DAP 100gm ,insecticide chlorpyriphos 20% EC 10 ml, Fungicide Blitox/bavistin 20gm per sqm replacement of dead plants with same specie/quality of plant.		sqm	97	0	40	137

26.32	Planting permanent edging plants around beds, lawn or along paths including of digging of trench 45 cm wide to 15 cm depth, refilling the excavated earth, mixed with farm-yard manure, supplied at the rate of 0.9 cum per sqm and supplying and planting hedge/ edge at 20 cm apart in one or two rows @11no. well trimmed bushy ,multi branched ,30 cm to 45 cm in height plants to be supplied in 15 cm x 15 cm poly bags per sqm .		metre	13	0	82	95
26.33	Maintaining the permanent edging plants for the one year including application of FYM @ 0.0289 cum ,chlorpyriphos 9ml, urea and DAP 40gm each per year ,watering, hoeing weeding trimming and shaping ,replacement of casualty as and when noticed.		metre	45	0	18	63
26.34	Planting permanent hedges including digging of trenches, 60 cm wide and 45 cm deep, refilling the excavated earth, mixed with farm-yard manure, supplied at the rate of 1.62 cum per 18 sqm, DAP 0.6kg, Chlorpyriphos 20%EC@ 0.20 litre per 18 sqm and supplying and planting hedge at 30 cm apart in two rows @ 202 no. well trimmed bushy ,multi-branched ,30 cm to 45 cm in height plants to be supplied in 15 cm x 15 cm poly bags per 18 sqm .		sqm	15	0	211	226
26.35	Maintaining the hedges for one year including watering, hoeing weeding trimming and shaping ,replacement of casualty as and when noticed, application of Farm yard manure @ 0.0127 m layer over surface, application of insecticide chlorpyriphos @ 2ml per sqm twice , urea @40gm and DAP @10 gm per sqm once in a year.		sqm	208	0	29	237
26.36	Maintaining and Cutting of designer hedge/edge for one year including removing of cut materials, cleaning, hoeing of hedge/edge bed, watering, manuring @ 0.0127 cum/sqm and applying insecticides @ 2ml/sqm and fungicides @ 1ogm/sqm etc including cost of insecticide, water and spraying machine.		sqm	284	0	29	313
26.37	Providing black nursery polybags filled with mixture of screened manure and good earth in the ratio 1:2 filled to full volume.						
	26.37.1	Polyurethane bags size 10 cm dia x 15 cm height	per bag	0	0	1	1
	26.37.2	Polyurethane bags size 15 cm dia x 20 cm height	per bag	2	0	2	4
	26.37.3	Polyurethane bags size 25 cm dia x 30 cm height	per bag	7	0	7	14
	26.37.4	Polyurethane bags size 35 cm dia x 35 cm height	per bag	20	0	16	36
	26.37.5	Polyurethane bags size 45 cm dia x 45 cm height	per bag	39	0	32	71
26.38	Supply of well burnt cylindrical earthen pots and filling of the following size empty pots with mixture of good earth & manure in the ratio of 2:1 (Two part of Good earth & one part of manure)and placing them on appropriate place i/c carriage of earth, manure and pots up to 50 metre, as per direction of officer in charge.						
	26.38.1	15 cm size of pots filled to full volume.	per pot	1	0	30	31
	26.38.2	20 cm size of pots filled to full volume.	per pot	2	0	49	51
	26.38.3	25 cm size of pots filled to full volume.	per pot	4	0	62	66
	26.38.4	30 cm size of pots filled to full volume.	per pot	4	0	85	89
	26.38.5	Well finished earthen tray pots 23 cm dia x 23 cm deep size	each	8	0	87	95
	26.38.6	Well finished earthen tray pots 30 cm dia x 23 cm deep size	each	4	0	176	180
26.39	Providing Circular /square Cement Concrete pots of specified size, cast with cement concrete of nominal mix 1:2:4(1 cement:2 coarse sand:4 graded stone aggregate 6 mm nominal size), including required from work, finishing with cement punning on exposed surface, curing for specified period and stacking in required rows & height, all complete as per direction of Officer-in-Charge. Filling 2/3rd volume with mixture of good earth and screened manure in the ratio 2:1.						
	26.39.1	cement pots size 30cm x30cm	per pot	4	0	81	85
	26.39.2	cement pots size 35 cm x35 cm	per pot	10	0	128	138
	26.39.3	cement pots size 45cm x45cm	per pot	21	0	209	229
	26.39.4	cement pots size 50 cm x 50 cm	per pot	28	0	309	337
	26.39.5	cement pots size 60cm x 60 cm	per pot	49	0	450	499
26.40	Providing 1st quality heavy duty plastic pot with base plate at site of work, filling with mixture of good earth and screened manure and coco peat in the ratio 2:1:1						
	26.40.1	15 cm size of pots filled to 2/3rd volume	per pot	1	0	13	14
	26.40.2	20 cm size of pots filled to 2/3rd volume.	per pot	2	0	28	29
	26.40.3	25 cm size of pots filled to full volume.	per pot	4	0	55	59
	26.40.4	30 cm size of pots filled to full volume.	per pot	6	0	90	96
	26.40.5	35 cm size of pots filled to 2/3rdvolume.	per pot	9	0	109	118
	26.40.6	40 cm size of pots filled to 2/3rd volume.	per pot	13	0	169	182
	26.40.7	45 cm size of pots filled to 2/3rd volume.	per pot	19	0	272	291
	26.40.8	50 cm size of pots filled to 2/3rd volume.	per pot	26	0	418	444
	26.40.9	60 cm size of pots filled to 2/3rd volume.	per pot	45	0	754	800
26.41	Supplying seasonal flowers of F1 hybrid quality in earthen pots at site of work, as specified by Engineer-in-charge						
	26.41.1	Seasonal flower seedlings in 20 cm size of pots	per pot	2	0	66	68
	26.41.2	Seasonal flower seedlings in 25 cm size of pots	per pot	3	0	91	94
	26.41.3	Planting and supplying F1 hybrid seasonal plants in flowering stage in 25 cm size of pots	per pot	2	0	159	161
26.42	Supplying Dahlia/Chrysanthemum plants in earthen pots at site of work, as specified by Engineer-in-charge						
	26.42.1	Korean/ Spray type chrysanthemum cuttings in 25 cm size of pots, 3 cuttings in per pot.	per pot	2	0	84	86
	26.42.2	Ball type Dahlia/Chrysanthemum cuttings in 25 cm size of pots	per pot	3	0	69	72
	26.42.3	Planting and supplying Dahlia/Chrysanthemum plants in flowering stage in 25 cm size of pots	per pot	3	0	294	296
26.43	Maintenance of seasonal plants, Dahlia and Chrysanthemum in pots for one month		per pot	8	0	6	15
26.44	Supplying indoor decorative plants with fresh foliage,60cm-75 cm in height' 3-4 stems per pot, full of leaves, suitable for earthen pots / plastic pots size 30cm dia and 30cm deep(average size),and displaying indoor including the cost of material (garden soil, cocopeat, FYM in2:1:1 proportion),with ,PVC plate. complete in all respects.						
	26.44.1	In Plastic Pot	per pot	3	0	211	214
	26.44.2	In Earthen Pot	per pot	9	0	229	238
26.45	Maintenance of indoor potted plants for one year including watering, application of fertilizer NPK 20:20:20 @20 gm ,and vermi compost 50 gm , manure, snowcem/ apex every month, replacement of pot plate, broken pot, dead plant with same specie of plant etc.		per pot	186	0	24	210
26.46	Supplying specimen pot plant in 45 cm plastic pots with plastic plate for indoor display at site of work. with fresh foliage,60 cm-75 cm in height' 3-4 stems per pot, full of leaves, ,and displaying indoor including the cost of material (garden soil, cocopeat, FYM in 2:1:1 proportion),with ,PVC plate. complete in all respects.		per pot	23	0	755	778
26.47	Maintenance of indoor specimen potted plants for one year including watering, application of fertilizer NPK 20:20:20 @30 gm ,and vermi compost 100 gm twice , manure, snowcem/ apex every month, replacement of pot plate, broken pot, dead plant with same specie of plant etc.		per pot	557	0	76	633
26.48	Supplying decorative plant in 30 cm cement pots for outdoor display at site of work with fresh foliage of 60cm-75 cm in height' 3-4 stems per pot, full of leaves, suitable for earthen pots / plastic pots size 30cm dia and 30cm deep(average size) and displaying including the cost of material (garden soil, cocopeat, FYM in2:1:1 proportion),with ,PVC plate. complete in all respects.		per pot	9	0	273	282
26.49	Maintenance of outdoor potted plants for one year including watering, application of fertilizer NPK 20:20:20 @20 gm ,and vermi compost 50 gm , manure, snowcem/ apex every month, replacement of pot plate, broken pot, dead plant with same specie of plant etc.		per pot	338	0	59	398
26.50	Supplying specimen pot plant in 45 cm cement pots with plastic plate for outdoor display at site of work. with fresh foliage,60 cm-75 cm in height, 3-4 stems per pot, full of leaves, ,and displaying indoor including the cost of material (garden soil, cocopeat, FYM in 2:1:1 proportion),with ,PVC plate. complete in all respects.		per pot	23	0	729	753
26.51	Maintenance of outdoor specimen potted plants for one year including watering, application of fertilizer NPK 20:20:20 @30 gm ,and vermi compost 100 gm twice , manure, snowcem/ apex every month, replacement of pot plate, broken pot, dead plant with same specie of plant etc.		per pot	424	0	74	498

26.52	Preparation of mounds of various size and shapes including supply of good earth, in layers not exceeding 20 cm in depth, breaking of clods, watering each layer, dressing etc, lead up to 50 m and lift up to 1.5 m complete as per directions (excluding cost of good earth and manure which will be supplied separately.)		cum	190	0	0	190
26.53	Watering of trees, shrubs, ground covers etc. through tractor tanker of 5000 litre capacity including cost of water with all leads and lifts and including cost of water, fuel ,filling of tanker, watering at site with all leads and lifts as per direction of officer - in-charge.(for 1 No. Tree 30 litres water per plant 27 no . irrigations per year , shrub 20 litres/ per plant 27 no irrigations per year , lawn 2.5 cm layer or 25 litre/sqm 50 no irrigations per year , ground cover / flower bed / rose bed 2.5 cm layer or 25 litre/sqm 40 no. irrigations per year , hedge for 2.5 cm layer or 25 litre/sqm 40 no. irrigations per year , Pot plant 3 litre water daily 250 irrigations per year		per trip of 5000 litres	0	0	527	527
26.54	Anti termite treatment of lawns, mature trees.						
	26.54.1	Treatment of lawn area through Imidacloprid 30.5% SC including cost of insecticide, water and spraying machine	sqm	0	0	4	4
	26.54.2	Treatment around mature trees by digging holes 30 cm deep and 4 cm dia, 6 to 7 holes around tree using 1% chemical emulsion of Chlorpyriphos 20% E.C.	each	9	0	68	77
26.55	Edging of paths/ beds with bricks/tiles laid dry, including required excavation, refilling, consolidating with hand and spreading neatly surplus earth within a lead of 50 meters						
	26.55.1	Bricks laid lengthwise with half brick depth	metre	5	0	39	43
	26.55.2	Alternate bricks laid horizontally and vertically	metre	5	0	50	55
	26.55.3	Vertical bricks, half brick projecting above ground	metre	5	0	77	82
	26.55.4	Brick inclined at 60 deg to horizontal	metre	5	0	66	71
	26.55.5	Tiles laid lengthwise with half tile depth	metre	5	0	39	44
	26.55.6	Alternate tiles laid horizontally and vertically	metre	5	0	50	55
26.56	Providing & fixing of Haridwar Pebbles(White river stone size of 2" to 2.50"dia in natural colour at site of work including loading, unloading, carriage and all taxes paid etc. as per direction of office in charge.		quintal	84	0	1170	1254
26.57	Clearing herbaceous wild growth						
	26.57.1	Clearing by manual labour, collection and disposal of undesirable material.	sqm	3	0	0	3
	26.57.2	From central verge, narrow road berm or uneven area with bush cutter, collection and disposal of undesirable	sqm	1	0	0	1
	26.57.3	From open areas with shrub master and brush cutter, collection and disposal of undesirable material.	ha	5783	0	0	5783
26.58	Supply and installation of garden bench						
	26.58.1	Chair type garden bench with L-shaped sides made of reinforced concrete (M30), thickness 100 mm, overall height 1000 mm, base width 620 mm. Back and seat shall consist of 5 Nos. reinforced concrete planks 1500 mm x 100 mm x 50 mm one plank 1500 mm x 200 mm x 50 mm. Seating height of the bench shall be 450 mm. The bench shall be fixed with nuts on concrete mount, all holes sealed after assembly and installation. All materials required to be as per BIS specifications.	each	62	0	4704	4766
	26.58.2	Rectangular garden bench with h-shaped sides made of reinforced concrete (M30), thickness 100 mm, back height 750 mm, base width 450 mm. Back and seat shall consist of rectangular reinforced concrete planks 1500 mm x 350 mm x 50 mm. Seating height of the bench shall be 450 mm. The bench shall be fixed with nuts on concrete mount, all holes sealed after assembly and installation. All materials required to be as per BIS specifications.	each	85	0	3482	3566
	26.58.3	Cast Iron bench of 1800 mm length, 900 mm width, 450 mm seating height, sides made of cast iron. Seat and back shall be made of 10 strips of M.S. pipes 63 mm x 25 mm of 14 gauge with one M.S. Flat 25 x 10 mm welded at the centre, below and back of the seat and back rest. Spray painted with approved brand paint. Fixed by grouting with 1:2:4 cement concrete (Minimum weight of each bench 105 kg). All materials required to be as per BIS specifications.	each	85	0	11206	11291
26.59	Supply of wooden planter covers for indoor pot plants.						
	26.59.1	Wooden planter 420mm x 420mm x 420mm, consisting of 4 panels each made of 4 No's wooden slats of size 420 mm x 38 mm x 38 mm, 20 No's wooden slats of 420 mm x 38 mm x 25 mm, and 4 No's water proof plywood sheets 4 mm thick of size 344 mm x 382 mm fixed on inner side of each panel fixed with nails, one coat of primer and two coats of enamel paint.	each	493	0	715	1208
	26.59.2	Wooden planter for 10 inch pot, outer size 330mm x 330mm x 320mm, made of 30 mm x 20 mm horizontal wooden slats and 30 mm x 30 mm vertical slats fixed with nails, finished with spirit polish and varnish as per specifications complete.	each	1068	0	512	1580
	26.59.3	Wooden planter for 12 inch pot, outer size 400mm x 400mm x 360mm, made of 40 mm x 20 mm horizontal wooden slats and 30 mm x 30 mm vertical slats fixed with nails, finished with spirit polish and varnish as per specifications complete.	each	1311	0	785	2096
	26.59.4	Wooden planter for 18 inch pot, outer size 600mm x 600mm x 600mm, made of 55 mm x 20 mm horizontal wooden slats and 40 mm x 40 mm vertical slats fixed with nails, finished with spirit polish and varnish as per specifications complete.	each	1697	0	1821	3517
26.60	Half brick circular tree guard in Ist class bricks internal dia 1.25 metren and height 1.2 metre above ground and 0.20 metre below ground, bottom two courses laid dry and top three courses in cement mortar (1:6) i.e. 1 cement and 6 sand and the intermediate course.		each	235	0	1794	2029
26.61	Providing and fixing bamboo tree guard with 4 No. legs of bamboo sticks of 25mm dia and 1.5 metre length. Rings of bamboos duly attached to the legs with nuts bolts and washers. Legs up to 30cm dipped in bitumen.		each	23	0	515	538
26.62	PCC tree-guard with appropriate reinforcement with MS bars of 8mm, 6mm and 4mm, having four panels of equal size and specification, consisting of overall height of 1800 mm and overall width of 620 mm including all carriage. All materials required to be as per BIS specifications.		each	66	0	1931	1997
26.63	Providing and fixing steel tree guard						
	26.63.1	MS circular tree guard 60 cm dia and 1.8 metres. height above ground level formed of 4 Nos. of angle irons of 25 x 25 x 3 mm 2.10 m long, 4 Nos. 25mm x 3mm, 1.5 m long vertical MS flat welded to 3 no. 25 mm x 6mm M.S flat iron rings in two halves bolted together with 8mm dia & 30 mm long bolts and fixing 250 mm X 100 mm iron plate, fixed in ground with 1:2:4 cement concrete, complete in all respects. Minimum weight should be 20.85 kg before primer and paint .	each	339	0	1366	1705
	26.63.2	MS circular tree guard with wire mesh, having 4 No. legs of angle iron size 25x25x3mm, 1.80 metre. height, 3 No rings of M.S Flats of 25 x 6 mm, 60cm dia and fixing of wire mesh size 50x75mm. Tree guard in two halves bolted together with 8mm dia & 30 mm long bolts, and fixing 250 mm X 100 mm iron plate, fixed in ground with 1:2:4 cement concrete, complete in all respects. Minimum weight should be 23 kgs	each	318	0	1536	1854
	26.63.3	M.S. Bar circular iron tree guard 60 cm dia, 1.8 m total height, formed of 3 Nos. of MS Round Bars 12 mm dia. 1.9 m long, wire mesh 50 x 75 mm welded to 3 no. 8 mm M.S. Bars rings, fixed in ground with 1:2:4 cement concrete, complete in all respects. Minimum weight 14.32 kg	each	255	0	987	1242
	26.63.4	M.S. Flat iron tree guard 45 cm square and 1.8 metres. height above ground level formed of 4 Nos. of angle irons of 25 x 25 x 3 mm 2.1 m long, 5 Nos. 25mm x 3mm horizontal MS flats welded to verticals on each side. Tree guard in two halves bolted together with 8mm dia & 30 mm long bolts, fixed in ground with 1:2:4 cement concrete, complete in all respects. Minimum weight 15.67 kg	each	285	0	1067	1352
	26.63.5	M.S. Flat iron tree guard 45 cm square and 1.8 metres. height above ground level formed of 4 Nos. of angle irons of 25 x 25 x 3 mm 2.1 m long, 5 Nos. 25mm x 3mm horizontal MS flats welded to verticals on each side, wire mesh 50 x 75 mm welded to angles and flats. Tree guard in two halves bolted together with 8mm dia & 30 mm long bolts, fixed in ground with 1:2:4 cement concrete, complete in all respects. minimum weight 17.54 kg	each	348	0	1312	1661
	26.63.6	M.S. Flat iron tree guard 45 cm square and 0.8 metres. height above ground level formed of 4 Nos. of angle irons of 25 x 25 x 3 mm 1.1 m long, 2 Nos. 25mm x 3mm horizontal MS flats welded to verticals on each side. Tree guard in two halves bolted together with 8mm dia & 30 mm long bolts, fixed in ground with 1:2:4 cement concrete, complete in all respects. Minimum weight 7.63 kg	each	161	0	556	718
26.64	Removing, repairing and refixing steel tree guard with 1:2:4 cement concrete, neatly welded surface, painting two coats with 1st quality synthetic enamel paint, writing on plate complete to the satisfaction of oficer in-charge.						

	26.64.1	MS circular tree guard 60 cm dia and 1.8 metres. height in two halves bolted together Weight 20.85 kg	each	215	0	104	319
	26.64.2	MS circular tree guard with wire mesh, 1.80 metre. height, in two halves bolted together, weight 22.84 kg	each	183	0	104	287
	26.64.3	M.S. Bar circular iron tree guard 60 cm dia, 1.8 m total height, with wire mesh, welded. Wt 14.32 kg	each	186	0	104	290
	26.64.4	M.S. Flat iron tree guard 45 cm square and 1.8 metres. Height, in two halves bolted together, weight . 15.67 kg	each	173	0	94	267
	26.64.5	M.S. Flat iron tree guard 45 cm square and 1.8 metres. Height with wire mesh wire mesh, in two halves bolted	each	168	0	99	267
26.65	Providing and fixing bamboo Jeffery/ fencing consisting of superior quality 25 mm dia (Average) half cut bamboo placed vertically and fixed together with three numbers horizontal running members of Sal wood in scantling of section 50mm x 25mm, fixed with nails and 4 mm gauge G.I. wire on existing support complete as per directions of Engineer-in-charge.		sqm	100	0	963	1063
26.66	Providing and fixing of garden fencing of green hexagonal net.						
	26.66.1	Fixing of fencing with MS angles 25 x 25 x 3 mm, 1.5 m above ground fixed 30 cm under ground at 3m centre to centre with cement concrete 1:2:4. Net to be fixed with nut bolts with washer at three places and one 4 mm GI wire running through the net at top and bottom for stability and strength.	sqm	10	0	228	238
	26.66.2	Fixing of fencing with MS angles 25 x 25 x 3 mm frame, vertical members 1.5 m above ground fixed 30 cm in ground at 2m centre to centre with cement concrete 1:2:4. Net to be fixed with nut bolts and washers	sqm	71	0	582	653
26.67	Providing and fixing vertical garden panels on aluminium tube (50 x25 x 1.5 mm) frame, fixed on wall, with growing media of coco peat, perlite and vermiculite 2:1:1, amended with fertilizers and plants as specified by the engineer in charge including drip irrigation complete.						
	26.67.1	Indoor vertical garden	sqm	386	0	8092	8478
	26.67.2	Outdoor vertical garden	sqm	272	0	7561	7833
26.68	Maintenance of vertical garden for one year, complete with replacement of plants, panels, drip equipment etc., replenishing decomposed media, watering and fertilization to the entire satisfaction of officer in-charge						
	26.68.1	Indoor vertical garden	sqm	131	0	843	974
	26.68.2	Outdoor vertical garden	metre	134	0	768	901
26.69	Supply and installation of inline drip irrigation						
	26.69.1	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), Anti-rodent, complete with all accessories as per BIS standard specifications	metre	17	0	29	46
	26.69.2	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), Anti-rodent, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.3	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), Anti-rodent, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.4	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), Anti-rodent, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.5	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.6	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.7	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.8	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.9	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), pressure compensating, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.10	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), pressure compensating, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.11	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), pressure compensating, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.12	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), pressure compensating, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.13	LDPE Emitting Pipe 16 mm; Class 2 (0.6 m x 1 to 4 Lph), pressure compensating, Anti siphoning, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
	26.69.14	LDPE Emitting Pipe 16 mm; Class 2 (0.5 m x 1 to 4 Lph), pressure compensating, Anti siphoning, complete with all accessories as per BIS standard specifications	metre	18	0	29	47
	26.69.15	LDPE Emitting Pipe 16 mm; Class 2 (0.4 m x 1 to 4 Lph), pressure compensating, Anti siphoning, complete with all accessories as per BIS standard specifications	metre	18	0	23	41
	26.69.16	LDPE Emitting Pipe 16 mm; Class 2 (0.3 m x 1 to 4 Lph), pressure compensating, Anti siphoning, complete with all accessories as per BIS standard specifications	metre	18	0	26	44
26.70	Supply and installation of drip irrigation lines with external emitters/ micro-sprinklers/bubblers						
	26.70.1	LDPE lateral Pipe 16 mm; Class 2 2.5 kg/cm2, complete with all accessories as per BIS standard specifications	metre	18	0	23	41
	26.70.2	Installation of pressure compensating drip emitters complete with all accessories as per BIS standard specifications	metre	18	0	12	30
	26.70.3	Installation of pressure compensating non-leakage drip emitters complete with all accessories as per BIS standard specifications	metre	18	0	12	30
	26.70.4	Installation of Non pressure compensating drip emitters complete with all accessories as per BIS standard specifications	metre	18	0	6	24
	26.70.5	Micro sprinkler having 1.5-4 m throw radius with stake, vinyl tubing and all other accessories as per BIS standard specifications	metre	18	0	129	147
	26.70.6	Installation of adjustable flow bubbler with all accessories complete as per BIS standard specifications	metre	18	0	431	449
26.71	Supply and installation of pop up sprinklers						
	26.71.1	Pop up Impact Rotors 3/4" inlet and radius ranging from 7-12 m with interchangeable nozzles with check valve and all accessories complete as per BIS standard specifications and setting flow rate as directed.	metre	60	0	1709	1769
	26.71.2	Pop up geared rotors 3/4" inlet and radius ranging from 7-12 m with interchangeable nozzles with check valve and all accessories complete as per BIS standard specifications and setting flow rate as directed.	metre	60	0	1709	1769
	26.71.3	Pop up Spray heads 1/2" inlet and radius ranging from 3-5 m with interchangeable nozzles and all accessories complete as per BIS standards and setting flow rate as directed with pop up having moulded wiper seal moulded into cap	metre	60	0	767	827
26.72	Supply and installation of Rain Gun						
	26.72.1	Rain Gun of Aluminium with brass inlet size 32mm internal diametre with throw radius of 14-22 m, with interchangeable nozzles and arc adjustment and all accessories complete as per BIS standards	each	1805	0	7783	9587
	26.72.2	Rain Gun of Aluminium with brass inlet size 32mm internal diametre with throw radius of 20-35 m, with interchangeable nozzles and arc adjustment and all accessories complete as per BIS standards	each	1805	0	22822	24626
	26.72.3	Portable system Rain Gun of Aluminium with brass inlet size 32mm internal diametre with throw radius of 14-22 m, interchangeable nozzles, arc adjustment, with 1.5 m height GI tripod stand and all accessories complete as per BIS standards	each	1805	0	11060	12864
26.73	Supply and installation of filters/ pressure relief valve for drip/ sprinkler system						
	26.73.1	Sand/Media filter 25 cum/hr, with back wash and by pass assembly made in mild steel body	each	1805	0	38358	40162
	26.73.2	Sand/Media filter 40 cum/hr, with back wash and bypass assembly made in mild steel body	each	1805	0	43068	44873

	26.73.3	Sand/Media filter 50 cum/hr, with back wash and bypass made in mild steel body	each	1805	0	55922	57726
	26.73.4	Disc filter 15 cum/hr, with flush valve size 38mm inlet with disc clean element strong precision engineered and radially grooved disc to provide three dimensional filter	each	1805	0	4307	6112
	26.73.5	Disc filter 25 cum/hr, with flush valve size 38mm inlet with disc clean element strong precision engineered and radially grooved disc to provide three dimensional filter	each	1805	0	8748	10553
	26.73.6	Disc filter 50 cum/hr, with flush valve size 38mm inlet with disc clean element strong precision engineered and radially grooved disc to provide three dimensional filter	each	1805	0	11844	13648
	26.73.7	Hydro cyclone/ Sand separator 10-16 cum/hr, with flush valve, SS clamp, BSP thread cone, O'ring, with SS lock pin and collector tank	each	1805	0	8075	9880
	26.73.8	Hydro cyclone/ Sand separator 12-30 cum/hr, with flush valve , SS clamp, BSP thread cone, O'ring, with SS lock pin and collector tank	each	1805	0	9363	11167
	26.73.9	Hydro cyclone/ Sand separator 20-40 cum/hr, with flush valve, SS clamp, BSP thread cone, O'ring, with SS lock pin and collector tank	each	1805	0	10767	12572
	26.73.10	Supply and installation of 50mm i/d hydraulic pressure relief valve of polemeride with accessories for pressure regulation of irrigation system	each	1805	0	12289	14093
26.74	Supply and installation of artificial grass with tape, adhesive and all accessories, complete						
	26.74.1	40 mm artificial turf	sqm	10	0	720	730
	26.74.2	35 mm artificial turf	sqm	10	0	562	572
	26.74.3	25 mm artificial turf	sqm	10	0	527	537
	26.74.4	20 mm artificial turf	sqm	10	0	445	455
	26.74.5	10 mm artificial turf	sqm	10	0	339	350
26.75	Installation of green roof structural layers on already waterproofed roof deck						
	26.75 .1	Base layers for Extensive and semi intensive green roof consisting of 1 mm thick root barrier, 25 mm layer of water borne stone aggregate (6 mm size) and 2 layers of geotextile (120 gsm and 200 gsm) but excluding plant substrate	sqm	18	0	269	287
	26.75 .2	Base layers for Extensive and semi intensive green roof consisting of 1 mm thick root barrier, 20 mm drain cell and 120 gsm geotextile but excluding plant substrate	sqm	16	0	403	419
	26.75 .3	Base layers for Intensive green roof consisting of 1 mm thick root barrier, 50 mm layer of water borne stone aggregate (6 mm size) and 2 layers of geotextile (120 gsm and 200 gsm) but excluding plant substrate.	sqm	28	0	268	296
	26.75 .4	Base layers for intensive green roof consisting of 1 mm thick root barrier, 30 mm drain cell and 200 gsm geotextile but excluding plant substrate	sqm	28	0	528	556
	26.75 .5	Supply and installation of light weight plant substrate as specified.	cum	73	0	6357	6430
	26.75 .6	Supply and installation of medium weight plant substrate as specified.	cum	70	0	3422	3492
	26.75 .7	Supply and installation of amended soil for plant substrate as specified.	cum	118	0	1016	1134
	26.75 .8	Supply and installation of non woven coir mat minimum 600 gsm without netting, latex bound as water absorption and storage layer for green roof.	sqm	1	0	103	104
26.76	Providing and fixing pair of Plastic dustbins 100 litre volume each, of two different colours, for dry and wet waste, made of virgin plastic to be mounted on MS rectangular hollow section 50 x 25 x 3 mm frames pivoted on 3 MS square hollow section verticals, 1 m above ground, one 35 cm RHS welded to each vertical member at base and grouted in 180 x 40 x 30 cm 1:2:4 cement concrete.		each set	704	0	10024	10728
26.77	Supply of well grinded in powder form De-oiled Neem cake well grinded in powder form		quintal	0	0	2247	2247
26.78	Supplying at site of work sludge duly stacked at site.		cum	0	0	586	586
26.79	Grassing with 'Doob' /selection grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed-and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed-						
	26.79.1	In rows 15 cm apart in either direction	100 sqm	347	0	0	347
	26.79.2	In rows 7.5 cm apart in either direction	100 sqm	693	0	0	693
	26.79.3	Filling mixture of earth and sludge or farm-yard manure in the desired proportion in trenches, flooding with water and levelling (cost of supply earth and sludge or farm-yard manure and mixing does not include in this rate)	cum	42	0	0	42
26.80	Cutting/shaping of Topiary above120cm height of trees removing of cut materials, cleaning, hoeing of plants complete design , hoeing of trees (Topiary) watering manure etc. (Excluding the cost of MATERIAL which will be supplied separately)and as per direction of office in charge as per direction of officer in charge.		per tree per month	60	0	0	60
26.81	Supply of Oasis floral foam brick (premium) Box (1 Box containing 20 bricks) at site of work including loading, unloading, carriage with taxes paid etc. And as per direction of officer in charge.		each	0	0	702	702
26.82	Arranging cut flowers in flower vases and display the same in a presentable manner including cleaning of vases and replacement of water etc. complete (Cost of Cut flowers will be paid separately) as per direction of officer in charge.						
	26.82.1	For 3 to 6 spikes	per flower	8	0	0	8
	26.82.2	For 7 to 12 spikes	per flower	10	0	0	10
	26.82.3	For 15 to 20 spikes	per flower	14	0	0	14
	26.82.4	For above 20 spikes	per flower	19	0	0	19
26.83	Providing and fixing of Tuflex Garden fencing Hexagonal net/ or equivalent of green colour having contents Weight grams /sqm 510(+/-8%) in width of 60cm. With bamboo of 90 cm Length and 18-20 cm in girth . The bamboo should be painted with green colour, 1st quality and of approved brand and manufacture two or more coats and fixed 30cm below ground level and 60cm above ground level at a distance of 1.50 metres. The net and bamboo complete and as per direction of Engineer- In- charge.		metre	8	0	138	146
	FOLIAGE/SHADE LOVING PLANTS						
26.84	Providing and displaying of Aglaonema Butterfly plant having ht.30 cm 10 to 12 fresh, healthy and attractive colourful leaves, well developed in 25 cm size Earthen pot/Plastic pot & as per direction of the officer-in-charge.		each	0	0	205	205
26.85	Providing and displaying of Aglaonema Ice plant ht.25 cm having 10 to 12 fresh, healthy and attractive colourful leaves, well developed in 25 cm size Earthen pot/Plastic pot & as per direction of the officer-in-charge.		each	0	0	205	205
26.86	Providing and displaying of Aglaonema Parrot Jungle plant (three in one), having ht. 30 cm and above with 20 to 25 leaves, well developed, fresh & healthy in 25 cm size of poly bag & as per direction of the officer-in-charge.		each	0	0	75	75
26.87	Providing and displaying of Aglaonema Dove variety Plant, having ht. 30 cm to 45 cm with 8 to 10 leaves, well developed, fresh and healthy in 25 cm size of poly bag & as per direction of the officer-in-charge.		each	0	0	97	97
26.88	Providing and displaying of Aglaonema Pseudo bractatum plants, having ht. 30 cm and above with 3 to 4 suckers & 20 to 25 leaves, well developed, fresh and healthy in 25 cm size of poly bag & as per direction of the officer-in-charge.		each	0	0	97	97
26.89	Providing and Displaying of Aglaonema Sam ht.30 cm well developed three in one, having 18 to 20 fresh, healthy and attractive colourful leaves in 30 cm size Earthen pot/Chali/Tray & as per direction of the officer-in-charge.		each	0	0	341	341
26.90	Providing and displaying of Aglaonema Snow White hybrid plant (three in one), having ht. 30 cm & above with 6 to 8 leaves, bright colour, well developed, fresh and healthy in 25 cm size of Earthen pot/Plastic pot . (Specimen Plant) & as per direction of the officer-in-charge.		each	0	0	241	241
26.91	Providing and displaying of Aglaonema Silver Queen plant, having 30 cm to 45 cm. ht. with 12 to 15 leaves, multi suckers, fresh and healthy leaves, well developed in 25 cm dia Earthen pot/Plastic pot & as per direction of the officer-in-charge.		each	0	0	180	180

26.92	Providing and displaying of Aglaonema ernesto Plant (three in one), having ht. 45 cm & above with 12 to 15 leaves, well developed, fresh and healthy in 25 cm size of Earthen pot/Plastic pot .& as per direction of the officer-in-charge.	each	0	0	209	209
26.93	Providing and displaying of Aglaonema marentifolium variety plant, having ht. 23 cm to 30 cm with 8 to 10 leaves, well developed, fresh and healthy with colourful leaves in 20 cm size of poly bag/Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	75	75
26.94	Providing and displaying of Aglaonema modestum plant, having ht. 23 cm to 30 cm with 3 to 4 suckers & 15 to 20 leaves, well developed, fresh and healthy in 25 cm size of poly bag & as per direction of the officer-in-charge.	each	0	0	75	75
26.95	Providing and displaying of Aglaonema nitida plant, having ht. 30 cm to 45 cm with 8 to 10 leaves, well developed, fresh and healthy with attractive leaves in 25 cm size of Earthen pot/ Plastic pot .& as per direction of the officer-in-charge.	each	0	0	180	180
26.96	Providing and displaying of Araucaria cookie plant, having ht. 45 cm to 60 cm, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 20 cm size of Earthen pot/Plastic pot. & as per direction of the officer-in-charge.	each	0	0	205	205
26.97	Providing and displaying of Araucaria cookie plant, having ht. 60 cm to 75 cm, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	239	239
26.98	Providing and Displaying of Araucaria cookie having ht. 75 cm to 90 cm, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 25 cm size of earthen pot/plastic pot & as per direction of the officer-in-charge.	each	0	0	284	284
26.99	Providing and displaying of Araucaria cookie plant, having ht. 90 cm to 1.20 m, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	418	418
26.100	Providing and displaying of Araucaria cookie plant, having ht. 1.50 m to 1.80 m, straight, well developed, fresh and healthy with lush green leaves from bottom to top in 30 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	625	625
26.101	Providing and displaying of Areca Palm plant, having ht. 90 cm to 1.05 m with 4 to 5 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	175	175
26.102	Providing and displaying of Areca Palm plant, having ht. 1.05 m to 1.20 m with 5 to 6 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	187	187
26.103	Providing and displaying of Areca palm plant, having ht. 1.20 m to 1.50 m with 6 to 8 suckers, well developed, fresh and healthy with lush green foliage in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	215	215
26.104	Providing and displaying of Areca Palm plant, having ht. 1.50 m to 1.95 m with 8 to 10 suckers, well developed, fresh and healthy with lush green foliage in 30 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	387	387
16.105	Providing and displaying of Areca Palm plant, having ht. 1.95 m to 2.40 m with 12 to 14 suckers, well developed, fresh and healthy with lush green foliage in 35 cm size of Bucket type cement pots & as per direction of the officer-in-charge.	each	0	0	657	657
26.106	Providing and displaying of Brassia Variegated plant, having ht. 30 cm, well developed with fresh and healthy foliage in 20 cm size of Earthen pot/Plastic pot/Poly bag& as per direction of the officer-in-charge.	each	0	0	84	84
16.107	Providing and displaying of Brassia Variegated plant, having ht. 30 cm to 45 cm, well developed with fresh and healthy foliage in 25 cm size of Earthen pot/Plastic pot . & as per direction of the officer-in-charge.	each	0	0	132	132
26.108	Providing and displaying of Brassia hicolour 3 in 1 well developed with fresh, healthy from bottom to top with 30 cm to 45 cm ht. in 25 cm size Plastic pot/Earthen pot & as per direction of the officer-in-charge.	each	0	0	142	142
26.109	Providing and displaying of Chamaedorea elegans palm plant, having ht. 60 cm to 75 cm, well developed with fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot . & as per direction of the officer-in-charge.	each	0	0	119	119
26.110	Providing and displaying of Croton Challenger variety plant, having ht. 30cm and above, well developed with full of fresh and healthy leaves in 20 cm size of Poly bag & as per direction of the officer-in-charge.	each	0	0	50	50
26.111	Providing and displaying of Croton baby golden variety plant, having ht.30 cm and above, well developed with full of fresh and healthy leaves in 20 cm size of Poly bag & as per direction of the officer-in-charge.	each	0	0	45	45
26.112	Providing and displaying of Croton Baby Golden Punctatumaureum plant, having ht. 23 cm to 30 cm, well developed with fresh and healthy foliage in 15 cm size of Poly bag as per direction of the officer-in-charge.	each	0	0	37	37
26.113	Providing and displaying of Croton Golden plant, having ht. 45 cm to 60 cm with 2 to 3 branches, well developed, fresh and healthy foliage in 25 cm size of Poly bag as per direction of the officer-in-charge.	each	0	0	62	62
26.114	Providing and displaying of Croton Baby Golden plant (three in one), having ht. 30cm, multi branches, well developed with fresh and healthy foliage in 25 cm size of Poly bag as per direction of the officer-in-charge.	each	0	0	94	94
26.115	Providing and displaying of Croton golden (Broad Leaves) plant, having ht. 60 cm to 75 cm with 3 to 4 branches, well developed, fresh and healthy leaves in 25 cm size of Poly bag . & as per direction of the officer-in-charge.	each	0	0	62	62
26.116	Providing and displaying of Croton Golden specimen plant, having ht. 90 cm to 1.05 cm with 5 to 6 branches, well developed, fresh and healthy foliage in 30 cm size of Earthen pot/Plastic pot/Poly bag as per direction of the officer-in-charge.	each	0	0	191	191
26.117	Providing and displaying of Croton Duck foot (Elite) plant, having ht. 45 cm and above with 3 to 4 branches, well developed, fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot. & as per direction of the officer-in-charge.	each	0	0	125	125
26.118	Providing and displaying of Croton Duck Foot (Elite) plant, having ht. 60 cm to 75 cm with 4 to 5 branches, well developed, fresh and healthy colourful leaves in 25 cm size of Earthen pot/ Plastic pot & as per direction of the officer-in-charge.	each	0	0	358	358
26.119	Providing and displaying of Croton Petra Bangalore variety plant, having ht 30 cm & above, well developed with fresh and healthy leaves in 20 cm size of Earthen pot/Plastic pot. & as per direction of the officer-in-charge.	each	0	0	131	131
26.120	Providing and displaying of Croton Petra plant, having ht. 30 cm & above with 2 to 3 branches, well developed, fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot. & as per direction of the officer-in-charge.	each	0	0	136	136
26.121	Providing and displaying of Croton Petra Bangalore variety plant, having ht. 60 cm to 75 cm with 4 to 6 branches, well developed, fresh and healthy colourful leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	382	382
26.122	Providing and displaying of Specimen Croton Petra Bangalore variety plant, having ht. 60 cm to 75 cm with 4 to 6 branches, well developed, fresh & healthy foliage approximately 60-65 leaves in 30 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	597	597
26.123	Providing and displaying of Dieffenbachia Tropic-snow plant, having ht. 45 cm & above with 8 - 10 leaves, well developed, fresh & healthy in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	87	87
26.124	Providing and displaying of Dieffenbachia mosaic plant, having ht. 23 cm to 30 cm with 10-12 leaves, well developed, fresh and healthy in 20 cm size of Earthen pot/Plastic pot . & as per direction of the officer-in-charge.	each	0	0	87	87
26.125	Providing and displaying of Dieffenbachia maculata plant, having ht. 30 cm to 45 cm with 5 and above leaves, well developed, fresh and healthy & attractive variegated foliage in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	167	167
26.126	Providing and displaying of Dieffenbachia superba, well developed, with 10-12 fresh, healthy and attractive leaves 45 cm to 60 cm ht. in 25 cm size Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	182	182
26.127	Providing and displaying of Dracaena Song of India plant (three in one), having ht. 30 cm and above, multi-branched, well developed with fresh and healthy leaves in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	125	125
26.128	Providing and displaying of Dracaena song of India specimen plant (three in one), having ht. 60 cm & above, well developed, fresh and healthy with good foliage in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	157	157
26.129	Providing and displaying of Dracaena Song of India Green plant (three in one), having ht. 30 cm, well developed, fresh & healthy, lush green foliage from bottom to top in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	50	50
26.130	Providing and displaying of Dracaena Song of India variegated plant, having ht. 30 cm to 45 cm, well developed, fresh & healthy foliage with bright leaves in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	50	50
26.131	Providing and displaying of Dracaena Kedarnath plant, having ht. 30 cm & above, well developed with good colourful foliage in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	50	50
26.132	Providing and displaying of Dracaena margineta plant, having ht. 30 cm to 45 cm with colourful leaves, fresh and healthy in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	52	52

26.133	Providing and displaying of Dracaena mahatma plant, having ht. 30 cm to 45 cm, well developed, fresh and healthy foliage in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	50	50
26.134	Providing and displaying of Dracaena pendanus, well developed, having 6 to 8 suckers with healthy foliage in 20 cm size Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	205	205
26.135	Providing and displaying of Dracaena rosea plant, having ht. 30 cm & above with 8 to10 leaves, well developed, fresh and healthy in 15 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	66	66
26.136	Providing and displaying of Dracaena Victoria plant, having ht. 30 cm & above, well developed with full of leaves, fresh and healthy in 15 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	66	66
26.137	Providing and displaying of Dracaena fragrans"Massangeana'' plant, having ht. 30 cm & above with full of leaves, well developed, fresh and healthy in 15 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	66	66
26.138	Providing and displaying of Dracaena waraneckii plant, having ht. 30 cm to 45 cm. with good colour foliage, well developed, fresh and healthy in 15 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	62	62
26.139	Providing and displaying of Livistona palm plant, having ht. 30 cm to 45 cm, well developed with 5 to 6 leaves, fresh & healthy foliage in 20 cm size of Earthen pot/Plastic pot as per direction of the officer-in-charge.	each	0	0	95	95
26.140	Providing and displaying of Livistona palm plant, having ht. 60 cm to 75 cm, well developed with 8 to 10 leaves, fresh & healthy foliage in 30 cm size of Earthen pot/Plastic pot . as per direction of the officer-in-charge.	each	0	0	239	239
26.141	Providing and displaying of Monestaria plant mounted on moss stick 90 cm ht., 2 to 3 plant in one pot well developed with fresh & healthy foliage in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	239	239
26.142	Providing and displaying of Money Plant Broad Leaves mounted on moss stick 75 cm ht., 3 to 4 plants in each pot, well developed with full of fresh & healthy leaves in size of 25 cm Top dia x 18 cm Bottom dia x 25 cm Perpendicular height Earthen pot/Plastic pot . & as per direction of the officer-in-charge.	each	0	0	205	205
26.143	Providing and displaying of Money Plant Broad Leaves mounted on moss stick 0.90 m ht., 5 to 6 plants in each pot, well developed with full of fresh & healthy leaves in size of 25 cm Top dia x 18 cm Bottom dia x 25 cm Perpendicular height Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	273	273
26.144	Providing and displaying of Money Plant Golden leaves mounted on moss stick 90cm ht., having 3 plants at equal distance, well developed with full of fresh, shinning and healthy leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	205	205
26.145	Providing and displaying of Philodendron Burgundy plant mounted on moss stick 90 cm ht., well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	286	286
26.146	Providing and displaying of Philodendron emerald red colour plant, mounted on moss stick 90 cm ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	418	418
26.147	Providing and displaying of Philodendron Envy plant, mounted on moss stick 90 cm ht., well developed with full of fresh & healthy leaves in 30 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	477	477
26.148	Providing and displaying of Philodendron Oxicodium plant, mounted on moss stick 90 cm ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	180	180
26.149	Providing and displaying of Philodendron Oxicodium Golden Colour plant, Mounted on moss stick 90 cm ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 20 cm Top dia x 16 cm Bottom dia x 20 cm Perpendicular height Earthen pot/ Plastic pot & as per direction of the officer-in-charge.	each	0	0	191	191
26.150	Providing and displaying of Philodendron Oxicodium Golden Colour plant, Mounted on moss stick 1.20 m ht., having 3 to 4 plants placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	259	259
26.151	Providing and displaying of Philodendron Oxicodium plant, mounted on moss stick 1.20 m ht., having 3 plants placed at equal distance, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	273	273
26.152	Providing and displaying of Philodendron selloum plant, having ht. 30 cm to 45 cm with 8 to 10 leaves, well developed, fresh and healthy foliage in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	180	180
26.153	Providing and displaying of Philodendron selloum plant, having ht. 45 cm to 60 cm with 12 to 16 leaves, well developed, fresh and healthy foliage in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	239	239
26.154	Providing and displaying of Philodendron ceylon gold plant, having ht. 30 cm to 45 cm with 8 to10 leaves, well developed, fresh & healthy bright colour leaves in 25 cm size of Earthen pot/ Plastic pot & as per direction of the officer-in-charge.	each	0	0	212	212
26.155	Providing and displaying of Philodendron Xanadu plant, having 15 to 20 leaves, well developed with full of fresh & healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	203	203
26.156	Providing and displaying of Philodendron moonlight plant, having ht. 30 cm to 45 cm with 10 to 12 leaves, well developed, fresh & healthy bright colour leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	227	227
26.157	Providing and displaying of Phoenix palm plant, having ht. 75 cm to 90 cm with 10 to 15 or more leaves, well developed, fresh and healthy in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	239	239
26.158	Providing and displaying of Raphes palm plant, having ht. 45 cm to 60 cm with 5 to 7 suckers, well developed, full of fresh and healthy leaves in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	205	205
26.159	Providing and displaying of Rhapis Excelsa Palm plant, having ht. 75 cm to 90 cm with 12 to 15 equal suckers, well developed, full of fresh & healthy leaves from bottom to top in 25 cm size Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	358	358
26.160	Providing and displaying of Rhapis Palm plant, having ht. 75 cm to 90 cm with 15 to 18 equal suckers, well developed, full of fresh and healthy leaves from bottom to top in 35 cm PVC Pots/C.Pots & as per direction of the officer-in-charge.	each	0	0	392	392
26.161	Providing and displaying of Rhapis palm specimen plant, having ht. 1.50 m to 1.65 m with 40 to 50 lush green suckers, well developed, fresh & healthy foliage leaves in 40 cm size of Earthen Pot/Chali/Tray & as per direction of the officer-in-charge.	each	0	0	589	589
26.162	Providing and displaying of Rubber plant black variety, well developed, having 45 to 60 cm height with fresh, healthy and attractive colourful leaves in 25 cm size Earthen pot/Plastic pot as per direction of officer-in-charge.	each	0	0	102	102
26.163	Providing and displaying of Rubber plant variegated, well developed, having 45 to 60 cm height with fresh, healthy and attractive colourful leaves in 20 cm size Earthen pot/Plastic pot	each	0	0	170	170
26.164	Providing and displaying of Seaforthia Palm plant, having ht. 90cm to 1.20 m with 6-8 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 20 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	398	398
26.165	Providing and displaying of Seaforthia Palm plant, having ht. 1.20 cm to 1.50 cm with 8-10 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	437	437
26.166	Providing and displaying of Seaforthia Palm plant, having ht. 1.50 m to 1.80 m with 12-15 suckers, well developed, fresh and healthy lush green leaves from bottom to top in 30 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	562	562
26.167	Providing and displaying of Sanchezia Nobili's plant, having ht. 30 cm & above, well developed with fresh & healthy foliage in 15 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	40	40
26.168	Providing and displaying of Schefflera high colour plant, having ht. 25 cm to 30 cm, well developed with fresh & healthy foliage in 15 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	45	45
26.169	Providing and Displaying of Schefflera green 3 in 1 well developed with fresh, healthy and attractive foliage from having 45 cm to 60 cm ht. in 25 cm size Earthen pot/Plastic pot/as per direction of officer-in-charge.	each	0	0	227	227

26.170	Providing and displaying of Schefflera high colour plant (three in one), having ht. 25 cm to 30 cm, well developed with fresh and healthy foliage in 30 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	150	150
26.171	Providing of Schefflera Green plant (three in one), mounted on moss stick 90 cm, well developed with full of fresh & healthy leaves from bottom to top with rich foliage in 25 cm size of Earthen pot/Plastic pot .& as per direction of the officer-in-charge. .	each	0	0	312	312
26.172	Providing and displaying of Schefflera Varieged plant, mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy bright leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	312	312
26.173	Providing and displaying of Spathiphyllum (peace Lilly), having 15 cm to 25 cm ht. blooming stag with fresh & healthy foliage well developed in 15 cm of Earthen pot/plastic pot & as per direction of the officer-in-charge.	each	0	0	102	102
26.174	Providing and displaying of Syngonium golden plant, mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	215	215
26.175	Providing and displaying of Syngonium Varieged plant, mounted on moss stick 90 cm ht., 3 to 4 plants placed in each pot at equal distance, well developed with full of fresh & healthy leaves from bottom to top in 25 cm size of Earthen pot/Plastic pot & as per direction of the officer-in-charge.	each	0	0	215	215
	SEASONAL PLANTS					
26.176	Providing and Displaying of Allyssum white in full bloom well developed fresh & healthy in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.177	Providing and Displaying of Anemone hybrid (3 in one) variety well developed with fresh & healthy Flower in full bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.178	Providing and Displaying of Antirrhinum Hybrid Dwarf variety (3 in one) well developed with fresh & healthy Flower multi branch in full bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.179	Providing and Displaying Antirrhinum Hybrid dwarf variety, specimen (8-10 plants) with fresh & healthy foliage in full bloom well developed in 35 cm Earthen Tray/Challi Pot and as per direction of the officer-in-charge.	each	0	0	597	597
26.180	Providing and Displaying Antirrhinum variety, well developed, fresh & healthy 1' to 1.5' ht, in full bloom with stacking in 20 cm Earthen Pot/Plastic Pot as per direction of the officer-in-charge.	each	0	0	60	60
26.181	Providing and Displaying Asiatic Lilly hybrid variety (3 in one) plants in each pot having in full bloom 3 to 5 flowers 30 to 45 cm ht. well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	143	143
26.182	Providing and Displaying Aster Hybrid variety in different colour, well developed with fresh & healthy foliage in full bloom 23 to 30 cm ht., in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.183	Providing and Displaying Bigonia rex having 15 to 23 cm ht., well developed with fresh & healthy foliage with 10 to 12 flowers in bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.184	Providing and Displaying Brachycome well developed with fresh & healthy foliage with 100 to 120 flowers stacking with green painted bamboo stick in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	143	143
26.185	Providing and Displaying Calceolaria hybrid variety in full bloom well developed with fresh & healthy foliage in 20 cm Earthen Pot/Plastic Pot as per direction of the officer-in-charge.	each	0	0	132	132
26.186	Providing and Displaying Calendula double variety well developed with fresh & healthy foliage in full bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.187	Providing and Displaying Chrysanthemum double variety, well developed, having 45 to 60 cm ht., with 6 and above flowers with half blooming condition, fresh and healthy with bamboo stacking in 25 cm Earthen Pot and as per direction of the officer-in-charge.	each	0	0	132	132
26.188	Providing and Displaying Chrysanthemum single variety in different colour well developed having 45 to 60 cm ht., minimum 100 and above half bloom flowers open well stacked with bamboo stick having three layer tiding by thread fresh and healthy foliage in 25 cm Earthen Pot and as per direction of the officer-in-charge.	each	0	0	143	143
26.189	Providing and Displaying Chrysanthemum single named variety in different colour well developed, having 45 to 60 cm ht., minimum 150 and above half bloom flowers well stacked with bamboo stick having three layer tiding by thread fresh and healthy foliage in 30 cm Earthen Pot and as per direction of the officer-in-charge.	each	0	0	167	167
26.190	Providing and Displaying Cineraria dwarf in different colour with fresh & healthy foliage well developed in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.191	Providing and Displaying Cineraria Hybrid dwarf variety in different colour well developed with fresh & healthy foliage in bloom in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.192	Providing and Displaying Cineraria long 45 to 60 cm ht., 8 to 10 branch with full bloom specimen plant with green painted stacking in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	143	143
26.193	Providing and Displaying Clarkia well developed with fresh & healthy foliage, 5 to 6 branch in full bloom with stacking in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	119	119
26.194	Providing and Displaying Clianthus well developed, with fresh & healthy foliage in bloom 30 to 45 cm ht., with stacking in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer- in-charge.	each	0	0	95	95
26.195	Providing and Displaying Coleus broad leaves having 3 to 4 branches equal well developed with fresh & healthy foliage in different colour in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.196	Providing and Displaying Coleus broad leaves having 5 to 6 branches equal well developed with fresh & healthy foliage in different colour in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.197	Providing and Displaying Cyclamen hybrid variety fresh & healthy in full bloom well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	239	239
26.198	Providing and Displaying Cyclamen hybrid variety specimen 5-6 plants fresh & healthy in full bloom well developed in 35 cm Earthen Tray and as per direction of the officer-in-charge.	each	0	0	448	448
26.199	Providing and Displaying Dahlia double Kenya variety in different colour well developed with 3 to 4 flowers in half bloom, good foliage stacked with Green painted Bamboo sticks, 45 to 60 cm height in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.200	Providing and Displaying Dahlia single in different colour with fresh & healthy foliage well developed with 6 to 8 half blooming buds in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	30	30
26.201	Providing and Displaying Daisy well developed with fresh & healthy foliage in full bloom in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.202	Providing and Displaying Dianthus dwarf in different colour fresh & healthy bloom in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.203	Providing and Displaying Dianthus dwarf specimen 6-8 plants with fresh & healthy foliage in full bloom well developed in 60 cmx35 cm Earthen Tray and as per direction of the officer-in-charge.	each	0	0	418	418
26.204	Providing and Displaying Dianthus in different colour well developed with fresh & healthy foliage 30 cm ht., in full bloom with stacking in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.205	Providing and Displaying Freesia hybrid 6 to 8 plants in full bloom, with fresh and healthy flower and foliage stacked with Green painted bamboo sticks in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.206	Providing and Displaying Gazania hybrid in different colour well developed with fresh & healthy foliage with full bloom in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in- charge.	each	0	0	72	72
26.207	Providing and Displaying Geranium double variety having 30 cm ht., in different colour well developed with fresh & healthy foliage (3 in one) well bloomed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	149	149

26.208	Providing and Displaying Gerbera Hybrid, well developed, with fresh and healthy foliage, fully blooms in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.209	Providing and Displaying Helianthus different colour with full bloom (3 in one) fresh & healthy in 35 cm Earthen Pot/Plastic Pot well developed as per direction of the officer-in-charge.	each	0	0	239	239
26.210	Providing and Displaying Impatiens in different colour well developed fresh and healthy (3 in one) well bloomed in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in- charge.	each	0	0	119	119
26.211	Providing and Displaying Marigold Jaffri dwarf in different colour well developed with fresh & healthy foliage with 12 to 15 flowers in full bloom specimen plant 23 to 30 cm ht. in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.212	Providing and Displaying Marigold Jaffri orange/yellow/Russet colour well developed with fresh & healthy foliage with 40 to 50 flowers in bloom specimen plant 60 to 75 cm ht in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	167	167
26.213	Providing and Displaying Marigold Jaffri French orange/yellow/Russet colour well developed with fresh & healthy foliage with 60 to 75 flowers in bloom specimen plant 60 to 75 cm ht in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	119	119
26.214	Providing and Displaying Kalanchoe Hybrid variety in different colour well developed with fresh & healthy foliage in full bloom in 20 cm Earthen pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.215	Providing and Displaying Marigold(Tagetes) inca hybrid different colour having 30 cm and above ht., with 6 to 8 flowers in bloom & blooming condition, well developed pot should be fully covered with fresh and healthy, foliage and flowers in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.216	Providing and Displaying Mimulus multi branching bushy plant in different colour well developed fresh & healthy in full bloom in 20 cm Earthen Pot in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	84	84
26.217	Providing and Displaying Mesembryanthemum in different colour well developed with fresh & healthy foliage in full bloom in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	36	36
26.218	Providing and Displaying Nemesia well developed with fresh & healthy with good attractive foliage full blooming in 20 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.219	Providing and Displaying Nasturtium in different colour well developed with fresh & healthy foliage with full bloom in 20 Cm Earthen Pot/ Plastic Pot as per direction of the Officer-in-charge.	each	0	0	60	60
26.220	Providing and Displaying Ornamental Kale Hybrid variety in full bloom with fresh & healthy foliage well developed in 20 cm Earthen Pot/ Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.221	Providing and Displaying Pansy Hybrid Sakata in different colour specimen 15-20 plants with fresh & healthy foliage in full bloom well developed in 60x35 cm Earthen Tray and as per direction of the officer-in-charge.	each	0	0	358	358
26.222	Providing and Displaying Pansy Hybrid Sakata well developed with fresh & healthy foliage with 3 to 4 flower in bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.223	Providing and Displaying Pansy hybrid sakata in different colour with fresh & healthy foliage well developed in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	30	30
26.224	Providing and Displaying Petunia hybrid different colour single well developed in full bloom in 20 cm Earthen/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.225	Providing and Displaying Petunia hybrid different variety in different colour well developed with fresh and healthy foliage in full bloom in 25 cm Earthen Pot/Plastic Pot as per direction of the officer-in-charge.	each	0	0	72	72
26.226	Providing and Displaying Petunia hybrid well developed with fresh & healthy foliage in full bloom 15-20 plants in 60x35 cm Earthen Tray and as per direction of the officer-in charge.	each	0	0	30	30
26.227	Providing and Displaying Petunia hybrid well developed with fresh & healthy foliage in full bloom 15-20 plants in 60x35 cm Earthen Tray as per direction of the officer-in-charge.	each	0	0	358	358
26.228	Providing and Displaying Phlox in different colour well developed with fresh & healthy foliage 30 cm ht., in full bloom with stacking in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.229	Providing and Displaying Poinsettia Dwarf variety different colour well developed 25 to 30 cm ht., 3 to 4 branch full bloom with fresh & healthy foliage in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	203	203
26.230	Providing and Displaying Poinsettia dwarf multi head, having 25 to 30 cm ht., with 5 to 7 branches with fully different coloured top with fresh & healthy foliage well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	286	286
26.231	Providing and Displaying Primula Hybrid variety specimen 5-6 plants in each Pot with fresh & healthy foliage in full bloom different colour well developed in 60x35 cm Earthen Tray and as per direction of the officer-in-charge.	each	0	0	477	477
26.232	Providing and Displaying Primula Hybrid variety well developed with fresh & healthy foliage with full bloom in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.233	Providing and Displaying Ranunculus Hybrid variety in different colour specimen 5-6 plants in each Pot with fresh & healthy foliage in full bloom well developed in 60x35 cm Earthen Tray and as per direction of the officer-in-charge.	each	0	0	573	573
26.234	Providing and Displaying Ranunculus Hybrid variety well developed with fresh & healthy foliage with 2-3 flower in bloom in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	119	119
26.235	Providing and Displaying Salvia dwarf variety with fresh & healthy foliage well developed multi branching in blooming stage in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	30	30
26236	Providing and Displaying Salvia ht. 45 to 60 cm multi branches stacking with bamboo stick specimen plants type with full bloom well developed in 30 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	143	143
26.237	Providing and Displaying Salvia ht. 45 to 60 cm multi branches stacking with bamboo stick specimen plants type with full bloom well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	119	119
26.238	Providing and Displaying Salvia red Hybrid dwarf variety having 15 to 25 cm ht., well developed with fresh & healthy foliage in bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.239	Providing and Displaying Salvia red Hybrid dwarf variety having 15 to 25 cm ht., specimen 6 plants with fresh & healthy foliage in full bloom well developed in 35 cm Earthen Tray and as per direction of the officer-in-charge.	each	0	0	60	60
26.240	Providing and Displaying Star of Bethlehem (Chinchi - Rinchi), 5 to 6 plant in each Pot full bloom, with fresh and healthy foliage flower in 35 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	382	382
26.241	Providing and Displaying Stock Double Blue non-branching having 30 to 45 cm ht., with full bloom, well developed in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in- charge.	each	0	0	60	60
26.242	Providing and Displaying Stock double white colour dwarf variety with fresh and healthy foliage with bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.243	Providing and Displaying Stock single in different colour well developed with fresh & healthy foliage with full bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.244	Providing and Displaying Tulip Dutch hybrid variety (3 in one) plants in each pot in full bloom fresh & bright in different colour well developed in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	203	203
26.245	Providing and Displaying Verbena in different colour having 30 to 45 cm ht., well developed with fresh & healthy foliage in bloom condition in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.246	Providing and Displaying Celosia well developed fresh & healthy 20 to 25 cm ht. (attractive) multi branching at blooming stage in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.247	Providing and Displaying Cladium Hybrid variety 3 to 4 plants well developed with fresh & healthy foliage 30 to 45 cm ht. in different colour 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.248	Providing and Displaying Cockscomb well developed fresh & healthy 20 to 25 cm ht. attractive colours fully bloomed in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48

26.249	Providing and Displaying Cosmos well developed fresh & healthy 20 to 25 cm ht. attractive colours multi branching at blooming stage in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.250	Providing and Displaying Gaillardia double hybrid variety well developed 30 to 45 cm ht 20 to 30 fresh & healthy flower with green painted bamboo stick in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.251	Providing and Displaying Gomphrena well developed fresh & healthy 30 to 45 cm ht. bushy plant 15 & above flower in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.252	Providing and Displaying Kochia well developed fresh & healthy 20 to 25 cm ht. lush green well shaped in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	36	36
26.253	Providing and Displaying Kochia well developed fresh & healthy 30 to 45 cm ht. lush green well shaped in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.254	Providing and Displaying Portulaca hybrid in different colour with bloom well developed fresh & healthy in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	95	95
26.255	Providing and Displaying Sunflower hybrid well developed 15 to 20 cm ht. with fresh & healthy foliage at blooming stage in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	36	36
26.256	Providing and Displaying Sunflower single well developed 8 to 10 half bloom buds multi branched in fresh & healthy full stacked with green painted bamboo stick stacking in 25 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	72	72
26.257	Providing and Displaying Tapioca varigated (Manihot esculenta) well developed fresh & healthy 30 to 45 cm ht. in bright colour foliage in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	36	36
26.258	Providing and Displaying Vinca different colour 6 to 8 well developed branch in full bloom stacked with green painted Bamboo stick in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	60	60
26.259	Providing and Displaying Vinca different colour fresh & healthy 25 to 30 cm ht. with bloom multi branchy in 15 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	30	30
26.260	Providing and Displaying Vinca Hybrid in different colour fresh & healthy 20 to 25 cm ht. with bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.261	Providing and Displaying Zinnia hybrid double in different colour well developed fresh & healthy 30 to 45 cm ht. (3 to 4 plants in each pot) full bloom in 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	48	48
26.262	Providing and stacking Motia of height 25 to 30 cm., 2 to 3 branch in earthen pots of size 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	45	45
26.263	Providing and stacking Mogra of height 25 to 30 cm., 2 to 3 branch in earthen pots of size 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	51	51
26.264	Providing and stacking Canna dwarf of height 25 to 30 cm., 2 to 3 suckers in earthen pots of size 20 cm Earthen Pot/Plastic Pot and as per direction of the officer-in-charge.	each	0	0	40	40
26.265	Bush Rose in different colour 2 to 3 healthy branch 30 cm and above ht. well developed with 8 or more flowers / flower buds in 20 cm Earthen pot / Plastic pot as per direction of the officer-in-charge.	each	0	0	57	57
26.266	Providing and Displaying Budded Rose (H.T. variety) 3 to 4 healthy branch 30 cm and above ht. well developed with one and above flower plant in 15 cm Earthen Pot, as per direction of the officer-in-charge.	each	0	0	36	36
26.267	Providing and Displaying Creeper Rose variety 3 to 4 healthy branch 60 cm and above ht. well developed with one and above flowers in 20 cm Earthen Pot, as per direction of the officer-in- charge.	each	0	0	84	84
26.268	Providing and Displaying of Standard Rose (H.T. variety) 3 to 4 healthy branch 90 cm and above ht. well developed with one and above flowers in 25 cm Earthen Pot, as per direction of the officer-in-charge.	each	0	0	167	167
	ORNAMENTAL PLANTS					
26.269	Providing and Displaying Acalypha Different colour well developed, fresh & healthy with good foliage, multi branch 30 to 45 cm ht. in 15 cm size of Earthen Pot/ Plastic Pot bushy plant as per direction of the officer-in-charge.	each	0	0	40	40
26.270	Providing and Displaying Acalypha green well developed, fresh & healthy with good foliage, multi branch 30 to 45 cm ht. in 15 cm size Earthen Pot/ Plastic Pot bushy plant as per direction of the officer-in-charge.	each	0	0	40	40
26.271	Providing and Displaying Acalypha red well developed with fresh & healthy 30 to 45 cm ht. in 15 cm size Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	each	0	0	45	45
26.272	Providing and Displaying Acalypha twisted well developed with fresh & healthy 30 cm ht. in 15 cm size Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	each	0	0	45	45
26.273	Providing and Displaying Adenium Obesum grafted well developed with fresh & healthy 30 to 60 cm ht. in 25 cm size Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	each	0	0	318	318
26.274	Providing and Displaying Adenium Obesum well developed with fresh & healthy 4 to 5 branch 60 to 75 cm ht. in 40 cm size Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	each	0	0	625	625
26.275	Providing and Displaying Bamboo Buddha valley with fresh & healthy 3 to 4 suckers having 75 to 90 cm ht. in 30 cm size Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	each	0	0	511	511
26.276	Providing and Displaying Bamboo Buddha vally variety with umbrella shape plant having 120 to 135 ht. with fresh & healthy foliage well developed in 40 cm Cement pot multi branch, bushy plant as per direction of the officer-in-charge.	each	0	0	1136	1136
26.277	Providing and Displaying Bamboo Buddha Valley with fresh & healthy 5 to 6 suckers 1.80 m to 2.10m ht umbrella type plant well developed in 50 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	1591	1591
26.278	Providing and Displaying Bird of paradise well developed with fresh & healthy 90 to 120 cm ht in 30 cm Earthen Pot/ Plastic Pot as per direction of the officer-in-charge.	each	0	0	432	432
26.279	Providing and Displaying Bismarckia Palm 115 to 180 cm ht., well developed 12 and above good colour fresh and healthy leaves in 40 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	2148	2148
26.280	Providing and Displaying Bougainvillea named variety, Sobhra, Thima, Marry palmar, Cherry Blossom etc. well developed with fresh & healthy bushy plant in full bloom 75 to 90 cm ht. in 35 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	358	358
26.281	Providing and Displaying Cycus cirsnallis well developed with fresh & healthy 35 to 40 lush green leaves in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	2159	2159
26.282	Providing and Displaying Cycus revoluta in 35 cm challi, specimen plant, having 30 to 40 with fresh and healthy, leaves having 25cm to 30cm circumference of base stem well developed as per direction of the officer-in-charge.	each	0	0	1312	1312
26.283	Providing and Displaying Cycus revoluta specimen plant, having 45 to 50 fresh and healthy, leaves having 30cm to 35cm circumference of base stem well developed in 40 cm challi, as per direction of the officer-in-charge.	each	0	0	1704	1704
26.284	Providing and Displaying Cyprus Golden 30 to 45 cm ht. well developed good Golden colour foliage, Conical Shape in 30 cm Earthen Pots as per direction of the officer-in-charge.	each	0	0	420	420
26.285	Providing and Displaying Cyprus golden well shaped developed with good coloured foliage fresh & healthy 60 to 75 cm ht in 35 cm Earthen Pot as per direction of the officer-in-charge.	each	0	0	477	477
26.286	Providing and Displaying Cyprus Golden Conical Shape 150 to 165 cm ht., with fresh and healthy Golden colour foliage in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	1790	1790
26.287	Providing and Displaying Euphorbia milli hybrid variety with multi branch, full bloom, with fresh and healthy well developed having 30 to 45 cm ht. in 35 cm Cement Pots as per direction of the officer-in-charge.	each	0	0	716	716
26.288	Providing and Displaying Ficus black vivion piller Topiary (cylinder type) well developed with fresh & healthy 180 to 210 cm ht in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	2273	2273
26.289	Providing and Displaying Ficus Long Island Topiary well developed with fresh & healthy 5 to 6 ball specific size and shape 120 to 150 cm ht in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	1364	1364

26.290	Providing and Displaying Ficus Nuda Topiary well developed with fresh & healthy 8 to 10 big ball specific size and shape 180to 210cm ht in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	2875	2875
26.291	Providing and Displaying Ficus Nuda well developed with fresh & healthy foliage 45 to 60cm spread 75 to 90 cm ht. bushy plant in 35 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	375	375
26.292	Providing and Displaying Ficus Retusa Topiary well developed with fresh & healthy 8 to 10 big ball specific size and shape 180 to 210cm ht in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	2386	2386
26.293	Providing and Displaying Ficus reginold well developed fresh & healthy foliage 60 to 75 cm spread 105 to 120 cm ht., Bushy plant in 35 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	418	418
26.294	Providing and Displaying Ficus resnold piller type Topiary well developed with fresh & healthy 210 to 240 cm ht in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	2727	2727
26.295	Providing and Displaying Ficus resnold Topiary well developed with fresh & healthy 8 to 10 big ball specific size 210 to 240 cm ht in 50 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	2267	2267
26.296	Providing and Displaying Ficus Starlight with fresh, healthy and attractive foliage 90 to 120 cm spread 75 to 90 cm ht., specimen bushy plant, in 35 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	954	954
26.297	Providing and Displaying Fishtail palm well developed with fresh & healthy foliage leaves of ht 180to 190 cm Specimen plant in 35 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	341	341
26.298	Providing and Displaying Foxtail palm well developed with fresh & healthy foliage of ht. 210 to 240 cm in big 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	1312	1312
26.299	Providing and Displaying Furcaira variegated well developed with fresh & healthy foliage 8 to 10 leaves in 30 cm Earthen Pot as per direction of the officer-in-charge.	each	0	0	250	250
26.300	Providing and Displaying Furcaria Variegated hybrid well developed with fresh & healthy foliage 20 and above attractive leaves in 35 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	500	500
26.301	Providing and Displaying Golden Bottle brush Topiary well developed with fresh & healthy foliage 5 to 6 big ball 115 to 180 cm ht in 40 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	540	540
26.302	Providing and Displaying Zamia palm well developed with fresh & healthy leaves 120 cm ht in 35 cm cement pot as per direction of the officer-in-charge.	each	0	0	1023	1023
26.303	Providing and Displaying Latania Rubra Palm well developed with fresh & healthy foliage 150 to 180 cm ht. with 6 to 7 leaves in big 35 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	1136	1136
26.304	Providing and Displaying Mascarena palm well developed with fresh & healthy foliage leaves 180 to 210 cm ht in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	2045	2045
26.305	Providing and Displaying Phoenix roebelenii palm well developed having 20 to 25 fresh & healthy leaves 90 to 135 cm ht. in 35 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	597	597
26.306	Providing and Displaying Topiary plant of Ficus Bush King well developed with fresh & healthy foliage from Top to Bottom with single piller 60 to 75 cm spread, 210 to 225 cm ht., in 35 cm Cement Tray/Cement Pot as per direction of the officer-in-charge.	each	0	0	1432	1432
26.307	Providing and Displaying Topiary plant of Ficus Nuda well developed with fresh & healthy foliage from Top to Bottom with single piller 75 to 90 cm spread, 195 to 210 cm ht. in 35 cm Cement Tray /Cement Pot as per direction of the officer-in-charge.	each	0	0	1432	1432
26.308	Providing and Displaying Topiary plant of Ficus Panda well developed with fresh & healthy foliage with 6 to 7 Balls and 75 to 90 cm spread each Ball, 150 to 165 cm ht., in 35 cm Cement Tray /Cement Pot as per direction of the officer-in-charge.	each	0	0	1250	1250
26.309	Providing and Displaying Topiary planted Casuarina plant fresh & healthy having 8 to 10 specific shape and size ball well developed 195 to 210 cm ht. in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	1193	1193
26.310	Providing and Displaying Travellers palm well developed with fresh & healthy foliage 150 to 180 cm ht. in 35 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	537	537
26.311	Providing and Displaying Travellers palm well developed with fresh & healthy leaves foliage 210 to 240 cm ht specimen plant in 40 cm Cement Pot as per direction of the officer-in-charge.	each	0	0	1079	1079
26.312	Providing and Displaying Washingtonia filifera palm well developed 90 to 105 cm stem ht. having 5 to 6 straight fresh and healthy leaves in 35 cm Cement Pot as per direction of the officer-in- charge.	each	0	0	597	597
	GROUND COVERS					
26.313	Providing and stacking of Alpinia Variegated (three in one) having ht. 30 cm and above, with fresh and healthy variegated foliage in 20 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	137	137
26.314	Providing and stacking of Alternanthera species of height 15 cm to 20 cm, full of branches and foliage in 15 cm size of Polybag & as per direction of the officer-in- charge.	each	0	0	23	23
26.315	Providing and stacking of Asparagus marrie, well developed 15 to 20 leaves, full of branches and foliage in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	62	62
26.316	Providing and stacking of Asparagus sprengeri of height 15 cm to 20 cm, full of leafy branches in 15 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	45	45
26.317	Providing and stacking of Aspidistra, having 10 to 15 leaves well developed with fresh & healthy in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	45	45
26.318	Providing and stacking of Clerodendrum inerme of ht. 20 cm to 30 cm multi branched in 15 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	11	11
26.319	Providing and stacking of Clerodendrum inerme having ht. 25 cm to 30 cm multi branched in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	23	23
26.320	Providing and stacking of Chlorophytum (Green), full of leafy suckers in 15 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	23	23
26.321	Providing and stacking of Chlorophytum-variegated, full of leafy suckers in 15 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	23	23
26.322	Providing and stacking of Cuphea chinensis of ht. 20-30 cm full of branches and healthy foliage in 15 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	23	23
26.323	Providing and stacking of Dianella variegated, with 3 to 4 variegated leaves in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	34	34
26.324	Providing and stacking of Duranta Golden, having ht.15 to 20 cm bushy shape with fresh and healthy leaves in 20 cm size of Polybag & as per direction of the officer-in- charge.	each	0	0	23	23
26.325	Providing and stacking of Euphorbia milli hybrid variety, having ht.30 cm to 45 cm with multi branch, full bloom, fresh and healthy leaves in 20 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge...	each	0	0	80	80
26.326	Providing and stacking of Euphorbia milli hybrid variety, having ht. 30 cm to 45 cm with multi branch, full bloom, fresh and healthy leaves in 25 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge..	each	0	0	119	119
26.327	Providing and stacking of Ipomea (Golden leaves), with fresh and healthy leaves in 10 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	23	23
26.328	Providing and stacking of Iresine herbstii, of height 20-30 cm. full of branches well developed in 10 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	17	17
26.329	Providing and stacking of Iresine herbstii, of height 20-30 cm., full of branches well developed in 10 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	23	23
26.330	Providing and stacking of Juniperous prostrata with 5 to 6 lateral branches and green foliage in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	34	34

26.331	Providing and stacking of Ophiopogon, Green/Black full of leaves in 10 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge	each	0	0	23	23
26.332	Providing and stacking of Ophiopogon jaburan (variegated), full of variegated leaves in 10 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	23	23
26.333	Providing and stacking of Ophiopogon jaburan (variegated), full of variegated leaves in Earthen Pot/Plastic Pot of size 15 cm. as per direction of the officer-in-charge.	each	0	0	34	34
26.334	Providing and stacking of Portulacaria afra (Jade) with 5 to 6 branches in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	34	34
26.335	Providing and stacking of Schefflera green, having 3 to 4 branch, ht. 30 to 45 cm well developed with fresh & healthy in 15 cm size of Earthen Pot/Plastic Pot as per direction of the officer-in- charge.	each	0	0	34	34
26.336	Providing and stacking of Setcreasea purpurea full of variegated leaves in 15 cm size of Earthen Pot/Plastic Pot as per direction of the officer-in-charge.	each	0	0	23	23
26.337	Providing and stacking of Syngonium (Butterfly) variegated with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 15 cm. as per direction of the officer-in-charge.	each	0	0	34	34
26.338	Providing and stacking of Syngonium golden of height 30-45 cm. with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 15 cm. as per direction of the officer-in-charge.	each	0	0	34	34
26.339	Providing and stacking of Syngonium miniature dwarf, having height 30-45 cm. with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 15 cm. as per direction of the officer-in- charge.	each	0	0	48	48
26.340	Providing and stacking of Syngonium variegated, of height 20-30 cm. with 2-3 suckers healthy foliage in Earthen Pot/Plastic Pot of size 10 cm. as per direction of the officer-in-charge.	each	0	0	24	24
26.341	Providing and stacking of Tradescantia, full of leaves in Earthen Pot/Plastic Pot of size 15 cm. as per direction of the officer-in-charge.	each	0	0	24	24
26.342	Providing and stacking of Tradescantia zebrina having in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	23	23
26.343	Providing and stacking of Wedelia trilobata, full of leaves in 15 cm size of Poly bags & as per direction of the officer-in-charge.	each	0	0	17	17
	TREE PLANTS					
26.344	Providing and stacking of Acacia auriculiformis of ht 150-165 cm in bag size of 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.345	Providing and stacking of Adansonia digitata (kalp vricksh) of ht 150-165 cm in bag size of 25 cm as per direction of the officer-in-charge.	each	0	0	301	301
26.346	Providing and stacking of Albizzia lebbek of height 150-165 cm. in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.347	Providing and stacking of Alstonia scholaris of height 150-165 cm. in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.348	Providing and stacking of Azadirachta indica (Neem) of height 120-130cm in big Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.349	Providing and stacking of Bassia latifolia (Mahua) of height 90-105 cm. in big Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.350	Providing and stacking of Bauhinia blakeana (Kachnar) of height 120-150 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.351	Providing and stacking of Bauhinia purpurea (Kachnar) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.352	Providing and stacking of Bombax ceiba of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	80	80
26.353	Providing and stacking of Bottle palm of ht. 120-150 cm bottom girth 15-20 cm well developed in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	205	205
26.354	Providing and stacking of Bottle palm of ht. 210-240 cm bottom girth 25-30 cm well developed in big HDPE bags.	each	0	0	398	398
26.355	Providing and stacking of Bottle palm of ht. 270-300 cm bottom girth 30-40 cm well developed in big HDPE bags as per direction of the officer-in-charge.	each	0	0	625	625
26.356	Providing and stacking of Butea frondosa (Flame of Forest) of height 60-75 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.357	Providing and stacking of Callistemon lanceolatus of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.358	Providing and stacking of Casuarina equisetifolia of height 150-165 cm in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.359	Providing and stacking of Cassia fistula (Amaltash) of height 120-135 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.360	Providing and stacking of Cassia siamea of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.361	Providing and stacking of Cassia javanica of height 120-150 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	97	97
26.362	Providing and stacking of Cassia nodosa of height 120-150 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.363	Providing and stacking of Ceiba pentandra of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.364	Providing and stacking of Chorisia speciosa of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.365	Providing and stacking of Chukrassia tabularis of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.366	Providing and stacking of Dalbergia sissoo (Seasam) of height 120-135 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.367	Providing and stacking of Delonix regia (Gulmohar) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.368	Providing and stacking of Erythrina indica of height 150-165 cm. in big Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.369	Providing and stacking of Ficus benjamina (green) of height 120-135 cm. with 6-8 branches and lush green foliage in gunny bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	119	119
26.370	Providing and stacking of Ficus benjamina (green) of height 150-165 cm., bushy with healthy branches and lush green foliage in 35 cm HDPE bags as per direction of the officer-in- charge.	each	0	0	205	205
26.371	Providing and stacking of Ficus bengalensis (Bargad) of height 120-135 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.372	Providing and stacking of Ficus bengalensis (varigated) of height 75-90 cm., multibranched in earthen pots of size 30 cm as per direction of the officer-in-charge.	each	0	0	91	91

26.373	Providing and stacking of Ficus bengalensis krishna of height 75-90 cm., multibranched in earthen pots of size 30 cm as per direction of the officer-in-charge.	each	0	0	136	136
26.374	Providing and stacking of Ficus elastica Decora (Rubber) of height 45-60 cm. in earthen pots of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.375	Providing and stacking of Ficus infectoria (Pilkhan) of height 150-165 cm. in big Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.376	Providing and stacking of Ficus lyrata of height 45-60 cm. in earthen pots of size 25 cm as per direction of the officer-in-charge.	each	0	0	102	102
26.377	Providing and stacking of Ficus nuda of height 120-135 cm. with 6-8 branches and lush green foliage in gunny bags of size 25 cm as per direction of the officer-in-charge	each	0	0	136	136
26.378	Providing and stacking of Ficus nuda of height 150-165 cm., bushy with healthy branches and lush green foliage in big size HDPE bags as per direction of the officer-in-charge.	each	0	0	216	216
26.379	Providing and stacking of Ficus religiosa (Peepal) of height 150-165 cm. in big poly bags of size 30 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.380	Providing and stacking of Ficus retusa well branched of height 120-135 cm. in big poly bags of size of 30 cm as per direction of the officer-in-charge.	each	0	0	136	136
26.381	Providing and stacking of Ficus shiela of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	97	97
26.382	Providing and stacking of Fishtail palm of ht. 150-180 cm bottom girth 15-20 cm well developed in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	227	227
26.383	Providing and stacking of Fishtail palm of ht. 210-240 cm bottom girth 25-30 cm well developed in 30 cm HDPE bags as per direction of the officer-in-charge.	each	0	0	341	341
26.384	Providing and stacking of Fishtail palm of ht. 270-300 cm bottom girth 30-35 cm well developed in 40 cm HDPE bags as per direction of the officer-in-charge.	each	0	0	625	625
26.385	Providing and stacking of Foxtail palm of ht. 120-150 cm bottom girth 12-15 cm well developed in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	261	261
26.386	Providing and stacking of Foxtail palm of ht. 180-210 cm bottom girth 15-20 cm well developed in big size HDPE bags as per direction of the officer-in-charge.	each	0	0	545	545
26.387	Providing and stacking of Foxtail palm of ht. 240-270 cm bottom girth 25-30 cm well developed in big size HDPE bags as per direction of the officer-in-charge.	each	0	0	739	739
26.388	Providing and stacking of Grevillea robusta (Silver Oak) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.389	Providing and stacking of Heterophragma adenophyllum (Marore fali) of height 150-165 cm. in Big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.390	Providing and stacking of Ingla dulcis (Jungle Jalebi) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.391	Providing and stacking of Jacaranda mimosifolia of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.392	Providing and stacking of Kigelia pinnata of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.393	Providing and stacking of Lagerstroemia flosreginae of height 150-165 cm in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	136	136
26.394	Providing and stacking of Lagerstroemia thorelli of height 150-165 cm in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	136	136
26.395	Providing and stacking of Magnolia grandiflora of height 150-165 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	432	432
26.396	Providing and stacking of Mangifera indica (Mango-grafted) of height 60-75 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.397	Providing and stacking of Melia azedarach of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.398	Providing and stacking of Michelia champa (Golden Champa) of height 90-105 cm. in earthen pots of size 25 cm as per direction of the officer-in-charge.	each	0	0	102	102
26.399	Providing and stacking of Milletia ovalifolia of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.400	Providing and stacking of Millingtonia hortensis of height 150-165 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	80	80
26.401	Providing and stacking of Mimusops elengi (Maulsri) of height 150-165 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	85	85
26.402	Providing and stacking of Mimusops elengi (Maulsri) of height 180-195 cm., well developed with thick stem in 30 cm HDPE bag as per direction of the officer-in-charge.	each	0	0	142	142
26.403	Providing and stacking of Nauclea cadamba (Kadam) of height 150-165 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.404	Providing and stacking of Parkinsonia species of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.405	Providing and stacking of Peltophorum species of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.406	Providing and stacking of Phoenix sylvestris Roxb. (Wild date palm/khajur) of height 150-165 cm. in 30-35 cm size HDPE Bag as per direction of the officer-in-charge.	each	0	0	739	739
26.407	Providing and stacking of Phyllanthus emblica (Amla) of height 150-165 cm. in 30 cm HDPE Bag as per direction of the officer-in-charge.	each	0	0	102	102
26.408	Providing and stacking of Pinus longifolia (Pinus) of height 90-105 cm. in cement pots of size 35 cm as per direction of the officer-in-charge.	each	0	0	625	625
26.409	Providing and stacking of Pithecellobium dulce (Jungle Jalebi) of height 120-150 cm. in Big HDPE Bag as per direction of the officer-in-charge.	each	0	0	68	68
26.410	Providing and stacking of Plumeria acutifolia of height 120-135 cm. with 2-3 branches in HDPE bag of size 30 cm as per direction of the officer-in-charge.	each	0	0	125	125
26.411	Providing and stacking of Plumeria acutifolia of height 150-165 cm. with 3-4 branches in 35 cm HDPE bag as per direction of the officer-in-charge.	each	0	0	227	227
26.412	Providing and stacking of Plumeria alba of height 120-135 cm. with 2-3 branches in bags of size 30 cm as per direction of the officer-in-charge.	each	0	0	136	136
26.413	Providing and stacking of Plumeria alba of height 165-180 cm. with 3-4 branches and thick stem in 35 cm HDPE bags as per direction of the officer-in-charge.	each	0	0	256	256
26.414	Providing and stacking of Plumeria alba dwarf of height 90-105 cm. with 3-4 branches and thick stem in 40 cm HDPE bags as per direction of the officer-in-charge.	each	0	0	852	852

26.415	Providing and stacking of Plumeria Rubra of height 120-150 cm. with 3-4 branches and thick stem in 35 cm HDPE bags as per direction of the officer-in-charge.	each	0	0	455	455
26.416	Providing and stacking of Pongamia glabra (Papri) of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.417	Providing and stacking of Polyalthia longifolia (Ashok) of height 150-165 cm. in polybags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.418	Providing and stacking of Polyalthia longifolia (Ashok) of height 180-195 cm. in gunny bag of size 30 cm as per direction of the officer-in-charge.	each	0	0	114	114
26.419	Providing and stacking of Polyalthia pendula (Ashok Pendula) of height 150-165 cm. in polybags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.420	Providing and stacking of Polyalthia pendula (Ashok Pendula) of height 180-195 cm. in gunny bag of size 30 cm as per direction of the officer-in-charge.	each	0	0	114	114
26.421	Providing and stacking of Pterospermum acerifolium (Kanak Champa) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.422	Providing and stacking of Putranjiva roxburghii of height 90-105 cm. in big Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.423	Providing and stacking of Saraca indica (Sita Ashok) of height 105-120 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.424	Providing and stacking of Schleichera trijuga (Kusum) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	80	80
26.425	Providing and stacking of Spathodea campanulata of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	85	85
26.426	Providing and stacking of Eugenia jambolana (Jamun) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	85	85
26.427	Providing and stacking of Tabebuia sp. of height 150-165 cm. in big polybags of size 25 cm as per direction of the officer-in-charge.	each	0	0	97	97
26.428	Providing and stacking of Tamarindus indica (Imli) of height 120-150 cm. in big polybags of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.429	Providing and stacking of Tecoma argentea of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	91	91
26.430	Providing and stacking of Tectona grandis (Teak) of height 150-165 cm. in big polybags of size 25 cm as per direction of the officer-in-charge.	each	0	0	125	125
26.431	Providing and stacking of Terminalia arjuna of height 150-165 cm. in big polybags of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.432	Providing and stacking of Washingtonia filifea palm stem ht. 90-105 cm with 6-7 healthy leaves lush green leaves well developed in big size HDPE Bags as per direction of the officer-in- charge.	each	0	0	455	455
26.433	Providing and stacking of Washingtonia filifea palm stem ht. 120-135 cm with 8-10 healthy leaves lush green leaves well developed in big size HDPE Bags as per direction of the officer- in-charge.	each	0	0	739	739
	SHRUBS					
26.434	Providing and stacking of Bauhinia acuminata of height 60-75 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.435	Providing and stacking of Bauhinia tomentosa (yellow) of height 60-75 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.436	Providing and stacking of Beloperone species of height 30-45 cm. in poly bags of size 20 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.437	Providing and stacking of Caesalpinia pulcherrima species of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.438	Providing and stacking of Calliandra, emarginata of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.439	Providing and stacking of Calliandra hybrida of height 75-90 cm. with 4-5 branches in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.440	Providing and stacking of Calliandra hybrida of height 105-120 cm., well branched, bushy in big size HDPE bag as per direction of the officer-in-charge.	each	0	0	102	102
26.441	Providing and stacking of Cassia biflora of height 45-60 cm. in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.442	Providing and stacking of Cassia biflora of height 60-75 cm. with 4-5 branches in earthen pot of size 20 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.443	Providing and stacking of Cassia biflora of height 90-105 cm., well branched, bushy in 30 cm HDPE bag as per direction of the officer-in-charge.	each	0	0	114	114
26.444	Providing and stacking of Cassia laevigata of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.445	Providing and stacking of Cassia laevigata of height 60-75 cm. with 4-5 branches in bag of size 20 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.446	Providing and stacking of Cestrum nocturnum (Raat ki Rani) of height 60-75 cm. with 4-5 branches in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.447	Providing and stacking of Chandni dwarf of height 15-20 cm., well branched in earthen pots of size 15 cm as per direction of the officer-in-charge as per direction of the officer-in-charge.	each	0	0	40	40
26.448	Providing and stacking of Dombeya mastersii of height 60-75 cm. with 4-5 branches in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	125	125
26.449	Providing and stacking of Euphorbia caracasana (bronze colour leaves) of height 60-75 cm. with 2-3 branches in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.450	Providing and stacking of Euphorbia caracasana (bronze colour leaves) of height 60-75 cm. with 4-5 branches in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.451	Providing and stacking of Euphorbia caracasana (bronze colour leaves) of height 90-105 cm., bushy in big size HDPE bag as per direction of the officer-in-charge.	each	0	0	119	119
26.452	Providing and stacking of Euphorbia pulcherrima (dark red double bracts) well branched of height 60-75 cm. in earthen pots of size 25 cm as per direction of the officer-in-charge.	each	0	0	125	125
26.453	Providing and stacking of Euphorbia pulcherrima (dark red) well branched (poinsettia Red Hegg) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in- charge.	each	0	0	68	68
26.454	Providing and stacking of Excoecaria bicolour of height 45-60 cm. in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.455	Providing and stacking of Ficus blackii (F.vivion) of height 45-60 cm. with 6-8 branches healthy foliage in earthen pots of size 25 cm as per direction of the officer-in-charge.	each	0	0	125	125
26.456	Providing and stacking of Ficus blackii (F.vivion) (bushy) of height 150-165 cm. with 8-10 branches and healthy foliage in earthen pots of size 30 cm as per direction of the officer-in- charge.	each	0	0	284	284

26.457	Providing and stacking of Ficus Reginald well branched, bushy of height 60-75 cm. in earthen pots of size 25 cm as per direction of the officer-in-charge.	each	0	0	114	114
26.458	Providing and stacking of Ficus panda of height 30-45 cm. with 3-4 branches and healthy foliage in p.bag of size 20 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.459	Providing and stacking of Ficus panda of height 45-60 cm. with 6-7 branches and healthy foliage in p.bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.460	Providing and stacking of Ficus panda of height 60-90 cm, with 8-10 branches, and healthy foliage, bushy in big size HDPE bag as per direction of the officer-in-charge.	each	0	0	205	205
26.461	Providing and stacking of Ficus panda of height 90-105 cm. with 10-12 branches and healthy foliage, well formed in cement pots of size 30 cm as per direction of the officer-in-charge.	each	0	0	256	256
26.462	Providing and stacking of Ficus long Island of height 15 cm to 20 cm, full of branches and foliage in 15 cm size of Earthen Pot / Plastic Pot & as per direction of the officer-in-charge.	each	0	0	51	51
26.463	Providing and stacking of Gardenia jasminoides of height 45-60 cm. with 3-4 branches in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.464	Providing and stacking of Hamelia patens of height 30-45 cm. with 3-4 branches in poly bags of size 20 cm as per direction of the officer-in-charge.	each	0	0	23	23
26.465	Providing and stacking of Hamelia patens of height 60-75 cm. with 6-8 branches in poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.466	Providing and stacking of Hamelia patens of height 90-105 cm. bushy in big size HDPE bags as per direction of the officer-in-charge.	each	0	0	114	114
26.467	Providing and stacking of Hamelia patens (Dwarf) of height 30-45 cm. with 3-4 branches in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.468	Providing and stacking of Hibiscus rosasinensis of height 45-60 cm. with 3-4 branches in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.469	Providing and stacking of Hibiscus rosasinensis of height 60-75 cm. with 5-6 branches in p.bag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.470	Providing and stacking of Hibiscus rosasinensis of height 90-105 cm., bushy in 35 cm HDPE bag as per direction of the officer-in-charge.	each	0	0	102	102
26.471	Providing and stacking of Hibiscus variegated of height 45-60 cm. with 3-4 branches and healthy variegated foliage in earthen pots of size 15 cm as per direction of the officer-in- charge.	each	0	0	51	51
26.472	Providing and stacking of Hibiscus variegated of height 60-75 cm. with 8-10 branches and healthy variegated foliage in cement pots of size 35 cm as per direction of the officer-in- charge.	each	0	0	205	205
26.473	Providing and stacking of Hibiscus variegated of height 60-75 cm. with healthy variegated foliage in Polybag size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.474	Providing and stacking of Jatropha multifida (red colour) of height 45-60 cm. with 2-3 branches in earthen pots of size 15 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.475	Providing and stacking of Jatropha multifida (red colour) of height 60-75 cm. multibranched in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.476	Providing and stacking of Largerstroemia indica of height 90-105 cm. multibranched in poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	45	45
27.477	Providing and stacking of Largerstroemia indica of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	34	34
26.478	Providing and stacking of Malpighia coccigera of height 30-45 cm., multibranched in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.479	Providing and stacking of Murraya exotica of height 45-60 cm. in poly bags of size 15 cm as per direction of the officer-in-charge.	each	0	0	17	17
26.480	Providing and stacking of Murraya Koenigii spreng (Kadipatta/meetha neem) of ht 45-60 cm well developed in Polybag of size 20 cm. per direction of the officer-in-charge.	each	0	0	28	28
26.481	Providing and stacking of Mussaenda erythrophylla (Rosea) of height 60-75 cm. multi branched in Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	125	125
26.482	Providing and stacking of Nerium oleander (kaner) of height 45-60 cm. with 3-4 branches in poly bags of size 20 cm as per direction of the officer-in-charge.	each	0	0	34	34
26.483	Providing and stacking of Nerium oleander (kaner) of height 60-75 cm. with 5-6 branches in poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.484	Providing and stacking of Nerium oleander (kaner) dwarf of height 30-40 cm. in earthen pot of size 20 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.485	Providing and stacking of Nerium oleander variegated of height 45-60 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.486	Providing and stacking of Nerium oleander variegated of height 60-75 cm., multibranched in Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.487	Providing and stacking of Nyctanthes arbor-tristis (Hasingar) of ht. 90-105 cm in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.488	Providing and stacking of Plumbego capensis well developed with fresh and healthy 30 to 45 cm ht., with bloom in 20 cm Polybag as per direction of the officer-in-charge.	each	0	0	68	68
26.489	Providing and stacking of Putranjiva roxburghii of ht. 45-60 cm in bag of size 15 cm as per direction of the officer-in-charge.	each	0	0	23	23
26.490	Providing and stacking of Putranjiva roxburghii of ht. 60-75 cm in bag of size 20 cm as per direction of the officer-in-charge.	each	0	0	34	34
26.491	Providing and stacking of Tabernaemontana coronaria (Chandni single) of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.492	Providing and stacking of Tabernaemontana coronaria (Chandni single) of height 75-90 cm. with 5-6 branches in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.493	Providing and stacking of Tabernaemontana coronaria (Chandni single) of height 90-105 cm.,bushy in 35 cm size HDPE bag as per direction of the officer-in-charge.	each	0	0	91	91
26.494	Providing and stacking of Tabernaemontana coronaria (chandni variegated) of height 45-60 cm. with 3-4 branches Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.495	Providing and stacking of Tabernaemontana coronaria (Chandni single) variegated of height 60-75 cm., 5-6 branches in p.bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	62	62
26.496	Providing and stacking of Tabernaemontana coronaria (Chandni single) variegated of height 105-120 cm., multibranched, bushy in 35 cm size HDPE bag as per direction of the officer-in- charge.	each	0	0	125	125
26.497	Providing and stacking of Tabernaemontana divaricata (Chandni double) of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	45	45
26.498	Providing and stacking of Tabernaemontana divaricata (Chandni double) of height 75-90 cm. with 4-5 branches in bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	45	45

26.499	Providing and stacking of Tabernaemontana divaricata (Chandni double) of height 90-105 cm., bushy in 35 cm size HDPE bag as per direction of the officer-in-charge.	each	0	0	102	102
26.500	Providing and stacking of Tecoma gaudichaudi of height 45-60 cm. in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.501	Providing and stacking of Tecoma gaudichaudi of height 60-75 cm. with 5-6 branches in p.bag of size 25 cm as per direction of the officer-in-charge.	each	0	0	57	57
26.502	Providing and stacking of Tecoma gaudichaudi of height 90-105 cm.,bushy in 35 cm size HDPE bag as per direction of the officer-in-charge.	each	0	0	125	125
26.503	Providing and stacking of Tecoma stans of height 45-60 cm. branched in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.504	Providing and stacking of Tecoma stans of height 60-75 cm. branched in Polybag of size 20 cm as per direction of the officer-in-charge.	each	0	0	68	68
26.505	Providing and stacking of Tecoma stans of height 90-105 cm. bushy in 35 cm size HDPE bag as per direction of the officer-in-charge.	each	0	0	136	136
26.506	Providing and stacking of Thevetia nerifolia of height 30-45 cm. with 3-4 branches in poly bags of size 20 cm as per direction of the officer-in-charge.	each	0	0	40	40
26.507	Providing and stacking of Thevetia nerifolia of height 60-75 cm. with 5-6 branches in poly bags of size 25 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.508	Providing and stacking of Thuja compacta of height 45-60 cm., well branched in Polybag of size 25 cm as per direction of the officer-in-charge.	each	0	0	74	74
26.509	Providing and stacking of Thuja compacta of height 75-90 cm., conical shaped, well formed with healthy foliage in Polybag of size 30 cm as per direction of the officer-in-charge.	each	0	0	148	148
	CREEPER PLANTS					
26.510	Providing and staking Allamanda cathartica of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	51	51
26.511	Providing and stacking Allamanda violacea of height 30 cm to 45 cm. in poly bag of size 20 cm as per direction of the officer-in-charge.	each	0	0	51	51
26.512	Providing and stacking Bignonia venusta (Golden shower) of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	45	45
26.513	Providing and stacking Bougainvillea (Variety Butiana, Lady Mary Baring, Mahara, Mohan, Scarlet Queen, Variegated, Glabra Formosa, Peruviana Odissi, Paratha, Subhra,Thimma, Spectabilis L.N Birla, Refulgens) of height 30 cm. to 45 cm. with 2-3 branches in 20 cm size of Polybag & as per direction of the officer-in-charge. .	each	0	0	45	45
26.514	Providing and stacking Clerodendrum splendens of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	34	34
26.515	Providing and stacking Clerodendrum thomsoniae of height 30 cm to 45 cm in 20 cm size of poly bag & as per direction of the officer-in-charge.	each	0	0	51	51
26.516	Providing and stacking Ipomoea purpurea (Morning glory) of height30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	40	40
26.517	Providing and stacking Jasmine grandiflorum (chameli) of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge. .	each	0	0	34	34
26.518	Providing and stacking Jasmine humile (Yellow) of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	34	34
26.519	Providing and stacking Passiflora caerulea (Rakhi bel) of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	57	57
26.520	Providing and stacking Petra volubilis of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	55	55
26.521	Providing and stacking Quisqualis indicia of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	28	28
26.522	Providing and stacking Tecoma grandiflora of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	45	45
26.523	Providing and stacking Vernonia elaegnifolia (curtain creeper) plant of height 30 cm to 45 cm. in 20 cm size of Polybag & as per direction of the officer-in-charge.	each	0	0	28	28
	ANNUAL FLOWER SEEDLINGS/CUTTINGS					
26.524	Providing and stacking winter seasonal F1-Hybrid seedlings/cuttings at site of work well developed and healthy free from disease in per tray and each tray having 70 Nos. plants as per direction of the officer-in-charge.					
26.524.1	Alyssum	per tray	0	0	477	477
26.524.2	Antirrhinum dwarf	per tray	0	0	682	682
26.524.3	Aster dwarf	per tray	0	0	568	568
26.524.4	Brachycome	per tray	0	0	568	568
26.524.5	Calendula double	per tray	0	0	568	568
26.524.6	Carnation (double) Dutch	per tray	0	0	1136	1136
26.524.7	Carnation (double) Lilliput	per tray	0	0	1364	1364
26.524.8	Carnation hybrid	per tray	0	0	966	966
26.524.9	Chrysanthemum double	per tray	0	0	455	455
26.524.10	Cineraria	per tray	0	0	597	597
26.524.11	Cineraria dwarf hybrid	per tray	0	0	795	795
26.524.12	Clarkia hybrid	per tray	0	0	795	795
26.524.13	Cosmos hybrid	per tray	0	0	795	795
26.524.14	Dahlia double	per tray	0	0	597	597
26.524.15	Daisy hybrid	per tray	0	0	455	455
26.524.16	Dianthus hybrid	per tray	0	0	568	568
26.524.17	Gazania hybrid	per tray	0	0	568	568
26.524.18	Gerbera hybrid double	per tray	0	0	2500	2500
26.524.19	Lupine hybrid	per tray	0	0	477	477
26.524.20	Marigold French Hybrid dwarf	per tray	0	0	477	477
26.524.21	Marigold Inca hybrid	per tray	0	0	568	568
26.524.22	Nasturtium	per tray	0	0	568	568
26.524.23	Nemesia hybrid	per tray	0	0	477	477
26.524.24	Pansy Hybrid	per tray	0	0	739	739
26.524.25	Petunia hybrid	per tray	0	0	682	682
26.524.26	Phlox mix colour hybrid	per tray	0	0	568	568
26.524.27	Poppy double	per tray	0	0	568	568
26.524.28	Salvia	per tray	0	0	477	477
26.524.29	Salvia Hybrid different colour	per tray	0	0	568	568
26.524.30	Stock double	per tray	0	0	568	568

26.524.31	Verbena hybrid	per tray	0	0	455	455
26.525	Providing and stacking summer & rainy F1-Hybrid seasonal seedlings at site of work well developed and healthy free from disease in per tray and each tray having 70 Nos. plants as per direction of the officer-in-charge.					
26.525.1	Balsam seedling	per tray	0	0	568	568
26.525.2	Celosia argentea & Celosia crostata Hybrid	per tray	0	0	477	477
26.525.3	Cosmos hybrid	per tray	0	0	682	682
26.525.4	Gaillardia Double	per tray	0	0	477	477
26.525.5	Gomphrena	per tray	0	0	568	568
26.525.6	Kochia	per tray	0	0	477	477
26.525.7	Portulaca hybrid	per tray	0	0	477	477
26.525.8	Sunflower Dwarf	per tray	0	0	568	568
26.525.9	Vinca Hybrid	per tray	0	0	477	477
26.525.10	Zinnia hybrid	per tray	0	0	477	477

CHAPTER NO. 27

Bearings of Bridges And Expansion Joints

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CHAPTER 27.0 - BEARING OF BRIDGES AND EXPANSION JOINTS							
Item No.	Description	Ref. MORTH (Specifications)	Unit	Labour Rate	Machinery Rate	Material Rate	Through Rate
	SUB-STRUCTURE						
27.1	Brick masonry work in 1:3 in sub-structure complete excluding pointing and plastering, as per drawing and Technical Specifications 1300 and 2200	1300 & 2200	cum	1055	0	5013	6069
27.2	Pointing with cement mortar (1:3) on brick work in substructure as per Technical Specifications	1300 & 2200	sqm	48	0	13	61
	Scaffolding is already included in item 27.1						
27.3	Plastering with cement mortar (1:3) on brick work in sub-structure as per Technical Specifications	1300 & 2200	sqm	48	0	62	110
	1.Scaffolding is already included in item no. 27.1						
	2.The number of masons and Mazdoors already catered in the cement mortar have been taken into account while providing these categories in brick masonry, pointing and plastering.						
27.4	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical MORT&H Specifications 1400 and 2200	1400 & 2200					
27.4.1	Random Rubble Masonry		cum	1365	0	3073	4437
	(coursed/uncoursed)						
27.4.2	Coursed rubble masonry (first sort)		cum	1665	0	3068	4733
27.4.3	Ashlar masonry (first sort)		cum	2680	0	3210	5890
	Plain ashlar						
	The labour already considered in the cement mortar have been taken into account while providing these categories in the stone masonry works.						
	Plain/Reinforced cement concrete in sub-structure complete as per drawing and MORT&H Technical Specifications 1500,1700 and 2200	1500, 1700 & 2200					
27.5	**PCC Grade M15 (with concrete Mixer)**						
	Height upto 5m		cum	618	250	3584	4451
27.6	**PCC Grade M20 (with concrete Mixer)**						
	Height upto 5m		cum	618	216	4004	4838
27.7	**PCC Grade M25**						
27.7.1	Height upto 5m						
27.7.1.1	**Using concrete Mixer**		cum	618	216	4346	5180
27.7.1.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4382	4738
27.7.2	Height 5m to 10m						
27.7.2.1	**Using concrete Mixer**		cum	618	216	4440	5274
27.7.2.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4554	4910
27.7.3	Height above 10m						
27.7.3.1	**Using concrete Mixer**		cum	618	216	4770	5604
27.7.3.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4769	5126
27.8	**PCC Grade M30**						
27.8.1	Height upto 5m						
27.8.1.1	**Using concrete Mixer**		cum	618	216	4383	5217
27.8.1.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	706	4459	5241
27.8.2	Height 5m to 10m						
27.8.2.1	**Using concrete Mixer**		cum	618	216	4573	5407
27.8.2.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4590	4946
27.8.3	Height above 10m						
27.8.3.1	**Using concrete Mixer**		cum	618	216	4810	5644
27.8.3.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4807	5163
27.9	**RCC Grade M20**						
27.9.1	Height upto 5m						
27.9.1.1	**Using concrete Mixer**		cum	618	216	4025	4859
27.9.1.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4047	4404
27.9.2	Height 5m to 10m						
27.9.2.1	**Using concrete Mixer**		cum	618	216	4201	5036
27.9.2.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4207	4564
27.9.3	Height above 10m						
27.9.3.1	**Using concrete Mixer**		cum	618	216	4422	5256
27.9.3.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	706	4488	5271
27.10	**RCC Grade M25**						
27.10.1	Height upto 5m						
27.10.1.1	**Using concrete Mixer**		cum	618	216	4371	5205
27.10.1.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4404	4761
27.10.2	Height 5m to 10m						
27.10.2.1	**Using concrete Mixer**		cum	618	216	4541	5375

27.10.2.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4560	4917
27.10.3	Height above 10m						
27.10.3.1	**Using concrete Mixer**		cum	618	216	4796	5630
27.10.3.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4794	5150
27.11	**RCC Grade M30**						
27.11.1	Height upto 5m						
27.11.1.1	**Using concrete Mixer**		cum	618	216	4371	5205
27.11.1.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	706	4469	5252
27.11.2	Height 5m to 10m						
27.11.2.1	**Using concrete Mixer**		cum	618	216	4517	5351
27.11.2.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4561	4918
27.11.3	Height above 10m						
27.11.3.1	**Using concrete Mixer**		cum	618	216	4725	5559
27.11.3.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4753	5109
27.12	**RCC Grade M35**						
27.12.1	Height upto 5m						
27.12.1.1	**Using concrete Mixer**		cum	618	216	4486	5320
27.12.1.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4438	4794
27.12.2	Height 5m to 10m						
27.12.2.1	**Using concrete Mixer**		cum	618	216	4602	5436
27.12.2.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4543	4899
27.12.3	Height above 10m						
27.12.3.1	**Using concrete Mixer**		cum	618	216	4776	5610
27.12.3.2	**With Batching Plant, Transit Mixer and Concrete Pump**		cum	77	280	4700	5056
27.13	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	Section 1600 & 2200	tonne	4096	0	59980	64076
27.14	Supplying, fitting and placing Mild steel reinforcement complete in sub-structure as per drawing and Technical Specification	1600 & 2200	tonne	2992	0	470	3462
27.15	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical Specifications	2706 & 2200	nos.	12	0	215	227
27.16	**Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification**	710.1.4.of IRC:78 & 2200					
27.16.1	Granular material		cum	296	26	1241	1563
27.16.2	Sandy material		cum	296	26	1227	1550
27.17	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.	710.1.4.of IRC:78 and 2200	cum	338	1	1800	2139
27.18	Supplying, fitting and fixing in position true to line and level cast steel rocker bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	2000, 1000 & 2200	per tonne capacity	3	0	574	576
27.19	Supplying, fitting and fixing in position true to line and level forged steel roller bearing conforming to IRC: 83(Pt.-1) section IX and clause 2003 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	2000 , 1000 & 2200	per tonne capacity	3	0	459	462
27.2	Supplying, fitting and fixing in position true to line and level sliding plate bearing with PTFE surface sliding on stainless steel complete including all accessories as per drawing and Technical Specifications and BS: 5400, section 9.1 & 9.2 (for PTFE) and clause 2004 of MoRTH Specifications.	2000 & 2200	per tonne capacity	8	0	201	209
27.21	Supplying, fitting and fixing in position true to line and level elastomeric bearing conforming to IRC: 83 (Part-II) section IX and clause 2005 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	2000 & 2200	per cc	0	0	0	1
27.22	Supplying, fitting and fixing in position true to line and level sliding plate bearing with stainless steel plate sliding on stainless steel plate with mild steel matrix complete including all accessories as per drawing and Technical Specifications.	2000 & 2200	per tonne capacity	6	0	207	212

27.23	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.	2000 & 2200	per tonne capacity	3	0	138	141
	SUPER STRUCTURE						
	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical clause 1500, 1600 and 1700 of MORT&H Specification	1500 &1600 1700					
27.25	**RCC Grade M20, Using Concrete Mixer**		cum	618	216	3549	4383
27.25.1	**For solid slab super-structure, Add 20-30 per cent of labour, material and machinery cost for Formwork**						
27.25.1.1	Height upto 5m		cum	618	216	4426	5260
27.25.1.2	Height 5m to 10m		cum	618	216	4645	5479
27.25.1.3	Height above 10m		cum	618	216	4864	5698
27.25.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.25.2.1	Height upto 5m		cum	618	216	4645	5479
27.25.2.2	Height 5m to 10m		cum	618	216	4864	5698
27.25.2.3	Height above 10m		cum	618	216	5084	5918
27.26	**RCC M-20, Using Batching Plant, Transit Mixer and Concrete Pump**		cum	77	308	3547	3932
27.26.1	**For solid slab super-structure, 20-30 per cent of labour, material and machinery cost**						
27.26.1.1	Height upto 5m		cum	77	308	4334	4719
27.26.1.2	Height 5m to 10m		cum	77	308	4531	4915
27.26.1.3	Height above 10m		cum	77	308	4727	5112
27.26.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.26.2.1	Height upto 5m		cum	77	308	4531	4915
27.26.2.2	Height 5m to 10m		cum	77	308	9356	9741
27.26.2.3	Height above 10m		cum	77	308	4924	5309
27.27	**RCC Grade M25**						
	Using Concrete Mixer		cum	618	216	3875	4709
	For formwork and staging add the following:						
27.27.1	**For solid slab super-structure, 20-30 per cent of labour, material and machinery cost**						
27.27.1.1	Height upto 5m		cum	618	216	4817	5651
27.27.1.2	Height 5m to 10m		cum	618	216	5052	5886
27.27.1.3	Height above 10m		cum	618	216	5288	6122
27.27.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.27.2.1	Height upto 5m		cum	618	216	5052	5886
27.27.2.2	Height 5m to 10m		cum	618	216	5288	6122
27.27.2.3	Height above 10m		cum	618	216	5523	6357
27.28	**Using Batching Plant, Transit Mixer and Concrete Pump**		cum	77	308	3878	4263
	For formwork and staging add the following:						
27.28.1	**For solid slab super-structure, 20-30 per cent of labour, material and machinery cost**						
27.28.1.1	Height upto 5m		cum	77	308	4731	5115
27.28.1.2	Height 5m to 10m		cum	77	308	4944	5329
27.28.1.3	Height above 10m		cum	77	308	5157	5542
27.28.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.28.2.1	Height upto 5m		cum	77	308	4944	5329
27.28.2.2	Height 5m to 10m		cum	77	308	5157	5542
27.28.2.3	Height above 10m		cum	77	308	5370	5755
27.29	**RCC Grade M 30**						
	Using Concrete Mixer		cum	646	216	3916	4778

27.29.1	**For solid slab super-structure, 20-30 per cent of labour, material and machinery cost**						
27.29.1.1	Height upto 5m		cum	646	216	4872	5734
27.29.1.2	Height 5m to 10m		cum	646	216	5111	5973
27.29.1.3	Height above 10m		cum	646	216	5350	6212
27.29.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.29.2.1	Height upto 5m		cum	646	216	5111	5973
27.29.2.2	Height 5m to 10m		cum	646	216	5350	6212
27.29.2.3	Height above 10m		cum	646	216	5589	6451
27.30	**Using Batching Plant, Transit Mixer and Concrete Pump.**		cum	80	308	3921	4309
	For formwork and staging add the following:						
27.30.1	**For solid slab super-structure, 20-30 per cent of labour, material and machinery cost**						
27.30.1.1	Height upto 5m		cum	80	308	4783	5171
27.30.1.2	Height 5m to 10m		cum	80	308	4998	5386
27.30.1.3	Height above 10m		cum	80	308	5213	5602
27.30.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.30.2.1	Height upto 5m		cum	80	308	4998	5386
27.302.2	Height 5m to 10m		cum	80	308	5213	5602
27.30.2.3	Height above 10m		cum	80	308	5429	5817
27.31	**RCC/PSC Grade M35**						
	Using Concrete Mixer.		cum	646	216	4002	4864
	For formwork and staging add the following:						
27.31.1	**For solid slab super-structure, 18-28 per cent of labour, material and machinery cost**						
27.31.1.1	Height upto 5m		cum	646	216	4878	5740
27.31.1.2	Height 5m to 10m		cum	646	216	5121	5983
27.31.1.3	Height above 10m		cum	646	216	5364	6226
27.31.2	**For T-beam & slab, 23-33 per cent of labour, material and machinery cost**						
27.31.2.1	Height upto 5m		cum	646	216	5121	5983
27.31.2.2	Height 5m to 10m		cum	646	216	5364	6226
27.31.2.3	Height above 10m		cum	646	216	5607	6470
27.31.3	**For box girder and balanced cantilever, 38-58 per cent of cost of concrete.**						
27.31.3.1	Height upto 5m		cum	646	216	5851	6713
27.31.3.2	Height 5m to 10m		cum	646	216	6337	7199
27.31.3.3	Height above 10m		cum	646	216	6824	7686
27.32	**Using Batching Plant, Transit Mixer and Concrete Pump**		cum	80	308	4002	4390
	For formwork and staging add the following:						
27.32.1	**For solid slab super-structure, 18-28 per cent of labour, material and machinery cost**						
27.32.1.1	Height upto 5m		cum	80	308	4792	5181
27.32.1.2	Height 5m to 10m		cum	80	308	5012	5400
27.32.1.3	Height above 10m		cum	80	308	5231	5620
27.32.2	**For T-beam & slab, 23-33 per cent of labour, material and machinery cost**						
27.32.2.1	Height upto 5m		cum	80	308	5012	5400
27.32.2.3	Height 5m to 10m		cum	80	308	5231	5620
27.32.2.3	Height above 10m		cum	80	308	5451	5839
27.32.3	**For box girder and balanced cantilever, 38-58 per cent of cost of concrete.**						
27.32.3.1	Height upto 5m		cum	80	308	5671	6059
27.32.3.2	Height 5m to 10m		cum	80	308	6110	6498
27.32.3.3	Height above 10m		cum	80	308	6549	6937
27.33	**PSC Grade M-40**						

	Using concrete mixer.		cum	692	216	4127	5036
	For formwork and staging add the following:						
27.33.1	**For solid slab super-structure, 20-30 per cent of labour, material and machinery cost**						
27.33.1.1	Height upto 5m		cum	692	216	5134	6043
27.33.1.2	Height 5m to 10m		cum	692	216	5386	6294
27.33.1.3	Height above 10m		cum	692	216	5638	6546
27.33.2	**For T-beam & slab, 25-35 per cent of labour, material and machinery cost**						
27.33.2.1	Height upto 5m		cum	692	216	5386	6294
27.33.2.2	Height 5m to 10m		cum	692	216	5638	6546
27.33.2.3	Height above 10m		cum	692	216	5890	6798
27.34	**Using Batching Plant, Transit Mixer and Concrete Pump**		cum	86	308	4127	4521
	For formwork and staging add the following:						
27.34.1	**For solid/voided slab super-structure, 18-28 per cent of labour, material and machinery cost**						
27.34.1.1	Height upto 5m		cum	86	308	4941	5335
27.34.1.2	Height 5m to 10m		cum	86	308	5167	5561
27.34.1.3	Height above 10m		cum	86	308	5393	5787
27.34.2	**For T-beam & slab, 23-33 per cent of labour, material and machinery cost**						
27.34.2.1	Height upto 5m		cum	86	308	5167	5561
27.34.2.2	Height 5m to 10m		cum	86	308	5393	5787
27.34.2.3	Height above 10m		cum	86	308	5619	6013
27.34.3	**For cast-in-situ box girder, segment construction and balanced cantilever, 38-58 per cent of cost of concrete.**						
27.34.3.1	Height upto 5m		cum	86	308	5845	6239
27.34.3.2	Height 5m to 10m		cum	86	308	6297	6691
27.34.3.3	Height above 10m		cum	86	308	6750	7144
27.35	**PSC Grade M-45**		cum	86	308	4330	4724
	For formwork and staging add the following:						
27.35.1	**For solid slab/voided slab super-structure, 16-26 per cent of cost of concrete labour, material and machinery cost**						
27.35.1.1	Height upto 5m		cum	86	308	5086	5480
27.35.1.2	Height 5m to 10m		cum	86	308	5322	5716
27.35.1.3	Height above 10m		cum	86	308	5558	5953
27.35.2	**For T-beam & slab including launching of precast girders by launching truss upto 40 m span, 21-31 per cent of cost of concrete.**						
27.35.2.1	Height upto 5m		cum	86	308	5322	5716
27.35.2.2	Height 5m to 10m		cum	86	308	5558	5953
27.35.2.3	Height above 10m		cum	86	308	5795	6189
27.35.3	**For cast-in-situ box girder, segmental construction and balanced cantilever, 36-56 per cent of cost of concrete.**						
27.35.3.1	Height upto 5m		cum	86	308	6031	6425
27.35.3.2	Height 5m to 10m		cum	86	308	6503	6897
27.35.3.3	Height above 10m		cum	86	308	6976	7370
27.36	**PSC Grade M-50**		cum	86	308	4475	4869
	For formwork and staging add the following:						
27.36	**For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete**						
27.36.1	Height upto 5m		cum	86	308	6179	6573
27.36.2	Height 5m to 10m		cum	86	308	6666	7060
27.36.3	Height above 10m		cum	86	308	7153	7547
27.37	**PSC Grade M- 55**		cum	86	308	4702	5096
	For formwork and staging add the following:						
	For cast-in-situ box girder, segmental construction and balanced cantilever, 35-55 per cent of cost of concrete						
27.37.1	Height upto 5m		cum	86	308	6486	6880
27.37.2	Height 5m to 10m		cum	86	308	6996	7390
27.37.3	Height above 10m		cum	86	308	7505	7899

	1.Where ever concrete is carried out using batching plant, transit mixer, concrete pump, admixers conforming IS: 9103 @ 0.4 per cent of weight of cement may be added for achieving desired slump of concrete.						
	2. Cement provided for various components of the super structure is for estimating purpose only. Actual quantity of cement will be as per approved mix design. Similarly, the provision for coarse and fine aggregates is for estimating purpose and the exact quantity shall be as per the mix design.						
	3. The items like needle and surface vibrators are part of minor T & P which is already covered under the overhead charges. As such these items have not been added separately in the rate analysis.						
27.38	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	1600	tonne	4715	0	60089	64804
27.39	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	1800	tonne	7437	13234	98712	119384
27.40	Providing and laying Cement concrete wearing coat M-30 grade including reinforcement complete as per drawing and Technical Specifications	2702	cum	61	0	10031	10092
27.41	**Mastic Asphalt wearing coat**	515 & 2702					
	Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.		sqm	72	92	144	307
27.41	Construction of precast RCC railing of M30 Grade, aggregate size not exceeding 12 mm, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved standard olans of MORT&H vide drawing no. SD/202 and technical specifications.	2703, 1500, 1600 & 1700	running metre	0	0	1712	1712
27.42	Construction of RCC railing of M30 Grade in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical RCC post not to exceed 1 in 500, centre to centre spacing between vertical post not to exceed 2000 mm, leaving adequate space between vertical post for expansion, complete as per approved standar plans of MORT&H vide drawing no. SD/202 and and technical specifications.	2703, 1500, 1600 & 1700	running metre	0	0	1662	1662
27.43	**Providing, fitting and fixing mild steel railing complete as per drawing and Technical Specification**	2703.2 & 1900	running metre	296	0	2608	2905
27.44	Drainage Spouts complete as per drawing no. SD/205 and Technical specification with 6 meter long GI 100 mm dia drainage GI light grade pipe (For Bridges)	2705					
27.44.1	**For fabrication**		no.	25	0	1379	1404
27.44.2	**For fixing in position**		no.	615	0	1379	1994
27.45	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification	2700	cum	0	0	4047	4047
27.46	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	1500,1600,1700 & 2704	cum	0	0	7627	7627
27.47	**Precast - pretensioned Girders**	1800 & 2300					
	Providing, precasting, transportation and placing in position precast pretensioned concrete girders as per drawing and technical specifications		cum	2929	3266	16740	22934
27.48	Providing and fixing Helical pipes in voided concrete slabs	1700 & 1800	running metre	107	0	1766	1873
27.49	**Painting on concrete surface**	800					
	Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 sqm.		sqm	21	0	22	43
27.50	**Burried Joint**	2604					

	Providing and laying a burried expansion joint, expansion gap being 20 mm, covered with 12 mm thick, 200 mm wide galvanised weldable structural steel plate as per IS: 2062, placed symmetrical to centre line of the joint, resting freely over the top surface of the deck concrete, welding of 8 mm dia. 100 mm long galvanised nails spaced 300 mm c/c along the centre line of the plate, all as specified in clause 2604.		running metre	21	0	1249	1270
27.51	**Filler joint**	2605					
27.51.1	Providing & fixing 2 mm thick corrugated copper plate in expansion joint complete as per drawing & Technical Specification.		running metre	35	0	3125	3160
27.51.2	Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.		running metre	7	0	111	118
27.51.3	Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.		running metre	11	0	155	166
27.51.4	Providing and filling joint sealing compound as per drawings and technical specifications with coarse sand and 6 per cent bitumen by weight - 10 mm depth		running metre	21	0	4	25
27.52	**Asphaltic Plug joint**	2600					
	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications.		running metre	46	89	933	1067
27.53	**Elastomeric Slab Steel Expansion Joint**	2606					
	Providing and laying of an elastomeric slab steel expansion joint, catering to right or skew (less than 20 deg., moderately curved with maximum horizontal movement upto 50 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation and clause 2606 of MoRTH specifications for road & bridge works.		running metre	53	0	11933	11986
27.54	**Compression Seal Joint**	2600					
	Providing and laying of compression seal joint consisting of steel armoured nosing at two edges of the joint gap suitably anchored to the deck concrete and a preformed chloroprene elastomer or closed cell foam joint sealer compressed and fixed into the joint gap with special adhesive binder to cater for a horizontal movement upto 40 mm and vertical movement of 3 mm.		running metre	32	0	5883	5915
27.55	**Strip Seal Expansion Joint**	2607					
	Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.		running metre	44	0	3581	3625
27.56	**Modular Strip / Box Seal Joint**	2600					
	Providing and laying of a modular strip Box seal expansion joint including anchorage catering to a horizontal movement beyond 70 mm and upto 140mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.		running metre	49	0	29922	29971
27.57	**Modular Strip / Box Seal Joint**	2600					
	Providing and laying of a modular strip box seal expansion joint catering to a horizontal movement beyond 140mm and upto 210mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.		running metre	62	0	330717	330779

CHAPTER NO. 28

WATER PROOFING
AND
HEAT INSULATION OF BUILDINGS

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CHAPTER 28.0 - WATER PROOFING TREATMENT AND HEAT INSULATION OF BUILDINGS

LIST OF BUREAU OF INDIAN STANDARD (BIS) CODES

Sr. No.	B.I.S. No.	Subject
1	IS 73	Paving Bitumen Specifications
2	IS 702	Specifications for Industrial Bitumen
3	IS 1322	Specifications for Bitumen felts for Water Proofing and Damp Proofing
4	IS 2645	Specifications for Integral Cement Water Proofing Compounds
5	IS 3370 (Part -1)	Code of Practice for Concrete Structures for the Storage of Liquid: Part -1 General Requirements.
6	IS 3384	Specifications for Bitumen Primer for Water Proofing and Damp Proofing
7	IS 7193	Specification for Glass Fibre Bitumen Felts
8	IS 12200	Provision of Water Stops at Transfers Construction Joints in Masonry and Concrete Dams - Code of Practice.
9	IS 12432 (Part-3)	Application for Spray Applied Insulation - Code of Practice Part-3 Polyurethane / Polyisocyarurate

CHAPTER 28.0 - WATER PROOFING TREATMENT AND HEAT INSULATION OF BUILDINGS

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 28.0 - WATER PROOFING AND HEAT INSULATION OF BUILDINGS						
28.1	Providing and laying four courses water proofing treatment with bitumen felt over roofs consisting of first and third courses of blown bitumen 85/25 or 90/15 conforming to IS : 702 applied hot @ 1.45 Kg per square metre of area for each course, second course of roofing felt type 3 grade-I (hessian based self finished bitumen felt) and fourth and final course of stone grit 6 mm and down size or pea sized gravel spread at 6 cubic decimeter per square metre, including preparation of surface but excluding grading complete with :						
	28.1.1	Bitumen felt (hessian base) type 3 grade I conforming to IS : 1322	sqm	56	0	208	264
28.2	Providing and laying six courses water proofing treatment with bitumen felt over roofs consisting of first, third and fifth course of blown bitumen 85/25 or 90/15 conforming to IS : 702 applied hot @ 1.45, 1.20 and 1.45 Kg per square metre of area respectively, second and fourth courses of roofing felt type 3 grade I conforming to IS : 1322 (Hessian based self finished bitumen felt) , sixth and final course of stone grit 6 mm and down size or pea sized gravel spread at 6 cubic decimeter per sqm including preparation of surface but excluding grading, complete.		sqm	82	0	342	425
28.3	Providing and laying six courses water proofing treatment with bitumen felt over roofs consisting of first, third and fifth courses of blown or / and residual bitumen applied hot at 1.45, 1.20 and 1.70 kg per square metre of area respectively, second and fourth courses of roofing felt type 2 grade I (fibre base self finished bitumen felt) six and final courses of stone grit 6 mm and down size or pea sized gravel spread at 6 cubic decimeter per sqm including preparation of surface, excluding grading, complete.		sqm	111	0	352	463
28.4	Providing and laying six courses water proofing treatment with bitumen felt over roofs consisting of first, third and fifth courses of blown or / and residual bitumen applied hot at 1.45, 1.20 and 1.70 kg per square metre of area respectively, second and fourth courses of roofing felt type 2 grade II (glass fibre base self finished bitumen felt) and sixth and final course of stone grit 6 mm and down size or pea sized gravel spread at 6 cubic decimeter per sqm including preparation of surface but excluding grading, complete.		sqm	111	0	352	463
28.5	Deduct for omitting in water proofing treatment final course of spreading stone grit 6 mm down size or pea sized gravel :						
	28.5.1	at 6 cudm per sqm	sqm	2	0	6	8
	28.5.2	at 8 cudm per sqm	sqm	3	0	7	10
	WATERPROOFING TREATMENT TO TERRACE AREA USING LIQUID APPLIED SINGLE COMPONENT PITCH FREE POLYURETHANE COATING						
28.6	Providing and applying waterproofing treatment to sound, moisture free concrete surface using liquid applied single component pitch free polyurethane coating capable of bridging substrate cracks upto 2 mm. It shall be applied in two coats at coverage rate of 2kg/sm to a achieve a minimum DFT of 1.3 mm. The membrane formed shall confirm to following minimum properties: 1) Elongation : >400% as per ASTM D 412 2) Tensile Strength : 2.5 N/mm2 as per ASTM D 412 3) Adhesion in-peel test : >50 N as per ASTM C- 836 4) Recovery from 350% elongation : 95% as per ASTM D 412 5) Water Vapour Transmission 2.3mm film: 0.6 g/m2/hr 6) Initial Hardness Shore A : min 60 as per ASTM D 2240 7) Root resistant : protection screed required System includes supply , application and termination of coating all complete as per the manufacturer's methodology. Clean the RCC slab/screed surface & wall for treatment by removing dust, dirt and layers of concrete over the surface. etc. by mechanical tools and wire brushing. Pressure grouting at construction joints or honeycombs with non shrink cementations grout by mixing shrinkage compensating admixture per bag of cement as per manufacturer's recommendations. Prepare a side gola of 50X50 mm at the junction using polymer modified mortar. Providing and applying liquid applied single component pitch free polyurethane coating in 2 coats at coverage rate of 2kg/sm to a achieve a minimum DFT of 1.3 mm. (Fiber cloth/fleece/reinforcement should not be used in between two coats of PU as it has adverse effect on elongation property and also affects bonding with slab). Termination shall be done 300 mm above FFl by providing a groove cut of 30mm x 30mm & seal it with shrinkage compensated polymer modified mortar. Lay a 150 GSM geotextile layer to protect the coating from external damage on final coating before laying of screed concrete/final finish. It shall be applied as per manufactures specification. Rates are incl of surface preparation, grouting and chemical application only. (Rates for geotextile, protection plaster and final finishes such as screed or Brick bat filling for slope, china mosaic, tiles etc is not included in above item. It will be added as per EIC requirements).		sqm	58	0	624	683
	WATERPROOFING TREATMENT TO TERRACE AREA USING TWO COMPONENT 100% SOLIDS HYBRID POLYUREA COATING						
28.7	Providing and applying waterproofing treatment using two component 100% solid content, hybrid polyurea/polyurethane, rapid curing and highly resislient fully bonded cured to membrane having a mixed density of 1.02g/l. Minimum recommended coverage rate is 1.5ltr/sqmtr in 2 coats to achieve a total DFT of 1.5mm. cured membrane shall exhibit: 1) Tensile strength ASTM D412 : >13 MPa 2)Tear Resistance ASTM D624C : 50 N/mm2 3) Shore A Hardness: 80 4)Elongation ASTM D412 : >450% 5 (1kg, CS 10 wheels,ASTM D 4060): 1.3 mg/1000 cycles 6) Service temperature: -20ºC to +80ºC 7) Resistant to Fire (EN13501-1)-Class E,d0 Manufacturers shall provide Certificate for Zero VOC, resistance to fire, 25 years life expectancy test certificate before the start of work. System includes supply , application and termination of coating all complete as per the manufacturer methodology. Clean the RCC slab/screed surface & wall for treatment by removing dust, dirt and layers of concrete over the surface. etc. by mechanical tools and wire brushing. Pressure grouting at construction joints or honeycombs with non shrink cementations grout by mixing shrinkage compensating admixture per bag of cement as per manufacturer's recommendations. Prepare a side gola of 50X50 mm at the junction using polymer modified mortar.Providing and applying two component 100% solid content, hybrid polyurea/polyurethane membrane at coverage rate of 1.5ltr/sqmtr in 2 coats to achieve a total DFT of 1.5mm. It must be applied utilizing plural heated high-pressure spray proportioning machine/spray gun such as those manufactured by WIVA/Graco or equivalent spray proportioning equipment. Termination shall be done 300 mm above FFl by providing a groove cut of 30mm x 30mm & seal it with shrinkage compensated polymer modified mortar. Lay a 150 GSM geotextile layer to protect the coating from external damage on final coating before laying of screed concrete/final finish. It shall be applied as per manufactures specification. Rates are incl of surface preparation, grouting and chemical application only. (Rates for geotextile, protection plaster and final finishes such as screed or Brick bat filling for slope, china mosaic, tiles etc is not included in above item. It will be added as per EIC/clients requirements).		sqm	110	0	1024	1134
	WATERPROOFING TREATMENT TO RAFT BOTTOM						
	WATERPROOFING TREATMENT TO RAFT BOTTOM USING HDPE MEMBRANE						

28.8	Supplying and applying waterproofing treatment for 'Raft Slab' by using 1.2 mm thick fully bonded HDPE sheet membrane complying to BS8102:2009/ IS 16471-2017. The HDPE shall be virgin HDPE & not recycled, thickness of bare HDPE shall not be less than 0.8 mm coated with pressure sensitive adhesive layer and a trafficable granular top layer. The HDPE membrane shall have the following typical properties: 1. Tensile Strength : >27 Mpa (as per ASTM D412) 2. Puncture Resistance: >1000N±5% (as per ASTM E154) 3. Elongation: >500% 4. Peel adhesion to concrete: >1500N/m (as per ASTM D903 Modified) 5. Resistance to Hydrostatic Head: >70 mtr (as per ASTM D751-06(2011) 6. UV exposure test (60 days): No change 7. Lap Joint Strength : 1500N/m (as per ASTM D1876) HDPE Membrane shall be installed over the entire PCC area with standard 75 mm selvedge laps and end laps overlaid with HDPE Sealed Tape as per manufacturer's instructions. The rates are inclusive of supply and installation of membrane as per manufacturer methodology. The rates are inclusive of surface prepartion, injection grouting at honeycombed areas all complete as per manufacturer methodology.		sqm	75	0	571	646
	WATERPROOFING TREATMENT TO RAFT BOTTOM USING 4-5mm Thick HDPE MEMBRANE						
28.9	Supplying and installing positive side waterproofing treatment for 'Raft Slab' using 4-5mm thick blended polyethylene / polypropylene membrane incorporating a cell mesh, enabling the membrane to mechanically bond with the poured concrete. The membrane shall be supplied with one self-adhesive selvedge to provide sealed laps and comply with British Standard 8102 2009. Membrane shall have 125 years of certificate of durability and Watertightness test. The membrane should have the following typical properties : 1. Resistance to static loading (EN 12730 method B): 15 Kg 2. Tensile Strength (EN 12311-2): L: >18MPa, T: >10MPa 3. Elongation at break (EN 12311-2): L: >800%, T: >600% 4. Elongation at peak load (EN 12311-2): L: >800%, T: >600% 5. Crack Bridging (ASTM C1305): upto 5mm (100 cycles) 6. Durability of water tightness against durability (EN 1296/ EN 1928): Pass 7. Resistance to impact (EN 12691 Method A): 1500mm 8. Puncture Resistance (ASTM E154-08): 672N 9. Resistance to tear (nail shank): EN 12310-1): 720N (Longitudinal) 10. Reaction to fire (EN ISO 11925-2): Pass 11. Joint Strength (EN 12317-2): ≥220N (Lap) & ≥150N (Butt) 12. Resistance to Alkali(EN 1847/EN 1928)-Pass Membraneshall be installed over the entire PCC area with standard 80 mm selvedge laps and end laps overlaid as per manufacturer's instructions. The rates are inclusive of supply and installation of membrane as per manufacturer methodology. The rates are inclusive of surface prepartion, injection grouting at honeycombed areas all complete as per manufacturer methodology.		sqm	75	0	1230	1304
28.10	Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer-in-Charge and consisting of :						
	(i) Ist layer of 22 mm to 25 mm thick approved and specified rough stone slab over a 25 mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound.						
	(ii) 2nd layer of 25 mm thick cement mortar 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportions.						
	(iii) Finishing top with stone aggregate of 10 mm to 12 mm nominal size spreading @ 8 cudm/sqm thoroughly embedded in the 2nd layer.						
	28.10.1	Using rough kota stone.	sqm	200	0	631	831
	RETAINING WALL WATERPROOFING FROM EXTRERNAL SIDE						
	WATERPROOFING TREATMENT TO RETAINING WALL AREA FROM EXTERNAL SIDE USING SELF-ADHESIVE POLYMER MODIFIED BITUMINOUS MEMBRANE						
28.11	Supplying and installing 1.5 mm thick SBS membrane, self-adhesive polymer modified bitumen comprising of a cross laminated HDPE carrier film. Membrane shall come with a BBA certification giving a durability of membrane upto the life of the structure and shall have Tensile Strength : L: 215N/50mm T: 220N/50mm (as per BS EN12311-1), Elongation : L: 324% and T: 238% (as per BS EN12311-1), Water Vapour Permeability : Impermeable to ISO 12572 (as per BS EN 1931), Resistance to Hydrostatic Head: Min 60m(as per ASTM D5385), Adhesion to primed concrete : 4.9mm (as per ASTM D1000). The surface shall be primed using Bituminous Primer and membrane shall be installed with an edge lap of 50 mm and end lap of 150 mm. Membrane Termination shall be done by providing a groove cut of 30mm x 30mm, put the membrane inside the groove, nailing of aluminium flashing at 200mm c/c & sealing with a Sealant of Nitoseal PU40 at the termination of waterproofing membrane at minimum of 300mm height on the vertical wall, as per the manufacturer's Specification. Menrabrane shall be protected using 8mm thick dimple board for protection as per manufacturer's recommendation followed by backfilling. The rates are inclusive of surface prepartion, crackfilling, injection grouting at honeycombed areas, coving, priming all complete as per manufacturer methodology but excluding for protection board.		sqm	107	0	527	634
	WATERPROOFING TREATMENT TO RETAINING WALL AREA FROM EXTERNAL SIDE USING LIQUID APPLIED SINGLE COMPONENT PITCH FREE POLYURETHANE COATING						
28.12	Providing and applying waterproofing treatment to sound, moisture free concrete surface using liquid applied single component pitch free polyurethane coating capable of bridging substrate cracks upto 2 mm. It shall be applied in two coats at coverage rate of 2kg/sm to a achieve a minimum DFT of 1.3 mm. The membrane formed shall confirm to following minimum properties: 1) Elongation : >400% as per ASTM D 412 2) Tensile Strength : 2.5 N/mm2 as per ASTM D 412 3) Adhesion in-peel test : >50 N as per ASTM C- 836 4) Recovery from 350% elongation : 95% as per ASTM D 412 5) Water Vapour Transmission 2.3mm film: 0.6 g/m2/hr 6) Initial Hardness Shore A : min 60 as per ASTM D 2240 7) Root resistant : protection screed required System includes supply , application and termination of coating all complete as per the manufacturer methodology. Clean the RCC slab/screed surface & wall for treatment by removing dust, dirt and layers of concrete over the surface. etc. by mechanical tools and wire brushing. Pressure grouting at construction joints or honeycombs with non shrink cementations grout by mixing shrinkage compensating admixture per bag of cement as per manufacturer's recommendations. Providing and applying liquid applied single component pitch free polyurethane coating in 2 coats at coverage rate of 2kg/sm to a achieve a minimum DFT of 1.3 mm. (Fiber cloth/fleece/reinforcement should not be used in between two coats of PU as it has adverse effect on elongation property and also affects bonding with slab). Termination shall be done 300 mm above vertical wall by providing a groove cut of 30mm x 30mm & seal it with shrinkage compensated polymer modified mortar. Menrabrane shall be protected using 8mm thick dimple board for protection as per manufacturer's recommendation followed by backfilling. The rates are inclusive of surface prepartion, crackfilling, injection grouting at honeycombed areas, coving, priming all complete as per manufacturer methodology but excluding the cost of protection board.		sqm	81	0	627	708
28.13	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :						
	28.13.1	Using rough Kota stone	sqm	356	0	652	1008

28.14	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of:						
	(i) Ist course of applying cement slurry @ 4.4 kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.						
	(ii) IInd course of 20 mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.						
	(iii) IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sqm of area.						
	(iv) IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sqm).	sqm	136	0	243	379
28.15	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying :						
	(a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm This layer will be allowed to air cure for 4 hours.						
	(b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours.						
	The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	sqm	142	0	87	229
28.16	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying:						
	(a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm						
	(b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm.						
	(c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around.						
	(d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately.						
	For the purpose of measurement the entire treated surface will be measured.	sqm	122	0	198	320
28.17	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations:						
	(a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment.						
	(b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.						
	(c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge.						
	(d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep.						
	(e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test.“All above operations to be done in order and as directed and specified by the Engineer-in-Charge :						
	28.17.1 With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	sqm	275	0	527	802
28.18	Providing and mixing integral crystalline admixture for water proofing treatment to RCC structures like basement raft, retaining walls, reservior, sewage & water treatment plant, tunnels / subway and bridge deck etc. at the time of transporting of concrete into the drum of the ready-mix truck , using integral crystalline admixture @0.80% (minimum) to the weight of cement content per cubic meter of concrete) or higher as recommended by the manufacturer's specification in reinforced cement concrete at site of work. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 90%, compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure. The crystalline admixture shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.	kg	7	0	311	317
28.19	Providing and applying integral crystalline (dry shake) of hydrophilic in nature for waterproofing treatment to the RCC structures like basement raft, foundation slab, sewage & water treatment plant slab, warehouses floor, parking structures and water tank base slab etc. sprinkled @0.60kg per sqm or higher as recommended by the manufacturer's specification over the lean concrete of above cited structures. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e. by reducing permeability of concrete by more than 85%, compared control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline dry-shake shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the Engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.	sqm	11	0	247	258
28.20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservior, sewage & water treatment plant, tunnels / subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.						
	28.20.1 For vertical surface two coats @ 0.70 kg per sqm	sqm	11	0	380	392
	28.20.2 For horizontal surface one coat @1.10 kg per sqm	sqm	7	0	299	306
28.21	Providing & Applying polymer modified, flexible cementatious negative side waterproofing coating with elastic waterproofing polymers on interior wall plaster surface in three coats @14.35 kg /10 sqm one coat of self priming of cementatious waterproofing polymer(dilution with water in the ratio of 1:1) and two coats of cementatious waterproofing polymer (dilution with water in the ratio of 3:1) after scrapping and properly cleaning the surface to remove pre-existing paint film & loose particles till plaster is visible, complete in all respect as per the direction of Engineer-in-Charge.	sqm	26	0	326	351
28.22	Providing & Applying high quality acrylic modified resin based texture of Dholpur/Red sand stone Pattern with anti algae and UV resistance properties to be applied as intermediate finish in desired pattern @ 43.04 kgs/10 sqm to form film of 1- 1.5 mm thickness after scrapping and properly cleaning the surface to remove loose particles from the plaster surface, followed by top coating with Premium Acrylic Smooth exterior paint with Silicone additives of required shade by two or more coats @ 1.43 litres/10 sqm, complete as the direction of Engineer -in-Charge.	sqm	85	0	216	301
28.23	Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineer-in-Charge.	sqm	43	0	257	300
28.24	Supplying and applying bituminous solution primer on roof and / or wall surface at 0.24 litre per sqm	sqm	12	0	12	24

28.25	Grading roof for water proofing treatment with						
	28.25.1	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	cum	668	0	3278	3946
	28.25.2	Cement mortar 1:3 (1 cement : 3 coarse sand)	cum	2382	0	4161	6544
	28.25.3	Cement mortar 1:4 (1cement : 4 coarse sand)	cum	2381	0	3414	5795
28.26	Supplying and filling cinder on roof (upto three storeys) including light ramming.		cum	409	0	808	1216
28.27	Providing and laying cinder concrete in cement 1:15 (1 cement and 15 cinder) on terraced roofs & (upto three Storeys), laid to slope, including consolidating the same.		cum	769	0	1227	1995
28.28	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :						
	28.28.1	Serrated with central bulb (225 mm wide, 8-11 mm thick)	metre	4	0	228	233
	28.28.2	Dumb bell with central bulb (180 mm wide, 8 mm thick)	metre	4	0	183	187
	28.28.3	Kickers (320 mm wide, 5 mm thick)	metre	4	0	211	216
28.29	Providing and applying crystalline mortar by mixing in the ratio of 4.5 : 1 (4.5 parts crystalline mortar : 1 part water) for the treatment of faulty construction joints, cracks, tie rod holes and spalled & honeycombed surface of RCC underground structures like basement, water tanks, bridge deck etc. to ensure water tightness. The crystallie mortar shall conform to the EN 1504-3 having compressive strength Class R4 ≥45 MPa and adhesive bond strength Class R3 ≥1.5 MPa. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.						
	28.29.1	For sealing cracks and faulty construction joints, routed out/making U-shape groove size 25x25mm and then primed the area with integral crystalline slurry @0.05kg/running metre and while the surface is tacky filled the groove upto surface with crystalline mortar @1.50kg/running metre. Once crystalline mortar is touch dry then finally applied two coats of integral crystalline slurry @0.05kg/running metre per coat.	metre	14	0	409	423
	28.29.2	For patching of tie rod holes, prepared tie rod hole surface and then primed the area with integral crystalline slurry @0.070kg/sqm and while the surface is tacky repair and then filled the tie rod holes with crystalline mortar@0.040kg per hole. The crystalline mortar should be tightly rodded into tie rod holes or packed tightly (For 25x25x25 mm tie rod hole, use 0.040kg to fill the hole)	each	3	0	10	13
28.30	Providing and applying of swellable type water stop tape, 19mm x 25mm thick in linear meter (expansive nature) for construction joints treatment of RCC structure such as raft slab, retaining walls, water storage tank and at the junctions of raft slab with the retaining walls etc.. After cleaning the surface, one coat of required primer for swellable water stop tape shall be applied throughout the length of the joint @3.78 litre per 240 running meter. Over the primed surface swellable type water stop tape shall be placed. The work shall be carried out all complete as per specification and the direction of the Engineer-In-Charge. The product performance shall carry guarantee for 10 years against any leakage.		metre	9	0	445	454
28.31	Providing and laying in situ seven course water proofing treatment with APP (Atactic poly-propylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40 litre per sqm, 2nd, 4th & 6th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd and 5th layers of roofing membrane APP modified Polymeric membrane 1.5 mm thick of 2.25 Kg/sqm weight consisting of five layers prefabricated with centre core as 20 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 7th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).		sqm	56	0	362	418
28.32	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40 litre per sqm, 2nd & 4th courses of bonding material @ 1.20 kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0 mm thick of 3.00 Kg/ sqm weight consisting of five layers prefabricated with centre core as 100 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).		sqm	41	0	242	283
28.33	Providing and laying in situ seven course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40 litre per sqm, 2nd, 4th & 6th courses of bonding material @ 1.20 kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd and 5th layers of roofing membrane APP modified Polymeric membrane 2.0 mm thick of 3.00 Kg/sqm weight consisting of five layers prefabricated with centre core as 100 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 7th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).		sqm	56	0	412	468
28.34	Providing and fixing APP (Atactic Polypropylene Polymer) modified prefabricated five layer 2 mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/sqm by the same membrance manufacture of density at 25°C, 0.87 - 0.89 kg/ litre and viscocity 70 - 160 cps. Over the primer coat the layer of membrane shall be laid using Butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/ 5 cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacture of membrane.						
	28.34.1	2mm (for corrugated roof sheets)	sqm	55	0	219	274
28.35	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer, 3 mm thick water proofing membrane, black finished reinforced with glass fibre matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/sqm by the same membrane manufactured of density at 25°C, 0.87 - 0.89 kg/litre and viscocity 70 - 160 cps. Over the primer coat the layer of membrane shall be laid using butane torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 350/300 N/5 cm. Tear strength in longitudinal and transverse direction as 60/80N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane :						
	28.35.1	3 mm thick	sqm	55	0	299	353
28.36	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3 mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/sqm by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ litre and viscocity 70-160 cps. Over the primer coat the layer of membrane shall be laid using Butane Torch and sealing all joints etc, and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 650/ 450N/ 5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane :						
	28.36.1	3 mm thick	sqm	55	0	317	372
28.37	Extra for covering top of membrane with Geotextile, 120 gsm non woven, 100% polyester of thickness 1 to 1.25 mm bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation.		sqm	12	0	54	66
28.38	Water proofing treatment of RCC sunshade with Zycosil/equivalent water proofing Solution (1 litre of Zycosil/equivalent & 20 litres of water stirred first & 2 litres of Zycoprime/equivalent added and stirred (total 23 litres)) till it meets the saturation level and testing as per RILEM or by water drops test in which water drops do not absorb but drops remain or rolls.		sqm	27	0	56	83

28.39	Water proofing of roof terraces, Basements, Retaining Walls, Water tanks etc with Zydex Zycoprime / Elastobar / Equivalent solution so as to form a water-resistant mentitious bonding coat and to form on-site seamless cross-linked elastomeric membrane on the concrete surface to reduce its porosity. Creating a cementitious elastomeric polymeric membrane of 2 coats of Elastobar and Zycoprime/Equivalent after application of Zycosil & Zycoprime Solution in New Construction. Take equal parts of Elastobar and Cement and form a paste. Add little water to the paste to make it brushable. Apply the paste on surface with brush. Leave the surace for drying for at least 4 - 6 hours to get lastomeric membrane. After this application, make one more layer of rough cementatios membrane using mixture of 1 Part of Zycoprime + 1 Part of Cement + 1 Part of fine sand. Apply paste on the surface with a brush to make a rough texture. Now your surface is ready to bond well with tiles/screed.		sqm	43	0	280	323
	Thermal Insulation of Buildings						
28.40	Providing fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Fibre glass wool conforming to IS : 8183, density 24kg / m3, 50mm thick, wrapped in 200 G Virgin Polythene bags, fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5 mm x 24 gauge wire mesh, for top most ceiling of building.		sqm	84	0	214	298
28.41	Providing and fixing thermal insulation with Resin Bonded Fibre glass wool conforming to IS: 8183. Density 16 kg/m³, 50 mm thick, wrapped in 200G Virgin Polythene bags placed over existing false ceiling and held in position by criss-crossing GI wire.		sqm	32	0	130	161
28.42	Thermal Insulation of roofing with Expanded polystyrene fixed with suitable adhesive to the false ceiling as per the directions of the Engineer-in-charge:						
	28.42.1	With Type N - Normal 50 mm thick	sqm	32	0	159	191
	28.42.2	With Type SE - Self Extinguishing type 50 mm thick	sqm	32	0	190	222
28.43	Providing and fixing Heat Resistant Terrace Tiles (300 mm x 300 mm x 20 mm) with SRI (solar refractive index) > 78, solar reflection > 0.70 and initial emittance > 0.75 on waterproof and sloped surface of terrace, laid on 20 mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1, including rubbing and polishing of the surface upto 3 cuts complete, including providing skirting upto 150 mm height along the parapet walls in the same manner.		sqm	275	0	661	935
28.44	Providing and laying roof insulation with 40 mm thick impervious sprayed, closed cell free Rigid Polyurethane foam over deck insulation conforming to IS - 12432 Pt. III (density of foam being 40-45 kg/ cum), over a coat of polyurethane primer applied @ 6-8 sqm per litre, laying 400 G polythene sheet over PUF spray and providing a wearing course of 40 mm thick cement screed 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) in chequered rough finish, in panels of 2.5 m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerized mastic, all complete as per direction of Engineer-in-Charge.		sqm	103	0	711	814
28.45	Providing and fixing thermal insulation with Resin Bonded Fibre glass wool conforming to IS: 8183 having density 24 kg/m3, 50 mm thick, wrapped in 200G Virgin Polythene Bags fixed to wall with screw, rawel plug & washers and held in position by criss crossing GI wire etc. complete as per directions of Engineer-in-Charge.		sqm	33	0	184	217
28.46	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Rockwool conforming to IS: 8183,density 48 kg/ m3, 50 mm thick, wrapped in 200 G Virgin Polythene bags fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5mm x 24 gauge wire mesh, for top most ceiling of building.		sqm	84	0	186	269
28.47	Providing and fixing thermal insulation with Resin bonded rock wool conforming to IS: 8183, density 48 kg/m3, 50 mm thick, wrapped in 200 G virgin Polythene bags placed over existing false ceilng and held in position by criss-crossing GI wire.		sqm	32	0	155	186
28.48	Providing and fixing thermal insulation with Resin Bonded rock wool conforming to IS: 8183, having density 48 kg/m3,50 mm thick,wrapped in 200 G Virgin Polythene Bags fixed to wall with screw, rawel plug & washers and held and in position by criss cossing GI wire etc. complete as per directions of Engineer-in-Charge.		sqm	33	0	155	188
28.49	Providing and applying two coats of High Albedo paint having minimum Solar Reflective Index (SRI) 108 (with solar reflectance & thermal emittance tested as per ASTM) C 1549 and ASTM C 1371 respectively), VOC less than 10 cc/gm. The coating thickness and the methodology of application shall strctly as per manufacturer's specifications and as approved by Engineer-in-Charge. Surface preparation includes cleaning with metal wire brush to remove all dust, fungus etc., washing with water all complete. The contractor shall give guarantee for the perfomance of SRI and also the durabitity of coating, all complete as per direction of Engineer-in-Charge.		sqm	35	0	189	224
28.50	Terracing consisting of 19mm thick heat resistant tiles for roof insulation,300mmx300mm laid on 20mm thick 1:3 cement coarse sand mortar including grouting with neat white cement over average 75mm thick screed of 1:8:16 including two coats of bitumen laid hot at 1.65k g per SqMt. on top of RCC slab & cleaning of top surface, complete. The tilcsshall be made of white cement blended withTibrous polymer having flextural stress value of ≥150 kg/cm& thermal conductivity value≤0.18 w/m.k.		sqm	223	0	778	1001
	POLYURETHANE FOAM (PUF) INSULATION						
28.51	Providing and applying 75mm thick two component, HFC blown, free from CFC/HCFC polyurethane based sprayable rigid foam system, closed-cell type, designed to meet insulation requirements in roof applications. PUF ishall be applied seamless in-situ and is ideal for fast return to service. PUF should be applied through a suitable metered application machine, by specialist applicators and should be covered by waterproofing ststem. The thickness of the individual layers of PUF applied foam should be minimum 10 - 15 mm. PUF shold have the following properties: 1. Viscosity at 20°C, cps: Part A ISO 300, Part B POLYOL 600 2. Compressive strength,ASTM D-1621/94,kPa> 400 3. Tensile strength,ASTM D1623/78, kPa:>500 4. Adhesion to substrate,ASTM D4541, kPa:> 180 5. Thermal conductivity at 25C as per ASTM C518/91, W/m K:≤ 0.023 6. Closed cell content,ISO4590, %:> 96 7. Water absorption,EN12087, %:< 2.5 8. Water Vapour Transmission,EN12086, perms132 9. Flash Points, ºC: Part A ISO > 200, Part B POLYOL > 65 10. Fire resistance,DIN4102: Class B2 11. Foam Density, kg/m3 ASTM D1622: 45 to 50 12. Specifi c Gravity at 20°C: Part A ISO 1.23, Part B POLYOL 1.23 It shall be applied as per manufactures specification. Rates are incl of surface preparation, grouting and chemical application only.		sqm	84	0	1060	1143
28.52	Providing and fixing extruded polystyrene (XPS) foam 50mm thick of density 32 Kg./ cum for thermal insulation with cramps of GI strip 25mm wide x 3mm thick fixed with screw/ nail for holding the walls at regular intervals in cavity walls complete in all respect.		sqm	116	0	666	782

CHAPTER NO. 29

STRUCTURAL
AND
ALUMINIUM GLAZING

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CHAPTER NO. 29.0 - STRUCTURAL AND ALUMINUM GLAZING

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 1285	Wrought Aluminium and Aluminium Alloy, Extruded Round Tube and Hollow sections (For General Engineering Purposes) - Specification
2	IS 1868	Anodic coating on Aluminium and its Alloys-Specification
3	IS 3965	Dimensions for wrought Aluminium and Aluminium Alloys bars, rods and sections.
4	IS 5523	Method of testing anodic coating on aluminium and its alloys.
5	IS 6012	Measurement of coating thickness by Eddy Current Method
6	IS 6477	Dimensions of extruded hollow section and tolerances
7	IS 14900	Transparent Float glass- Specifications.

CHAPTER NO. 29.0 - STRUCTURAL AND ALUMINUM GLAZING

NOTES:

1. HERMETICALLY SEALED STRUCTURAL GLAZED UNIT

1.1 Insulating glass shall be a double glazed unit comprising two sheets of float glass panes separated by a spacer, hermetically sealed using primary and secondary sealants.

1.2 The design of insulating glass system shall consist of:

1.3 Hollow Spacer Bar: The hollow aluminium spacer bar shall be of required size and shape and shall be colour anodized. The spacer bar shall have two lines of perforations in the inner surface.

1.4 Desiccant: The desiccant shall be Neftomol 3 A Chemetall or equivalent. The desiccant filled in the aluminium spacer bar shall be synthesized crystalline compounds of Aluminium Hydroxide, Caustic Soda and Sodium Silicate which absorbs water molecules. The desiccant shall be of 3 A size. The quantity of desiccant used shall not be less than 35 gm/m length of spacer bar. Filled spacer bar frame shall not be stored for more than 6 hours before assembly and sealing of the unit to ensure proper functioning of the desiccant.

1.5 Primary Sealant: The primary sealant shall be single component, thermo plastic solvent free sealing compound based on polysosutylene. The sealant surface shall be free from cavities, depression and other defects.

1.6 Secondary Sealant: The secondary sealant in double glazed unit shall be silicone sealant. Before application of silicone/ polysulphide, the surface must be cleaned and free from oil, grease, dust and other loose matter. The surfaces shall be cleaned with alcohol or other suitable solvents. The polysulphide shall be mixed and applied mechanically using automatic mixing machine in the manner approved by Engineer-in-Charge.

1.7 EPDM- GASKETS: The EPDM Gaskets shall be of size and profile as shown in drawings and as called for, to render the glazing, doors, windows, ventilators etc. air and water tight.

1.8 EPDM gasket shall meet the requirements as given in Table below:

S. No.	Description	Standard to Follow	Specification
1	Tensile strength Kg.f/cm^2	ASTM-D 412	70 Min.
2	Elongation at break %	ASTM-D 412	250 Min.
3	Modulus 100% Kgf/cm^2	ASTM-D 412	22 Min.
4	Compression set % at 0^o CC 22 Hrs.	ASTM-D 395	50 Max.
5	Ozone resistance	ASTM-D 1149	No visible cracks

1.9 Measurement: The height and width of double glazed/single glazed unit (the area of glass unit outside the snap beading shall only be measured) as fixed in place shall be measured correct to one centimeter and area calculated in sqm. correct to second place of decimal shall be taken for payment.

1.10 Rate: The rate shall include the cost of all the materials, labours involved in all the operations as described in the nomenclature of item and particular specification.

1.11 The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 29.0 - STRUCTURAL GLAZING AND ALUMINIUM GLAZING					
29.1	Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawings , the aluminium quality as per grade 6063 T5 or T6 as per BS 1474,including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer-in-Charge. (The item includes cost of material such as cleats, sleeves, screws etc. necessary for fabrication of extruded aluminium frame work. Nothing extra shall be paid on this account). The weight of aluminium extruded section shall be taken for purpose of payment.	kg	0	0	316	316
29.2	Providing, assembling and supplying vision glass panels (IGUs) comprising of hermetically-sealed 6-12- 6 mm insulated glass (double glazed) vision panel units of size and shape as required and specified, comprising of an outer heat strengthened float glass 6mm thick, of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade, an inner Heat strengthned clear float glass 6mm thick, spacer tube 12mm wide, dessicants, including primary seal and secondary seal (structural silicone sealant) etc. all complete for the required performances, as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer-in-Charge. The IGUs shall be assembled in the factory/ workshop of the glass processor.					
	(Payment for fixing of IGU Panels in the curtain glazing is included in cost of item No.29.6)					
	For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm					
	(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, + 12mm Airgap + 6mm Heat Strengthened clear Glass of approved make having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.	sqm	238	0	1997	2235
29.3	Extra for openable side / top hung vision glass panels (IGUs) including providing and supplying at site all accessories and hardwares for the openable panels as specified and of the approved make such as heavy duty stainless steel friction hinges, min 4 -point cremone locking sets with stainless steel plates, handles, buffers etc. including necessary stainless steel screws/ fasteners, nuts, bolts, washers etc. all complete as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer- in-Charge.	sqm	152	0	2139	2291
29.4	Providing, fabricating and supplying shadow box of required size and shape, for fixing in the spandrel portion of the structural glazing, in linear as well as curvilinear portions of the building by providing semi -rigid, inorganic, non-combustible fibre glass wool insulation 50 mm thick, conforming to IS: 8183 and BS: 3958 Part 5. The insulation layer shall have facing (factory bonded on surface # 1 of the fibre glass insulation layer), of black non-woven fibre glass tissue of nominal thickness 0.5 mm and nominal mass not less than 60 gm /sqm, made of randomly oriented glass fibres distributed in a binder by a wet-lay process including fixing 1.5 mm thick solid aluminum sheet backing using, 6 mm thick cement board including SS rivets, nuts, bolts, washers etc complete.	sqm	85	0	1219	1304
29.5	Providing and supplying Spandrel Glass Panels comprising of 6 mm thick heat strengthened monolithic float glass of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade so as to match the colour and shade of the IGUs in the vision panels etc. ,all complete for the required performances as specified, as per the Architectural drawings, as per the approved shop drawings, as specified, and as directed by the Engineer- in- Charge.					
	For payment, only the actual area of glass on face # 1 of the glass panels (but excluding the area of grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm (Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevent Item)."(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 K etc. . The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.	sqm	159	0	1244	1404
29.6	Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels, including:	sqm	497	0	887	1384
	(a) Structural analysis & design and preparation of shop drawings for the specified design loads conforming to IS 875 part III (the system must passed the proof test at 1.5 times design wind pressure without any failure), including functional design of the aluminum sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants, flashings, fire stop (barrier)-cum-smoke seals, microwave cured EPDM gaskets for water tightness, pressure equalisation & drainage and protection against fire hazard including:					
	(b) Fabricating and supplying serrated M.S. hot dip galvanised / Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimentional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/ masonry/structural steel framework of building structure using stainless steel anchor fasteners/ bolts, nylon seperator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.					
	(c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment, including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass.					
	(d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.					
	(e) Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved by Engineer-in-charge. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for occupation. In the end, the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer- in-Charge.					
	Note:- 1. The cost of providing extruded aluminium frames, shadow boxes, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub- head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm up to two decimal places.					
	Note:-2. The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 sqm from the certified laboratories accreditated by NABL(National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. Cost of testing is payable separately.					
	Competent authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work. Performance Testing of Structural glazing system Tests to be conducted in the NABL accredited lab or any other accreditation body which operates in accordance with ISO/IEC 17011 and accredits labs as per ISO/IEC 17025					
	1. Performance Laboratory Test for Air Leakage Test (-50pa to - 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr					
	2. Static Water Penetration Test. (50pa to 1500pa) as per ASTME- 331-09 testing method for a range up to 2000 ml.					
	3. Dynamic Water Penetration (50pa to 1500pa) as per AAMA 501.01- 05 testing method for a range upto 2000 ml					
	4. Structural Performance Deflection and deformation by static air pressure test (1.5 times design wind pressure without any failure) as per ASTME-330-10 testing method for a range upto 50 mm					

	5. Seismic Movement Test (upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test, Tests to be conducted on site.					
	6. Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35psi) upto 2000 ml					
29.7	Design supply & installation of suspended Spider Glazing system designed to withstand the wind pressure as per IS 875 (Part-III). The Suspended System held with Spider Fittings of SS-316 Grade Steel of approved manufacturer with glass panel having 12 mm thick clear toughened glass held together with SS- 316 Grade Stainless steel Spider & bolt assembly with laminated glass fins 21 mm thick. The Glass fins and glass panel assembly shall be connected to Slab/beams by means of SS- 316 Grade stainless steel brackets & Anchor bolts and at the bottom using SS channel of 50x25x2mm using fastener & anchor bolts, non staining weather sealants of approved make, Teflon/ nylon bushes and separators to prevent bi-metallic contacts, all complete to perform as per specification and approved drawings. The complete system to be designed to accommodate thermal expansion & seismic movements etc. The joints between glass panels (6 to 8 mm) and gaps at the perimeter & in U channel of the assembly to be filled with non staining weather sealant, so as to make the entire system fully water proof & dust proof.					
	The rate shall include all design, Engineering and shop drawing including approval from structural designer, labour, T&P, scaffolding, other incidental charges including wastage, enabling temporary services all fitting fixers nut bolts, washer, Buffer plates, fastener, anchors, SS channel laminated glass etc. all complete. For the purpose of payment, actual elevation area of Glazing including thickness of joints and the portion of Glass panel inside the SS channel shall be measured.	sqm	267	0	6080	6347

CHAPTER NO. 30

REPAIR and MAINTENANCE of BUILDINGS

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CHAPTER 30: REPAIRS OF BUILDINGS

LIST OF BUREAU OF INDIAN STANDARD CODES

Sr. No.	B.I.S. No.	Subject
1	IS 419	Specifications for Putty for use in Window Frames
2	IS 14900	Specifications for Transparent Float Glass

CHAPTER 30.0 - REPAIR AND MAINTENANCE OF BUILDINGS

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 30.0 - REPAIRS AND MAINTENANCE OF BUILDING						
	EARTH WORK						
30.1	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like.		kilolitre	37	27	0	65
	STONE MASONRY WORKS						
30.2	Raking out joints of stone masonry surface to the required width and depth, with due care and precaution, by mechanical / manual means, including preparing and cleaning the surface for re-pointing/ refilling of joints, including disposal of rubbish to the dumping ground within 50 metre lead.		sqm	14	0	0	14
30.3	Cleaning the sand stone surface and removing dirt, dust, bird dropping, grease, oil, algae, fungus, monkey beats, vegetable growth etc., including providing, applying and washing the surface with liquid Ammonia Chemical of 5% solution and other chemical cleaning agent as approved by Archaeological Survey of India/ Engineer-in-charge, of approved brand and manufacturer, with the help of required scrubbers and also cleaning with machine operated water jet mixed with desired quantity of fine silica where ever required, without causing any scratching/ damage to the stone surface and finally washing the surface with clean water with the help of pressure jet machine, complete in all respect, including taking all precautions to safeguard ventilators, windows, doors etc. by suitable covering so as to avoid any damage to the building/structure, all as per direction of Engineer-in-charge (The rate is inclusive of all materials & labours involved except scaffolding).		sqm	53	0	9	63
30.4	Providing and applying antifungal wash treatment using 3% solution of sodium pentachlorophenate, of reputed brand and manufacturer, on cleaned sand stone surface at desired locations as per direction of Engineer-in-charge (The rate is inclusive of all materials & labours involved except scaffolding).		sqm	20	0	6	27
30.5	Ruled / Flush pointing on existing Red sand stone masonry surface with lime, surkhi and marble dust mortar in the ratio of 1:1.5:1/2 {One lime: 1.5 surkhi (50% red and 50% light yellow surkhi) : 1/2 marble dust}. (The rate is inclusive of all materials & labours involved except scaffolding).		sqm	92	0	6	97
30.6	Applying two or more coat of Ethyl Silicate chemical as approved by Archaeological Survey of India/ Engineer-in-charge, of approved brand and manufacturer, with brush or spray on the existing stone masonry surface till there is no further absorption of chemical by stone surface, including protecting the applied surface from direct sunlight by suitable means during application, all complete as per direction of the Engineer-in-Charge (The rate is inclusive of all materials & labours involved except scaffolding).		sqm	20	0	206	225
30.7	Applying breathable, non-reactive, antifungal, and water repellant Silane/Siloxane chemical as approved by Archaeological Survey of India/ Engineer-in-charge, of approved brand and manufacture, diluted with solvent mineral Turpentine oil in the ratio of 1:12 (One part of approved chemical :12 Part of Turpentine oil), on the existing sand stone masonry surface with two or more coats to give uniform application of chemical on the surface, all complete as per direction of Engineer-In-charge (The rate is inclusive of all materials & labours involved except scaffolding).		sqm	14	0	47	61
	ROOFING AND CEILING WORKS						
30.8	Providing and fixing 16 mm M.S. Fan clamps of standard shape and size in existing R.C.C. slab, including cutting chase, anchoring clamp to reinforcement bar, including cleaning, refilling, making good the chase with matching concrete, plastering and painting the exposed portion of the clamps complete.		each	123	0	51	174
30.9	Regrading terracing of mud phaska covered with tiles or brick, in cement mortar by dismantling tiles or bricks, removing mud plaster, preparing the surface of mud phaska to proper slope, relaying mud plaster gobri leaping and tiles or bricks, grouted in cement mortar 1:3 (1 cement : 3 fine sand), including replacing unserviceable tiles or bricks with new ones and disposal of unserviceable material to the dumping ground (the cost of the new tiles or brick excluded), all complete as per direction of Engineer-in-Charge.		sqm	179	0	38	217
30.10	Replacing sand stone slabs in roofing, laid in cement mortar 1:4 (1 cement : 4 coarse sand), including necessary repairs and cement pointing with same mortar complete, including disposal of rubbish to dumping ground, all complete as per direction of Engineer-in-Charge.						
	30.10.1	Red sand stone slabs 30 to 50 mm thick	sqm	259	0	305	564
30.11	Renewing/replacing of wooden battens in roofs, including making good the holes in wall and painting with oil type wood preservative of approved brand and manufacture complete, including removal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.						
	30.11.1	Sal wood battens	cum	2686	0	70631	73318
30.12	Renewing/replacing of wooden beams in roofs including making good the holes in walls and painting with oil type wood preservative of approved brand and manufacture complete, including removal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.						
	30.12.1	Not exceeding 4.00 metres in length.					
		30.12.1.1 Sal wood beams	cum	4923	0	71358	76280
		30.12.1.2 Hollock wood beams	cum	4923	0	41941	46864
	30.12.2	Above 4.00 metres and upto 5.00 metres length.					
		30.12.2.1 Sal wood beams	cum	5596	0	71503	77100
		30.12.2.2 Hollock wood beams	cum	5596	0	42056	47652
30.13	Replacing joists (karries) including hoisting, fixing in position and applying wood preservative on unexposed surface etc.						
	30.13.1	Sal wood	cum	3199	0	70067	73267
	30.13.2	Hollock wood	cum	3199	0	40948	44147
30.14	Taking out wind ties from roof including cutting out rusted bolts, nuts etc. and removing materials to any distance within		kg	2	0	0	2
30.15	Fixing of old wind tie with new fittings including painting two or more coats with anticorrosive bitumastic paint of approved brand & manufacturer over and including priming coat of ready mixed zinc chromate yellow primer of approved brand.		metre	16	0	50	66
	FINISHING WORKS						
30.16	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq.meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.						
	30.16.1	With cement mortar 1:4 (1 cement : 4 fine sand)	sqm	121	0	62	184
	30.16.2	With cement mortar 1:4 (1cement: 4 coarse sand)	sqm	121	0	62	184
30.17	Repair to plaster of thickness 12mm to 20 mm in patches of area 2.5 sqm and under, including cutting the patch in proper shape, raking out joints and preparing plastering the wall surface with white cement based polymer modified self curing mortar, including disposal of rubbish, all complete as per the direction of Engineer-In-Charge.		sqm	96	0	216	312
30.18	Hacking of CC flooring including cleaning for surface etc. complete as per direction of the Engineer-in-Charge.		sqm	1	0	0	1
30.19	Raking out joints in lime or cement mortar and preparing the surface for re-pointing or replastering, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.		sqm	14	0	0	14
30.20	Flush pointing with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement for prefixed flat tile bricks on top of mud phaska :						
	30.20.1	With F.P.S. brick tiles	sqm	34	0	7	41
	30.20.2	With modular brick tiles	sqm	34	0	8	42
30.21	Removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete		sqm	7	0	0	7
30.22	Removing dry or oil bound distemper, water proofing cement paint and the like by scrapping, sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete.		sqm	9	0	0	9
30.23	White washing with lime to give an even shade :						
	30.23.1	Old work (two or more coats)	sqm	6	0	1	8
	30.23.2	Old work (one or more coats)	sqm	4	0	1	5
30.24	Distempering with dry distemper of approved brand and manufacture (one or more coats) and of required shade on old work to give an even shade.		sqm	21	0	4	25
30.25	Distempering with 1st quality acrylic distember (Ready mix) having VOC content less than 50 grams/ litre of approved brand and manufacture to give an even shade :						
	30.25.1	Old work (one or more coats)	sqm	22	0	7	28

30.26	Painting with oil type wood preservative of approved brand and manufacture:							
	30.26.1	Old work (one or more coats)		sqm	7	0	12	20
30.27	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:							
	30.27.1	One or more coats on old work		sqm	24	0	17	41
30.28	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :							
	30.28.1	One or more coats on old work		sqm	24	0	14	38
30.29	Painting with aluminium paint of approved brand and manufacture to give an even shade:							
	30.29.1	One or more coats on old work		sqm	24	0	8	32
30.30	Painting with acid proof paint of approved brand and manufacture of required colour to give an even shade :							
	30.30.1	One or more coats on old work		sqm	24	0	18	42
30.31	Painting with black anti-corrosive bitumastic paint of approved brand and manufacture to give an even shade :							
	30.31.1	One or more coats on old work		sqm	24	0	7	30
30.32	French spirit polishing :							
	30.32.1	One or more coats on old work		sqm	76	0	11	87
30.33	Polishing on wood work with ready made wax polish of approved brand and manufacture :							
	30.33.1	Old work		sqm	26	0	7	33
30.34	Distempering with 1st quality acrylic distemper (ready made) having VOC content less than 50 gm per ltr. of approved manufacturer and of required shade and colour complete. as per manufacturer's specification.							
	30.34.1	One or more coats on old work		sqm	15	0	7	21
30.35	Finishing walls with water proofing cement paint of required shade :							
	30.35.1	Old work (one or more coats applied @ 2.20 kg/10 sqm) over priming coat of primer applied @ 0.80 litrs/10 sqm complete including cost of Priming coat.		sqm	32	0	16	48
	30.35.2	Old work (one or more coats @ 2.20 kg/10 sqm) complete.		sqm	23	0	10	32
30.36	Finishing walls with textured exterior paint of required shade :							
	30.36.1	Old work (Two or more coats on existing cement paint surface applied @ 3.28 ltr/10 sqm		sqm	30	0	90	120
	30.36.2	Old work (One or more coats) applied @ 1.82 ltr/10 sqm		sqm	22	0	50	72
30.37	Finishing walls with Acrylic Smooth exterior paint of required shade :							
	30.37.1	Old work (Two or more coat applied @ 1.67 ltr/ 10 sqm) on existing cement paint surface		sqm	30	0	33	62
	30.37.2	Old work (One or more coat applied @ 0.90 ltr/10 sqm).		sqm	22	0	18	40
30.38	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade							
	30.38.1	Old work (Two or more coats applied @ 1.43 ltr/ 10 sqm) over existing cement paint surface		sqm	30	0	30	60
	30.38.2	Old work (One or more coats applied @ 0.83 ltr/ 10 sqm) over existing cement paint surface		sqm	22	0	17	39
30.39	Varnishing with flatting varnish of approved brand and manufacture one or more coats on old work.			sqm	23	0	10	33
30.40	Painting on G.S. sheet with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade							
	30.40.1	Old work (one or more coats)		sqm	24	0	6	30
30.41	Painting (one or more coats) on rain water, soil waste and vent pipes and fittings with black anticorrosive bitumastic paint of approved brand and manufacture on old work :							
	30.41.1	75 mm diameter pipes		metre	7	0	2	8
	30.41.2	100 mm diameter pipes		metre	9	0	2	11
	30.41.3	150 mm diameter pipes		metre	13	0	3	16
30.42	Painting (one or more coats) on rain water, soil waste and vent pipes and fittings with synthetic enamel paint of approved brand and manufacture and required colour on old work :							
	30.42.1	75 mm diameter pipes		metre	6	0	2	8
	30.42.2	100 mm diameter pipes		metre	8	0	3	11
	30.42.3	150 mm diameter pipes		metre	12	0	4	17
30.43	Repainting sand cast iron/ centrifugally cast iron (spun) iron, soil, waste, vent pipes and fittings with one coat of synthetic enamel paint of any colour such as chocolate, grey or buff etc :							
	30.43.1	100 mm diameter pipe		metre	8	0	5	13
	30.43.2	75 mm diameter pipe		metre	6	0	4	10
30.44	Repainting G.I. pipes and fittings with synthetic enamel white paint with one coat of approved quality :							
	30.44.1	15 mm diameter pipe		metre	2	0	1	3
	30.44.2	20 mm diameter pipe		metre	2	0	1	3
	30.44.3	25 mm diameter pipe		metre	3	0	1	4
	30.44.4	32 mm diameter pipe		metre	3	0	2	5
	30.44.5	40 mm diameter pipe		metre	4	0	2	6
	30.44.6	50 mm diameter pipe		metre	5	0	3	7
30.45	Re-painting C.I. cistern with bitumastic or any other anti-corrosive paint inside and white paint on the outside surface of the cistern, flush pipe, other fittings, etc. complete, including polishing of wooden seat and lid and cleaning of W.C. pan with acid wherever necessary.			each	137	0	85	221
30.46	Repainting C.I. cistern with synthetic enamel paint of approved colour, brand and manufacture on the outside surface of cistern, flush pipe, other fittings etc. complete.			each	63	0	39	103
30.47	Repainting bath tub of size 1700x730x430 mm with enamel paint.			each	158	0	175	334
30.48	Re-lettering with black Japan paint of approved brand and manufacture.			per letter	1	0	0	1
	WOOD WORKS							
30.49	Fixing chowkhats in existing opening including embedding chowkhats in floors or walls cutting masonry for holdfasts, embedding hold fasts in cement concrete blocks of size 15 x 10 x 10 cm with cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size), making good the damages to walls and floors as required complete, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.							
	30.49.1	Door chowkhats		each	444	0	110	554
	30.49.2	Window chowkhats		each	287	0	72	359
	30.49.3	Clerestory window chowkhats		each	208	0	36	244
30.50	Fixing chowkhat in existing opening in brick/ RCC wall with dash fasteners/Chemical fasteners of appropriate size (3 Nos. on each vertical member of door chowkhat and 2 Nos. on each vertical member of window chowkhats), including Cost of dash fasteners/ chemical fastener.			each	33	0	96	129
39.51	Taking out existing wooden door/window shutter, repair by cutting, painting etc. and refixing of repaired door/window shutters to existing door frames, including replacement of hinges with screws, etc. as required, all complete as per the direction of the Engineer-in-charge.			each	110	0	16	127
30.52	Making the opening in brick masonry including dismantling in floor or walls by cutting masonry and making good the damages to walls, flooring and jambs complete, to match existing surface i/c disposal of mulba/ debris/rubbish to the nearest municipal dumping ground, all complete as per direction of Engineer-in-Charge.							
	30.52.1	For door/ window/ clerestory window		sqm	300	0	24	324
30.53	Replacing and fixing 25 mm thick shutters for cup board etc i/c disposal of dismantled shutters, if any:							
	30.53.1	Panelled or panelled & glazed shutters :						
		30.53.1.1	Superior class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	sqm	599	0	2533	3131
		30.53.1.2	Ist class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	sqm	599	0	2017	2616

	30.53.2	Glazed shutters :						
		30.53.2.1	Superior class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	sqm	478	0	2758	3236
		30.53.2.2	Ist class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	sqm	478	0	2203	2681
30.54	Renewing glass panes, with putty and nails wherever necessary including racking out the old putty:							
	30.54.1	Float glass panes of nominal thickness 4 mm (weight not less than 10kg/sqm)		sqm	147	0	412	558
	30.54.2	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/sqm)		sqm	147	0	663	810
30.55	Renewing glass panes, with wooden fillets wherever necessary:							
	30.55.1	Float glass panes of nominal thickness 4 mm (weight not less than 10kg/sqm)		sqm	282	0	428	710
	30.55.2	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/sqm)		sqm	282	0	679	961
30.56	Renewing glass panes and refixing existing wooden fillets:							
	30.56.1	Float glass panes of nominal thickness 4 mm (weight not less than 10kg/sqm)		sqm	191	0	391	582
	30.56.2	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/sqm)		sqm	191	0	642	833
30.57	Supplying and fixing new wooden fillets wherever necessary:							
	30.57.1	2nd class teak wood fillets		metre	16	0	12	28
	30.57.2	Hollock wood fillets		metre	16	0	7	22
30.58	Renewal of old putty of glass panes (length)			metre	14	0	2	17
30.59	Refixing old glass panes with putty and nails			sqm	191	0	31	223
30.60	Fixing old glass panes with wooden fillets (excluding cost of fillets)			sqm	194	0	0	194
30.61	Replacing and fixing bright finished brass single acting spring hinges with necessary brass screws etc. complete :							
	30.61.1	150 mm		each	21	0	506	527
	30.61.2	125 mm		each	21	0	346	367
	30.61.3	100 mm		each	21	0	301	323
30.62	Replacing and fixing bright finished brass double acting spring hinges with necessary brass screws etc. complete :							
	30.62.1	150 mm		each	21	0	569	590
	30.62.2	125 mm		each	21	0	477	498
	30.62.3	100 mm		each	21	0	461	482
30.63	Replacing and fixing bright finished brass flush bolts with necessary brass screws etc. complete :							
	30.63.1	250 mm		each	9	0	178	187
	30.63.2	150 mm		each	7	0	156	163
	30.63.3	100 mm		each	7	0	110	117
30.64	Replacing and fixing 150 mm bright finished floor brass door stopper with rubber cushion, necessary brass screws etc. to suit shutter thickness complete			each	3	0	191	194
30.65	Replacing and fixing bright finished brass hard drawn hooks and eyes :							
	30.65.1	300 mm		each	3	0	69	71
	30.65.2	250 mm		each	3	0	66	68
	30.65.3	200 mm		each	3	0	58	61
	30.65.4	150 mm		each	3	0	46	48
	30.65.5	100 mm		each	3	0	40	42
30.66	Replacing and fixing bright finished brass helical door spring (superior quality).			each	21	0	344	365
30.67	Replacing and fixing chromium plated brass butt hinges with necessary chromium plated brass screws etc. complete.							
	30.67.1	125x70x4 mm (ordinary type)		each	8	0	126	135
	30.67.2	100x70x4 mm (ordinary type)		each	8	0	106	114
	30.67.3	75x65x4 mm (heavy type)		each	8	0	120	128
	30.67.4	75x40x2.5 mm (ordinary type)		each	8	0	65	73
	30.67.5	50x40x2.5 mm (ordinary type)		each	3	0	28	31
30.68	Replacing and fixing 85x42 mm chromium plated brass pull bolt lock with necessary chromium plated brass screws, nuts, bolts and washers etc. complete.			each	10	0	189	199
30.69	Replacing and fixing brass curtain rods of wall thickness 1.25 mm with two brass brackets fixed with brass screws and wooden plugs etc. wherever necessary complete.							
	30.69.1	20 mm diameter.		metre	11	0	225	237
	30.69.2	25 mm diameter.		metre	11	0	283	294
30.70	Replacing and fixing bright finished brass fan light pivot with necessary brass screws etc. complete.			each	3	0	27	30
30.71	Replacing and fixing 300 mm long bright finished brass chain with hook for fan light including necessary brass screws etc.			each	4	0	46	50
30.72	Replacing/repairing and fixing plain jaffri door and window shutters including bright or/and black enamelled M.S. butt hinges with necessary screws 35x10 mm laths placed 35 mm apart (frames to be paid separately), including fixing 50x12 mm beading complete with :							
	30.72.1	Second class teak wood		sqm	491	0	2462	2952
	STEEL AND IRON WORKS							
30.73	Providing and fixing M.S. round or square bars with M.S. flats at required spacing in wooden frames of windows and clerestory windows.			kg	9	0	61	71
30.74	Replacing and fixing bright finished brass casement window fasteners or peg stays to windows/ ventilators with necessary welding and machine screws etc. complete.			kg	49	0	258	307
30.75	Replacing and fixing bright finished brass quadrant stay 300 mm long with necessary brass screws etc. complete.			each	4	0	130	135
30.76	Replacing and fixing 14 mm bright finished brass spring catch to steel centre hung ventilators with necessary welding and machine screws etc. complete.			each	10	0	20	29
30.77	Renewing bottom rail and/or top runner of collapsible gate including making good all damages and applying priming coat of zinc chromate yellow primer of approved brand and manufacturer.			kg	31	0	88	119
30.78	Renewing Wrought iron or M.S. Wheel or roller of steel door or gate and fitting and fixing the same with necessary clamps, nuts and bolts/welding and erection etc. complete.							
	30.78.1	Wheel 50 mm dia and below		each	25	0	94	119
	30.78.2	Wheel above 50 mm dia		each	47	0	139	186
	WATER SUPPLY, SEWERAGE AND DRAINAGE WORKS							
30.79	Cutting holes of required size in brick masonry wall for fixing of exhaust fan including providing and fixing 300 mm dia PVC pipe conforming BIS-12818 and making good the same etc. complete as per direction of Engineer-in-charge.			each	35	0	67	101
30.80	Dismantling 15 to 40 mm dia G.I. pipe including stacking of dismantled pipes (within 50 metres lead) as per direction of Engineer-							
	30.80.1	Internal Work- Exposed on wall		metre	1	0	0	1
30.81	Providing and fixing G.I. Union in existing G.I. pipe line, cutting and threading the pipe and making long screws, including excavation, refilling the earth or cutting of wall and making good the same complete wherever required :							
	30.81.1	15 mm nominal bore		each	209	0	53	262
	30.81.2	20 mm nominal bore		each	209	0	83	293
	30.81.3	25 mm nominal bore		each	209	0	138	347
	30.81.4	32 mm nominal bore		each	209	0	184	393
	30.81.5	40 mm nominal bore		each	209	0	247	456
	30.81.6	50 mm nominal bore		each	285	0	298	583

	30.81.7	65 mm nominal bore	each	285	0	629	914
	30.81.8	80 mm nominal bore	each	285	0	686	971
30.82	Making holes by cutting cores of appropriate dia in RCC floors and roofs of thickness upto 6" (six inches) for passing drain pipe and repairing the hole after insertion of drain pipe etc. including finishing-complete so as to make it leak proof.						
	30.82.1	Drain pipe of 150mm internal dia	each	982	0	0	982
	30.82.2	Drain pipe of 100mm internal dia	each	674	0	0	674
30.83	Dismantling W.C. Pan of all sizes including disposal of dismantled materials i/c malba all complete as per directions of Engineer-in-Charge.		each	27	0	0	27
30.84	Providing & fixing White vitreous china water closet squatting pan (Indian type) along with "S" or "P" trap including dismantling of old WC seat and "S" or "P" trap at site complete with all operations including all necessary materials, labour and disposal of dismantled material i/c malba, all complete as per the direction of Engineer-in charge.						
	30.84.1	Long pattern W.C Pan of size 580x440 mm	each	643	0	941	1584
	30.84.2	Orissa pattern W.C Pan of size 580x440 mm	each	628	0	1683	2311
30.85	Replacing and fixing C.P. brass chain and rubber plug complete for sink or wash basin:						
	30.85.1	32 mm dia	each	6	0	46	51
	30.85.2	40 mm dia	each	6	0	46	51
30.86	Cleaning and desilting of gully trap chamber, including removal of rubbish mixed with earth etc. and disposal of same, all as per the direction of Engineer-in-charge.		each	42	0	0	42
30.87	Raising manhole cover and frame slab to required level including dismantling existing slab and making good the damage as required (Raising depth of manhole to be paid separately) :						
	30.87.1	Rectangular manhole 90x80 cm with rectangular cover 600 x 450 mm of grade LD - 2.5	each	558	0	656	1214
	30.87.2	Rectangular manhole 120x90 cm with circular cover 500 mm dia of grade MD - 10	each	903	0	1018	1921
	30.87.3	Rectangular manhole 120x90 cm with circular cover 560 mm dia of grade HD - 20	each	843	0	941	1784
	30.87.4	Circular manhole 140 cm dia with circular cover 600 mm dia of grade EHD - 35	each	57	0	65	122
30.88	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement and making necessary channels for the drain etc. complete :						
	30.88.1	For pipes 100 to 250 mm diameter	each	209	0	51	260
	30.88.2	For pipes 250 to 300 mm diameter	each	228	0	88	316
	30.88.3	For pipes 350 to 450 mm diameter	each	326	0	141	467
30.89	Disconnecting damaged overhead/terrace PVC water storage tank of any size from water supply line and removing from the terrace including shifting at ground level as per direction of Engineer-in-charge.		each	103	0	0	103
30.90	Cleaning of terrace/loft water storage tank (inside surface area) upto 2000 litre capacity at all heights with coconut brushes, duster etc., removal of silt, rubbish from the tank and cleaning the tank with fresh water disinfecting with bleaching powder @ 0.5gm per litre capacity of tank including marking the date of cleaning on the side of tank body with the help of stencil and paint and disposing of malba all complete as per direction of Engineer-in-Charge. (The old date already written on tank should be removed with paint remover or black paint and if date is not written with the stencil or old date is not removed deduction will be made @ Rs. 0.10 per litre) (if during cleaning any GI fittings or ball cock is damaged that is to be repaired by contractor at his own cost and nothing extra will be paid on this account)		500 litre	61	0	10	71
30.91	Cleaning of chocked sewer line by diesel running vehicle mounting hydraulic operated high pressure suction cum jetting sewer cleaning machine fitted with pump having 4000 litres suction capacity and 6000 litres water jetting tank capacity including skilled operator, supervising engineer etc. for cleaning and partial desilting of manholes and dechocking of sewer lines. Dechocking and flushing of sewer line from one manhole to another by high pressure jetting system of 2200 PSI for sewer line from 150mm dia upto 300mm		metre	6	198	2	206
30.92	Cleaning of under ground sump, Over Head R.C.C. Tank (independent staging) including disposal of slit and rubbish, all as per direction of Engineer-in-Charge. The cleaning shall consist following operations:-		sqm	20	11	0	30
	(i)Tank shall be emptied of water by pumping & bottom shall be cleaned of silt and other deposits.						
	(ii) Entire surface area of the sump shall then scrubbed thoroughly with wire brush etc. and pressure washed with water.						
	(iii) Chlorination of RCC internal surface by liquid chlorine.						
	(iv) The treated surface shall be dried using air jetting and all loose particles shall be removal from the surface.						
	(v) Finally the surface shall be treated with ultraviolet radiation etc. as per direction of Engineer-in-Charge.						
	SCAFFOLDING FOR REPAIR WORKS						
30.93	Providing and fixing double scaffolding system (cup lock type) on the exterior side, up to seven story height made with 40 mm dia M.S. tube 1.5 m centre to centre, horizontal & vertical tubes joining with cup & lock system with M.S. tubes, M.S. tube challies, M.S. clamps and M.S. staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for the required duration as approved and removing it there after .The scaffolding system shall be stiffened with bracings, runners, connection with the building etc wherever required for inspection of work at required locations with essential safety features for the workmen etc. complete as per directions and approval of Engineer-in-charge .The elevational area of the scaffolding shall be measured for payment purpose .The payment will be made once irrespective of duration of scaffolding.		sqm	68	0	50	118
	Note: - This item to be used for maintenance work judicially and where necessary deduction for scaffolding in the existing item is to be done.						
30.94	Providing and fixing double scaffolding system (cup lock type) on the exterior side of building/structure, upto 25 metre height, above ground level, including additional rows of scaffolding in stepped manner as per requirement of site, made with 40mm dia M.S. tube, placed 1.5 metre centre to centre, horizontal & vertical tubes joint with cup & lock system with M.S. Tubes, M.S. tube challis, M.S. clamps and staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for execution of work of cleaning and/ or pointing and/ or applying chemical and removing it thereafter. The scaffolding system shall be stiffened with bracings, runners, connecting with the building etc, wherever required, if feasible, for inspection of work at required locations with essential safety features for the workmen etc., complete as per directions and approval of Engineer-in-charge.		sqm	68	0	50	118
	Note:- (1) The elevational area of the scaffolding shall be measured for payment purpose. **(2) The payment will be made once only for execution of all items for such works.**						

CHAPTER NO. 31

STRENGTHENING and RETROFITTING of BUILDINGS

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CHAPTER 31.0 - STRENGTHENING AND RETROFITTING OF BUILDINGS

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 31.0 - STRENGTHENING AND RETROFITTING OF BUILDINGS						
31.1	Providing and fixing hard drawn steel wire fabric of size 75 x25 mm mesh or other suitable size wire mesh to be fixed & firmly anchored to the concrete surface by means of "L" shaped mild steel shear key welded with existing reinforcement including the cost of materials, labour, tool & plants as approved by Engineer-in-charge.		sqm	61	0	534	595
31.2	Chipping of unsound/weak concrete material from slabs, beams, columns etc. with manual Chisel and/ or by standard power driven percussion type or of approved make including tapering of all edges, making square shoulders of cavities including cleaning the exposed concrete surface and reinforcement with wire brushes etc. and disposal of debris for all lead and lifts all complete as per direction of Engineer-In-Charge						
	31.2.1	75mm average thickness	sqm	107	0	0	107
	31.2.2	50mm average thickness	sqm	73	0	0	73
	31.2.3	25 mm average thickness	sqm	37	0	0	37
31.3	Cleaning of reinforcement from rust from the reinforcing bars to give it a total rust free steel surface by using alkaline chemical rust remover of approved make with paint brush and removing loose particles after 24 hours of its application with wire brush and thoroughly washing with water and allowing it to dry, all complete as per direction of Engineer-In-Charge.						
	31.3.1	Bars upto 12 mm diameter	metre	1	0	3	4
	31.3.2	Bars above 12 mm diameter	metre	2	0	5	7
31.4	Providing, mixing and applying bonding coat of approved adhesive on chipped portion of RCC as per specifications and direction of Engineer-In-charge complete in all respect.						
	31.4.1	SBR Polymer (@10% of cement weight) modified cementitious bond coat @ 2.2 kg cement per sqm of surface area mixed with specified proportion of approved polymer	sqm	19	0	60	79
	31.4.2	Epoxy bonding adhesive having coverage 2.20 sqm/kg of approved make	sqm	9	0	304	313
31.5	Providing, mixing and applying SBR polymer (of approved make @ minimum 2% by wt. of cement used) modified plain/reinforced cement concrete for structural members having minimum characteristic compressive strength [with ordinary portland cement, coarse sand and graded stone aggregate of 10mm maximum size in proportion as per design criteria] with specified average thickness.						
	Note: Rates shall be for finished surface area of concrete and shall include the cost of labour, concrete and appropriate approved Super-Plasticiser for rendering concrete as flowable and SBR polymer but shall exclude cost of reinforcement, bond coat, Shear Keys, centering and shuttering, strutting, propping etc (Payment under this item shall be made only after proper wet curing has been done and surface has been satisfactorily evaluated by sounding/tapping with a blunt metal instrument)						
	31.5.1	50mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	99	0	226	326
	31.5.2	75mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	149	0	339	488
31.6	Providing and laying SBR Polymer modified (of approved make @ minimum 2% by wt. of cement used) plain/reinforced concrete jacket for the structural members e.g. columns, pillars, piers, beams etc with concrete having the specified minimum characteristic compressive strength [with ordinary portland cement, coarse sand and graded stone aggregate of 10mm maximum size in proportion as per design criteria] with specified average thickness all-round existing core of RCC member.						
	Note: Rates shall be for finished surface area of concrete and shall include the cost of making holes in existing RCC slab, if required, for pouring concrete in shuttering mould of jacket and appropriate approved Super-Plasticiser for rendering concrete as flowable self compacting and SBR polymer but shall exclude cost of reinforcement, bond coat, Shear Keys, centering and shuttering, strutting, propping etc (Payment under this item shall be made only after proper wet curing has been done and surface has been satisfactorily evaluated by sounding/tapping with a blunt metal instrument)						
	31.6.1	50mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	99	0	226	326
	31.6.2	75mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	488	0	0	488
	31.6.3	100mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	651	0	0	651
31.7	Providing, mixing and applying SBR polymer (of approved make) modified Cement mortar in proportion of 1:4 (1 cement: 4 graded coarse sand with polymer minimum 2% by wt. of cement used) as per specifications and directions of Engineer-in-charge.						
	Note: Measurement and payment: The pre-measurement of thickness shall be done just after the surface preparation is completed and Payment under this item shall be made only after proper wet curing has been done and surface has been satisfactorily evaluated by sounding / tapping with a blunt metal instrument and/or the 75mm size cube crushing strength at the end of 28 days to be not less than 30 N/sqmm2).						
	31.7.1	12 mm average thickness.	sqm	72	0	73	145
	31.7.2	25 mm average thickness in 2 layers.	sqm	98	0	152	250
	31.7.3	50 mm average thickness in 3 layers.	sqm	196	0	304	500
31.8	Providing and injecting approved grout in proportion recommended by the manufacturer into cracks/honey-comb area of concrete/masonry by suitable gun/pump at required pressure including cutting of nipples after curing etc. complete as per directions of Engineer-in-Charge.						
	(The payment shall be made on the basis of actual weight of approved grout injected.)						
	31.8.1	Stirrer mixed Acrylic Polymer of approved make @ 2% of weight of cement used) modified Cement slurry made with non shrink compound in concrete/RCC work	kg	13	0	23	37
	31.8.2	Stirrer mixed SBR Polymer (of approved make) modified Cement slurry made with Shrinkage Compensating Cement in concrete/RCC work.	kg	13	0	27	41
	31.8.3	Epoxy injection grout in concrete/RCC work of approved make	kg	3	0	669	672
31.9	Cleaning of exposed concrete surface of sticking material including loose and foreign material by sand blasting with coarse sand followed by and including cleaning with oil free air blast as per direction of Engineer in charge.		sqm	15	46	103	164
31.10	Shotcreting R.C.C. columns, beams and slabs etc. in layers with approved design mix concrete having the specified minimum characteristic compressive strength [with ordinary portland cement, coarse sand and graded stone aggregate of 10 mm maximum size in proportion as per design criteria] including the cost of centering and shuttering at edges and corners etc. as directed by Engineer- in-Charge						
	Note: Rates shall include the providing necessary ground wires etc. The levelling gauges, if used, shall be paid for separately. Payment under this item shall be made only after proper wet curing has been done and surface has been satisfactorily evaluated by sounding/tapping with a blunt metal instrument.						
	31.10.1	25mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	135	134	104	374
	31.10.2	50mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	177	223	208	608
	31.10.3	75mm thick in Grade M 25 with cement content not less than 330 kg per cum	sqm	220	364	312	896
31.11	Providing and inserting 12mm dia galvanised steel injection nipple in honey comb area and along crack line including drilling of holes of required diametre (20mm to 30mm) up to depth from 30mm to 80mm at required spacing and making the hole & crack dust free by blowing compressed air, sealing the distance between injection nipple with adhesive chemical of approved make and allow it to cure complete as per direction of Engineer-In-Charge.		each	22	0	109	131
31.12	Drilling suitable holes in reinforced or plain cement concrete with power driven drill machine to a minimum depth of 100mm upto 200mm in RCC beams, lintels, columns and slabs to introduce steel bars for sunshades/balconies including fixing the steel bars in position using epoxy resin anchor grout of approved make but excluding the cost of reinforcement, all complete as per direction of Engineer-In-Charge.						
	31.12.1	Upto and including 12mm dia.	each	32	9	13	54
	31.12.2	More than 12mm and up to 25mm dia	each	38	9	45	92
31.13	Providing, erecting, maintaining and removing temporary protective screens made out of specified fabric with all necessary fixing arrangement to ensure that it remains in position for the work duration as required by the Engineer-in-charge.						
	31.13.1	Wooven PVC cloth	sqm	7	0	29	37

31.14	Providing and fixing rebaring work with 10ml injectable mortar epoxy adhesive (Hybrid Urethane Methacrylate adhesive) or chemical compound of make as approved by Engineer-in-Charge complete in all respect						
	31.14.1	8mm dia (hole size 12 mm dia & depth upto 80 mm)	each	0	0	285	285
	31.14.2	10 mm dia (hole size 14 mm.& hole depth upto 100 mm)	each	0	0	514	514
	31.14.3	12mm dia (hole size 16mm.& hole depth upto 120 mm)	each	0	0	628	628
	31.14.4	16mm dia (hole size 20 mm dia & depth upto 200mm)	each	0	0	799	799
	31.14.5	20mm dia (hole size 24 mm dia & depth upto 240mm)	each	0	0	971	971
	31.14.6	25mm dia (hole size 30 mm dia & depth upto 300 mm)	each	0	0	1142	1142
	31.14.7	32 mm dia bar hole size 36 mm dia & depth upto 320 mm	each	0	0	1256	1256

CHAPTER NO. 32

INNOVATIVE TECHNOLOGIES NEW MATERIALS and SOLAR PANELS

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CHAPTER 32.0 - NEW AND INNOVATIVE TECHNOLOGIES & MATERIALS

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 32.0 - INNOVATIVE TECHNOLOGIES, NEW MATERIALS AND SOLAR PANELS							
	PREFAB/PRECAST TECHNOLOGY							
32.1	Fabrication & Manufacturing of Prestressed Hollow Core slab (Hollow area 25 to 30%) of different thickness & modular width 1200 mm in Controlled Factory Environment with approved methodology confirming to IS 10297:1982 by using long line casting method having arrangement of proper steel bed. Concreting should be done by batch mixing plant capable of producing zero slump concrete, transported through automatic shuttels of standard make & layed on bed with the help of extruder/Slipformer, finishing, curing and also provision of steam curing. Cutting, making necessary cutout/holes of required sizes for services in slab element after achieving required strength, yard handling & stacking all complete as per approved shop drawings & design mix as per the direction of the Engineer-in-charge. (Cost of strands should be paid separately).							
	Note :Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix.							
	32.1.1	Concrete Grade-M-40 (cement content 400 kg)						
		32.1.1.1	100 mm thick hollow core slab	metre	257	0	374	631
		32.1.1.2	120 mm thick hollow core slab	metre	336	0	443	779
		32.1.1.3	150 mm thick hollow core slab	metre	407	0	545	952
		32.1.1.4	200 mm thick hollow core slab	metre	493	0	672	1165
		32.1.1.5	250 mm thick hollow core slab	metre	603	0	833	1435
		32.1.1.6	300 mm thick hollow core slab	metre	712	0	994	1706
		32.1.1.7	350 mm thick hollow core slab	metre	822	0	1154	1976
		32.1.1.8	400 mm thick hollow core slab	metre	931	0	1315	2246
	32.1.2	Extra for using M-50 (Cement content 425 kg) instead of M-40						
		32.1.2.1	100mm thick hollow core slab	metre	0	0	15	15
		32.1.2.2	120mm thick hollow core slab	metre	0	0	18	18
		32.1.2.3	150mm thick hollow core slab	metre	0	0	22	22
		32.1.2.4	200mm thick hollow core slab	metre	0	0	28	28
		32.1.2.5	250mm thick hollow core slab	metre	0	0	34	34
		32.1.2.6	300mm thick hollow core slab	metre	0	0	41	41
		32.1.2.7	350mm thick hollow core slab	metre	0	0	48	48
		32.1.2.8	400mm thick hollow core slab	metre	0	0	55	55
	32.1.3	Extra for using M-60 (Cement content 440 kg) instead of M-40						
		32.1.3.1	100mm thick hollow core slab	metre	0	0	24	24
		32.1.3.2	120mm thick hollow core slab	metre	0	0	28	28
		32.1.3.3	150mm thick hollow core slab	metre	0	0	35	35
		32.1.3.4	200mm thick hollow core slab	metre	0	0	44	44
		32.1.3.5	250mm thick hollow core slab	metre	0	0	55	55
		32.1.3.6	300mm thick hollow core slab	metre	0	0	66	66
		32.1.3.7	350mm thick hollow core slab	metre	0	0	77	77
		32.1.3.8	400mm thick hollow core slab	metre	0	0	88	88
32.2	Fabrication and manufacturing of solid precast concrete element with provisions of shear keys, connecting loops, dowel tubes and proper lifting accessories for walls, beams, slabs, stairs, column etc, of various thickness, shape and size of different concrete grades manufactured in controlled factory environment with approved methodology including moulds (Pallet system, Tilts form, table moulds, battery moulds, vertical moulds, beam moulds, column moulds, staircase moulds, Facade mould, etc.), mixing, transporting and placing of concrete, vibrating, curing, finishing, making necessary cutout/holes of required sizes for services, yard handling & stacking all complete as per IS 11447:1985 and as per approved shop drawings and design mix as per the direction of Engineer-in-Charge (Cost of reinforcement, Mechanical, Electrical and Plumbing inserts will be paid separately).							
	Note :Less cement used as per design mix is recoverable. However no extra payment shall be made if excess cement is used as per design mix.							
	32.2.1	Concrete grade M-35 (Cement content 370 kgs)		cum	3118	0	7203	10321
	32.2.2	Extra for using M-40 (Cement content 400 kg) instead of M-35		cum	0	0	197	197
	32.2.3	Extra for using M-50 (Cement content 425 kg) instead of M-35		cum	0	0	361	361
	32.2.4	Extra for using M-60 (Cement content 440 kg) instead of M-35		cum	0	0	460	460
32.3	Providing & laying in position Prestressing steel strands (low relaxation) on hollow core bed by using mechanical pulling arrangement like Rabbit/ Bed master including all accessories for Stressing & destressing operations as per approved make conforming to IS1343 & grade FY-1860 etc, complete as per drawings and direction of Engineer -in-charge.			kg	3	41	72	117
32.4	Transportation of Precast Elements by flat bed Trailor (Double / Triple axle 40ft Length with proper accessories like A frame etc) from factory, including the cost of loading , unloading & stacking at site with the help of required capacity cranes.							
	32.4.1	Lead within 15km		tonne	25	193	0	219
	32.4.2	Add/Deduct over item 32.4.1 for every additional lead of 5 km		tonne	0	27	0	27
32.5	Erection & Installation of Precast/Prestressed Concrete elements in correct & final position with proper line level and plumb at site making all arrangements (i.e cranes, push-pull jacks & all another T & P for lifting Placing & Alignment of elements, within erection tolerance as per IS 15916 as per approved shop drawings and all complete as per the direction of Engineer-in-Charge but excluding the cost of sim pads, non shrink grout and steel works i.e hangers. All work up to fourth floor.							
	32.5.1	Prestressed hollow core Slab up to 200 mm thickness		sqm	25	78	0	103
	32.5.2	Prestressed hollow core slab above 200 mm up to 400 mm thickness		sqm	31	164	0	195
	32.5.3	Solid concrete wall elements		cum	394	813	0	1207
32.6	Providing & Applying weather proof sealant on outer joints of approved make confirming to IS & directed by Engineer-in-charge.							
	32.6.1	Sealant 25mmx10mm at joints		metre	0	0	108	108
32.7	Providing & Laying of levelling sim pads required sizes (5x5cm to 10x10cm) of PVC / Rubber to adjust level of bearing surface of supporting members as per the direction of Engineer in charge.							
	32.7.1	2mm thick		each	4	0	11	16
	32.7.2	5 mm thick		each	4	0	17	22
	32.7.3	10 mm thick		each	4	0	29	33
32.8	Providing & Grouting of dowel tubes / Shear keys / Joints of precast members with M-60 grade cementitious grout (Non Shrink) of approved make by suitable means (Free flowing /pump),curing etc. Complete as per directions of Engineer-in-charge. (The payment shall be made on the basis of actual weight of approved grout injected.)							
	32.8.1	Stirrer mixed cementitious grout (non shrink) of approved make in dowel tubes / Shear keys / Joints of precast		kg	12	0	34	46
	COLD FORM LIGHT GAUGE STEEL FRAMED STRUCTURE							

32.9		Designing, providing, installing and fixing factory finished custom designed cold form Light Gauge Steel Framed super structure comprising of steel wall panel, trusses, purlins etc manufactured out of minimum 0.75 mm thick steel sheet as per design requirements. The steel sheet shall be galvanized (AZ-150gms Aluminium Zinc Alloy coated steel having minimum yield strength 300-550 Mpa) conforming to AISI specifications and IBC 2009 for cold formed steel framing and construction and also as per IS: 875-1987, ISO 800-1984 and IS:801- 1975. The wind load shall be as per provisions of IS 875 (part -III). LGSFS frame shall be designed as per IS: 801 using commercially available software such as Frame CAD Pro-11.7/ STAAD PRO-V8i/ArchitekV2.5.16/ Revit architecture-2011 or equivalent. Proper usage of Connection Accessories like Heavy Duty Tension Ties, Light Duty Hold-ons, Twist Straps (to connect truss with wall frames), Strong Tie, Tie Rod, H-Brackets, Boxing Sections, L-Shaped Angles for better structural stability. The framing section shall be cold form C-type having minimum web depth 89 mm x 39mm flange x 11mm lip in required length as per structural design requirement duly punched with dimple/slot at required locations as per approved drawings. The slots will be along centre line of webs and shall be spaced minimum 250mm away from both ends of the member. The frame can be supplied in panelized or knock down condition in specific dimensions and fastened with screws extending through the steel beyond by minimum of three exposed threads. All self drilling tapping screws for joining the members shall have a Type II coating in accordance with ASTM B633(13) or equivalent corrosion protection of gauge 10 & 12, TPI 16 & 8 of length 20mm. The frames shall be fixed to RCC slab or Tie beam over Neoprene rubber using self expanding carbon steel anchor bolt of dia as per approved drawings. design subject to minimum 12mm diameter and 121mm length conforming to AISI 304 and 316 at 500mm c/c with minimum embedment of 100mm in RCC (RCC to be paid separately) and located not more than 300mm from corners or termination of bottom tracks complete in all respects. The item also includes the submission of stability reports duly examined and issued by any NIT/IIT. The rate includes the concept design, detailed design, fabrication of sections, transportation, installation and all required fixing arrangement at site as described above.	kg	10	0	157	167
32.10		Providing and fixing of external wall system on Light gauge steel frame work with outer face having 6mm thick heavy duty fiber cement board fixed on 9mm thick heavy duty fiber cement board confirming to IS 14862:2000, category IV type A (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make. A grove of 2 mm to 3mm shall be maintained and groves shall be sealed with silicon based sealant. The board shall be fixed in a staggered pattern.Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm and internal face 12.5mm thick gypsum plaster board fixed on 8mm thick fiber cement board confirming to IS 14862:2000 of category III type B (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make, proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish.(cost of frame work to be paid for separately).	sqm	228	0	2325	2554
32.11		Providing and fixing internal wall panels on Light gauge steel frame work with 12.5mm thick gypsum plaster board conforming IS 2095:2011 fixed on 8mm thick fiber cement board conforming to IS 14862:2000 of category III type B (High pressure steam cured) as per standard sizes fixed with self-drilling / taping screws / fasteners @ 60cm c/c of approved make, Screws shall be of counter sunk rib head of 1.60mm to 4 mm thick of 8 to 10 gauge of length varying from 25 to 45 mm. Proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish.(cost of frame work to be paid for separately)	sqm	129	0	1474	1603
		EPS CORE WALLS AND ROOF PANELS					
32.12		Providing and fixing in position, 200 mm thick factory made Expanded Polystyrene Core (EPS Core) wall panels consisting of EPS core sandwiched between two Engineered sheets of welded wire fabric mesh duly finished with shortcrete materials on outer faces. The fabric mesh shall be made of 3 mm dia G.I. wire mesh with 50 mm pitch in both the directions and on both faces of the wall, kept at 120-135 mm gap and connected by the zig zag G.I. wire of 3 mm dia at alternate row by welding (at an angle ranging from 50-70 degree) . The EPS core shall consist of 100 mm thick EPS of density not less than 20 kg/ per cum Both the outer faces of the panel shall be finished by applying the layer of 50 mm thick cement mortar 1:3 {1 cement: 3 coarse sand (not having more than 40% stone chips of size upto 6 mm)} Â with the help of shotcreting/guniting equipment etc at a pressure not less than 1 bar (100Kn/m2) and both surfaces finished with trowel. Fixing operations of wall panels shall be completed in all respect as per drawings and specifications and under the overall direction of the Engineer-in-charge.	sqm	186	0	2506	2691
32.13		Providing and fixing in position, 230mm thick factory made Expanded Polystyrene Core (EPS Core) roof/floor panels made of 3 mm dia G.I. wire mesh with 50 mm pitch in both the directions and on both faces of panel, kept at 120-135 mm gap and connected by the zig zag G.I. wire of 3 mm dia at alternate row by welding (at an angle ranging from 50-70 degree). The EPS core shall consist of 100 mm thick EPS of density not less than 20kg/ per cum The bottom side of the panel shall be finished by applying a layer of 60-65 mm thick cement mortar 1: 3 {1 cement: 3 coarse sand (not having more than 40% stone chips of size upto 6 mm)} Â with the help of shotcreting equipment etc at a pressure of not less than 1 bar (100Kn/m2) and surface finished with trowel. The top face of the panel shall be provided and finished by applying 70-75 mm thick layer of cement concrete 1:1.5: 3 (1 cement :1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size). Fixing operations of roof/floor panels shall be completed in all respect as per drawings and specifications and under the overall direction of the Engineer-in-charge.	sqm	320	0	2528	2848
32.14		Providing and fixing in position, 130 mm thick factory made Expanded Polystyrene Core (EPS Core) wall panels consisting of EPS core sandwiched between two Engineered sheets of welded wire fabric mesh duly finished with shortcrete materials on outer faces. The fabric mesh shall be made of 3 mm dia zinc coated G.I. wire mesh with 50 mm pitch in both the directions and on both faces of the wall and connected by GI wire of 3mm dia at alternate row by welding. The EPS core shall consist of 60 mm thick EPS of density not less than 16 kg/ per cum Both the outer faces of the panel shall be finished by applying the layer of 35 mm thick cement mortar 1:3 {1 cement: 3 coarse sand (not having more than 40% stone chips of size upto 6 mm)} with the help of shotcreting/guniting equipment etc at a pressure not less than 1 bar (100KN/m2) and both surfaces finished with trowel. Fixing operations of wall panels shall be completed in all respect as per drawings and specifications and under the overall direction of the Engineer-in-charge.	sqm	182	0	1188	1370
32.15		Providing and fixing in position factory made EPS cement sandwich wall/roof/floor light weight solid core panels made of core material of EPS granule balls/beads (conforming to IS 4671:1984 and shall have density not less than 15kg per cum) adhesive, cement, sand, flyash and other bonding material in mortar state processed to form in a preset mould. The outer face on both sides of the panels will be non asbestos fiber cement board confirming to IS 14862:2000 or Calcium silicate board confirming to EN 14306:2009 of 5mm thick each. Panel shall be laid on 6mm thick cement mortar (1 cement: 2 fine sand) mixed with chemical adhesive of 0.5kg per 50kg of cement or shall be preferably fixed into 'C' channel made of 1.2mm thick MS plate screwed/fastenened to the slab/column/beam etc. The panel shall fixed vertically with tongue and groove joint and horizontally locked with steel bar between each other and floors and filled with cement mortar and adhesive. Panels should be used as floor & roofing with additional structural support, steel or RCC depending upon the design. All the operation shall be completed in all respect as per drawings, Manufacturers specifications and under the overall direction of Engineer-in-Charge (Cost of all the material is included except "C channel" which will be paid seperately).					
	32.15.1	Non load bearing panels 50mm thick of required size	sqm	47	0	884	931
	32.15.2	Non load bearing panels 60mm thick of required size	sqm	47	0	1016	1063
	32.15.3	Non load bearing panels 75mm thick of required size	sqm	47	0	1259	1305
	32.15.4	Non load bearing panels 90mm thick of required size	sqm	47	0	1523	1570
	32.15.5	Non load bearing panels 100mm thick of required size	sqm	47	0	1816	1863
		FIBRE REINFORCED LIGHT WEIGHT WALL AND ROOF PANELS					
32.16		Providing and fixing in position factory made non asbestos fibre reinforced aerated cement sandwich wall/roof/floor light weight solid core panels made of light weight cement concrete core composed of OPC cement, pulverized flyash, quick lime, cotton pulp & Gypsum in mortar state mixed with aeration agent in a preset mould. The outer face on both sides of the panels will be non asbestos fibre cement board confirming to IS 14862:2000. These solid wall panels are installed using Galvanized iron steel tracks/C channel of 1mm thick of required sizes as recommended by manufacturer's and fixed to floor and RCC soffit in plumb to each other with steel screw/fasteners. The panel shall be fixed vertically with tongue & groove joint with cement based polymer modified jointing compound. The exposed surface finished with fibre mesh/glass fibre tape with polymer based jointing compound having superior flexibility. Panels should be used as floor & roofing with additional structural support, steel or RCC depending upon the design. All the operation shall be completed in all respect as per drawings, Manufacturers specifications and under the overall direction of Engineer-in-Charge (Cost of all the material is included except "tracks/C channel" which will be paid separately).					
	32.16.1	Non load bearing panels 50mm thick of required size (minimum 4mm thick fibre cement board)	sqm	115	0	798	913
	32.16.2	Non load bearing panels 75mm thick of required size (minimum 5mm thick fibre cement board)	sqm	115	0	984	1099

32.17	Supplying of standard quality GFRG panel of 124 mm thickness with modular cavities purchased from GFRG panel manufacturing plant in the country, cut to required wall sizes and floor/ roof slab sizes in correct length and height, including cutting of door, window and ventilator opening as per the cutting drawing prepared by architects /design engineers for the construction of GFRG building and loaded in stillages for transportation to the construction site. Cost of panel includes security deposits, hire charges of stillages & jaws, cost of transportation in trucks/ lorries without any damages upto 300kms including all leads and lifts from GFRG manufacturing plant to construction site and unloading at site using suitable fork lift/ crane. (Payment shall be made on the basis of area of one side of panel without reduction of opening of door/ window / ventilator). For transportation above 300kms, additional charges to be paid.		sqm	0	0	1051	1051
32.18	Erection of GFRG Panels in walls in all floors using suitable crane as per instructions of Engineer-in-Charge, as per cutting drawings and structural drawings, in perfect line and plumb, above RCC plinth beam/GFRG panel below and provide necessary lateral/ slanting support to keep the wall panel in safe position, providing & tieing of Reinforcement as per structural drawings and applying a coat of water repellant coating Zycosil/equivalent or equivalent product (1 Zycosil/equivalent compound :10 water) to saturation level over RCC plinth beam to provide water proofing treatment to joint between wall panel & plinth beam as per the guide lines / instruction by the engineer in charge. (Cost of reinforcement, water proofing of walls and plinth beam/GFRG panel below joints and installation of door/ window frames before filling of concrete shall be paid separately). The rate quoted shall include making provision for laying of lintels, beams, sunshades, staircase beams, lofts, plumbing work, electrical conduits and any structural insertion etc., as per the drawing and direction of the engineer in charge. The payment shall be made based on the actual exposed area (one side only) of the panel. Note: i) When cutting panel, “A” side is to be for outside or external surface of respective external wall and B side is to be for internal surface of wall ii)Erection of panel is to be with reference to both building plan & cutting drawing by following notational mark indicated in the cutting drawing as well as notional mark written on each panel cut as per cutting drawing		sqm	171	0	0	171
32.19	Filling of empty cavities (as shown in the structural design drawing) with quarry dust mixed with 5% cement (by volume). After initial infill of 50 mm thick with M25 concrete at base/bottom of cavities to seal off, infill wall panel cavities in 3 stages as detailed below, (i) 1st pour / infill to be limited to 0.3 to 0.50 m height from bottom of the panel. (ii) 2nd Pour/ infill: infilling shall be done only after 90 minutes interval between successive pours. The maximum height of infill shall be restricted to 1.5m height or up to the top level of door / window. (iii) 3rd pour/infill: After an interval of 90 minutes of second pour, infill or pour the balance height up to the bottom of embedded RCC tie beam. Pour enough water just required to dampen the dry mix enough to form cake form after each stage. (cost of laying M25 concrete shall be paid separately) (If any rain falls in between any stages of concrete pour, make sure to cover the panel top to prevent ingress of water or water falling into the cavities. In case of water collection over the concrete inside the panel, drill 10mm hole in GFRG panel immediately above concrete filled level to drain out water before pour/in-fill of balance concreting)		cum	100	0	1681	1780
32.20	Laying of GFRG panel as roof / floor slab panel and staircase panel using suitable crane as per instructions of Engineer-in-Charge, including providing support system with 25mm x 300mm-400 mm wide plywood, as runner with proper prop below proposed micro beams including (a) Cutting of top flange of panel to 180 mm wide (leaving 25mm projection on either side) to provide RCC embedded micro beam as per cutting drawings and structural drawings. (b) Reinforcement for micro beams and tie beams to be provided in position with proper anchorage as per structural drawings. (c) Provision for Electrical cabling, fan hooks and laying of pipes for plumbing work. (d) Concreting of Tie beam, micro beam and top of GFRG panels (50 mm thick) with M-25 cement concrete mix using coarse aggregate of size less than 20 mm including laying of 10 gauge 100x100 size weld mesh with 25 mm effective cover from the panel top.		sqm	194	0	0	194
32.21	Application of ZMB 60/equivalent solution (100 Kg ZMB 60/equivalent, 1 litre ZMB Nano Thinner, 20 litre water & 1 litre Zycoprime/equivalent = 122 litre/kg) over already applied coat of Zycosil/equivalent & Zycoprime/equivalent solution on the top of all the RCC plinth beams by brush/spray coat before erection of GFRG over RCC plinth beams in GF. In the case of upper floors 150 mm wide on floor slab for all the external walls, bath/toilet/wet areas (3 hrs drying time) before erection of wall panel on upper floors including erection of parapet wall.		sqm	87	0	103	190
32.22	After erection of GFRG wall panels, seal all GFRG wall joints with paper tape temporarily. Water proofing treatment of vertical joints with Zycosil/equivalent water proofing Solution (1 litre of Zycosil/equivalent & 20 litres of water stirred first & 2 litres of Zycoprime/equivalent added and stirred (total 23 litres)) with 50 ml syringe till the gap and in filled concrete is completely saturated. After removing the paper seal, seal off the vertical joints with water proofing material "Grout RW/equivalent " (Sealing cost excluded.)		metre	22	0	26	48
32.23	Filling of joints between RCC plinth beam / floor slab and wall panel of external walls, toilet / bath room / wet areas walls on all floor and parapet wall over roof slab, stair case head room at the time of erection of GFRG panels with Grout RW/equivalent sealant compound after the erection of panel before the infill of concrete in panel cavities and fine finish. This applies for all horizontal and vertical joints between GFRG wall and slab panels.		metre	16	0	7	24
	SLIP FORM SHUTTERING SYSTEMS						
32.24	Providing and fixing of costomized Aluminium formwork for monolithic construction RCC members with a repetitive usage of 100 times using grade 5052 aluminium for panel sheets of minimum 4 mm thick and grade 6061 (Type-6) aluminium for extruded sections. The form work includes of beam components i.e.beam side panel,prop head for soffit beam,beams soffit panel,beam soffit bulk head and deck componets i.e. deck panel, deck prop, prop length, deck mid, soffit length, deck beam bar and wall components i.e. wall panel, rocker, kiker and internal soffit corner, external soffit corner,external corner,internal corner etc.,The panels are held in position by a simple pin and wedge system that passes through holes in the out side rib of each panel.The tolerance of finished panels to be (-1 mm), and shall conform to IS 14687-1999. Pins and wedges to be made of high grade mild steel, all complete as per direction of Engineer-incharge.(Cost of RCC work shall be paid seperately)		sqm	37	0	85	122
32.25	Designing, Providing, installing and fixing factory finished customed design pregalvanized high tensile steel joists manufactured from G350 Z275 confirming to IS:277-1992, minimum coating of galvanizing 275 gm/sqm, minimum yield stress 35 MPa & minimum tensile strength of 380 MPa placed 1.23 metre apart to support the load of slab etc as per the design & directions of Engineer-in-Charge.		kg	7	0	103	110
32.26	Providing and fixing special adjustable lockbars of mild steel E-250 to support the temporary plywood for work between joists during construction as per design & directions of the Engineer-in-charge.		kg	7	0	1	8
32.27	Centering and shuttering with 12mm thick shuttering plywood confirming to IS 4990:2011 and removal of form at all heights. Plywood will be supported on lock bars.						
	32.27.1	Suspended floors, roofs, landings, balconies and access platform.	sqm	6	0	62	68
32.28	Providing and fixing roofing consist of 0.8 mm thick galvanized steel deck sheet confirming to IS 277:1992 used as permanent shuttering over which MS wire mesh 3mm laid at 100x100 mm grid including edge trim covered with concrete. This metal deck will be supported on structural steel beam with shear studs. (Structural steel like Beam, column, joists etc. & concrete of different grade as per design will be paid separately).		sqm	74	0	905	979
	USE OF C&D WASTE						
32.29	Providing and laying factory made Precast concrete solid blocks of 200 mm thickness of grade M10 made of C&D waste from approved manufacturer in foundation and plinth in:						
	32.29.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	612	0	3525	4136
32.30	Providing and laying factory made Precast concrete solid blocks of 200 mm thickness of grade M10 made of C&D waste from approved manufacturer in superstructure above plinth level up to floor IV level						
	32.30.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	936	0	3525	4460
32.31	Providing and laying half block masonry with factory made Precast concrete solid blocks of 100 mm thickness of grade M10 made of C&D waste from approved manufacturer in foundation and plinth in:						
	32.31.1	Cement mortar 1:4(1 cement : 4 coarse sand)	sqm	93	0	362	456

32.32	Providing and laying half block masonry with factory made Precast concrete solid blocks of 100 mm thickness of grade M10 made of C&D waste from approved manufacturer in superstructure above plinth level up to floor IV level:						
	32.32.1	Cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	144	0	362	507
32.33	Providing and laying 60mm thick factory made cement concrete paver block of approved shape and colour of M -30 grade made of C&D waste by block making machine with vibratory compaction laid in required pattern and including over 50mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.		sqm	81	0	437	517
	THERMAL INSULATION						
32.34	Providing and fixing of external thermal insulation and composite system with First layer of self-extinguishing type Expanded Polystyrene (EPS) insulation boards of 120 mm thick (max 1mX0.5m section), confirming to IS 4671:1984, having thermal conductivity of 0.034 W/mK, (measured as per IS 3346-1980), density of 20-24 kg/m³ measured as per IS 5688-1982, Fire retardant property self-extinguishing type as per EN 13501-1, bonded with special polymer modified cementitious adhesive confirming to EOTA ETAG 004 (European Technical Approval) formulated to bond polystyrene insulation boards to typical mineral substrate (according to ETAG 004) and Polypropylene mechanical fasteners with plastic pin confirming to EOTA ETAG 014 (European Technical Approval) having dia 10mm & L=200mm on finished level wall and the junction between two adjacent EPS boards to be sealed with low expansion moisture cure Polyurethane Foam. Second layer consists of Fiberglass mesh covered with alkali-resistant coating, mass per unit area ≥145 gm/m², mesh size: 3.9x4.0 mm ±10% embedded in special polymer modified cementitious Base Coat with hydrophobes and the corners will be protected with Corner-beads with alkali-resistant mesh wings at least 10 cm wide, mesh mass per unit area min 145 gm/m². The surface will be levelled, finished, made smooth complete in all respect as per manufactures specification and as per directions of Engineer-in-Charge.		sqm	371	0	1962	2333
32.35	Supplying and fixing 10 Gauge weld mesh of size 100mm x100 mm for floor/roof slab concrete screed over the micro beams as reinforcement. The weld mesh shall be fixed as per drawing.		sqm	9	0	180	188
	NEW MATERIALS						
	AntiCrak Alkali resistant glass fibres						
32.36	Providing and mixing of Cemfil AntiCrak Alkali resistant glass fibres to arrest the plastic shrinkage, cracking & improve the performance of concrete, flooring, renders or other special mortar mixes and to provide as a secondary reinforcement in concrete at 600 gms /cum of concrete and containing minimum 127 millions of fibres of length 12mm, diameter 14 microns, specific gravity 2.68 g/cm3, modulus of elasticity 72 Gpa and having the aspect ratio (lenght/dia) of 857, including cost of labour, material and HOM etc. complete as per directions of Engineer-in-charge. Technical Specifications: High dispersion Alkali Resistant (Zirconia content minimum 16%) chopped micro glass fiber as per ASTM C 1666/C 1666 M-07 Type II, to control cracking processes that can take place during the entire life-span of concrete, from cracks due to volume changes in fresh(settlement and plastic shrinkage) and hardened states (thermal and drying shrinkage),to post-crack load-bearing capacity contribution having Filament diameter (ASTM D 578) 14 micron, Filament length 12mm (1/2”), Specific gravity (ASTM D 3800) 2.68 g/cm3, Loss of Ignition (ISO 1980:1980) 0.55%, Moisture Content (ISO 3344:1977) max 0.3%, Tensile Strength 1700 Mpa, Softening Point 860 Deg C, Dosage 600 g/m3 or 85 gms/50 kgs of cement bag.		per kg	29	0	387	416
32.37	Providing and mixing of Cemfil AntiCrak Alkali resistant glass fibres to act as a replacement of steel reinforcement in supported slabs/deck slab in residential and commercial buildings, industrial slabs on-ground, compression layers, pavements and precast concrete to provide secondary reinforcement in concrete to control plastic, thermal and dry shrinkage cracking at 5 kg/cum of concrete, fibre of length 36mm, filament diameter 19 micron, specific gravity 2.68 g/cm3, modlus of elasticity 72 Gpa and having the aspect ratio (length/dia) of 67, including cost of labour, material and HOM etc. complete and as per directions of Engineer-in-charge. Technical Specifications: High Performance Alkali Resistant (Zirconia content minimum 16%) glass macro fibre as per ASTM C 1666/C 1666 M-07 Type II, engineered to reinforce against plastic, thermal and drying shrinkage cracking having aspect ratio (length/diameter) 67, fibre length 36 mm, specific gravity (ASTM D 3800) 2.68 g/cm3, loss of ignition (ISO 1980:1980) 0.55%, moisture content (ISO 3344:1977) max 0.3%, Tensile Strength 1700 Mpa, Softening Point 860 deg C.		per kg	29	0	4060	4088
32.38	Coloured and textured imprinted cast in place concrete flooring applying finishing of the top surface by sprinkling of colodr hardener @ 2.5 Kg per sqm comply with ASTM C 979, floating and levelling the surface, application of release agent, imprint the design in concrete with imprinting tools, cleaning the surface with water jet (next day) and application of acrylic based sealer for complete finishing. Work included by providing and laying 75mm thick M-30 grade concrete and mixing of Chopped Glass Fibre as per ASTM C 1666/C 1666 M-07 Type II, Filament diameter (ASTM D 578) 14 micron, Filament length 12mm (1/2”), Specific gravity (ASTM D 3800) 2.68 g/cm3, Tensile Strength 1700 Mpa, dosage 600 g/m3 or 85 gms/50 kgs of cement bag, well compaction for necessary finish of top surface, side supports, levelling, pumping, curing compound etc., complete treatment of construction joints by groove cutting of 4mmx 20mm panel size approx 3x3mtr and filling the same with baker road and providing PU joint sealer etc. and as per directions of Engineer-in-charge.		sqm	294	0	1472	1767
	THERMAL INSULATION						
32.39	Providing and fixing 50 mm thick extruded polystyrene rigid insulation board of required size between cavity wall, complying with ISO 4898:2008 & ASTM C 578-08b - type VI, having thermal conductivity of 0.0289 W/m K as per ASTM C 578 (measured as per IS 3346), compressive strength of > 350 kPa listed as per ASTM D 1621, density of 34-36 kg/m³ as per ASTM D 1622, water absorptions ≤ 1% by volume as per ASTM D 2842, oxygen index of 24.1 to 28.1 listed as per ASTM D 2863, cell size 0.4 mm of dia (max) as per ASTM D 3576. Fire retardent property as per DIN 4102, Part 1 of class B2 and as per ASTM E84 class A, fixed with suitable water based adhesive and fastener, complete in all respect as per the direction of Engineer-in-Charge.		sqm	33	0	612	645
32.40	Providing and fixing 50 mm thick extruded polystyrene rigid insulation board of required size underdeck on ceiling surface, complying with ISO 4898:2008 & ASTM C 578-08b - type VI, having thermal conductivity of 0.0289 W/m K as per ASTM C 578 (measured as per IS 3346), compressive strength of > 350 kPa listed as per ASTM D 1621, density of 34-36 kg/cum as per ASTM D 1622, water absorptions ≤ 1% by volume as per ASTM D 2842, oxygen index of 24.1 to 28.1 listed as per ASTM D 2863, cell size 0.4 mm of dia (max) as per ASTM D 3576. Fire retardent property as per DIN 4102, Part 1 of class B2 and as per ASTM E84 class A, fixed with suitable water based adhesive and fastener, complete in all respect as per the direction of Engineer-in-Charge.		sqm	60	0	612	671
	ROOFING & CEILING						
	ALUMINIUM PROFILE SHEET ROOFING						
32.41	Providing at all heights, levels and locations Aluminium profile industrial troughed sheet of Alloy 31500/31000/40800, conforming to IS 1254, IS 737, IS 2676. The sheet shall be fixed using self drilling/self tapping SS screws of size 5.5x65 mm with EPDM seal complete upto required pitch in horizontal, vertical or curved surfaces i/c cutting to size and shape where required as per specifications, detail drawings and direction of Engineer-in-Charge. The rate shall be inclusive of all screws, seal, ridge, labour, scaffolding, machinery for fixing and approved sealent where required etc. but excluding the cost of purlins, rafters and trusses.						
	32.41.1	0.71 mm thick, the profile detail width 1044/920 mm, cover width 1000/875 mm.	sqm	31	0	762	793
	32.41.2	0.91 mm thick, the profile detail width 1044/920 mm, cover width 1000/875 mm.	sqm	31	0	987	1018
	CALCIUM SILICATE FIBRE REINFORCED CEILING TILES						
32.42	Providing and fixing false ceiling at all heights with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS:476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity < 0.043 W/m K as per ASTM 518:1991,in true horizontal level suspended on inter-locking metal T-Grid of hot dipped galvanised iron section of 0.33mm thick (galvanized @ 120 grams per sqm including both sides) comprising of main-T runners of size 24x38 mm of length 3000 mm, cross - T of size 24x32 mm of length 1200 mm and secondary intermediate cross-T of size 24x32 mm of length 600mm to form grid module of size 600 x 600 mm, suspended from ceiling using galvanised mild steel items (galvanizing @ 80 grams per sqm) i.e. 50 mm long, 8 mm outer diameter M-6 dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x25x2 mm. Galvanised iron perimeter wall angle of size 24x24x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450 mm center to center and 40 mm long dry wall S.S screws. The work shall be carried out as per specifications, drawing and as per directions of the Engineer-in-Charge.						

	32.42.1	With 15 mm thick tegular edged light weight calcium silicate false ceiling tiles.	sqm	167	0	1043	1210
32.43	Providing and fixing false ceiling at all heights with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS:476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity < 0.043 W/m K as per ASTM 518:1991, in true horizontal level suspended on inter-locking metal powder coated T-Grid of hot dipped galvanised iron section of 0.40 mm thick on Silhouette profile,rotary stiched double webbed white with 6mm reveal profile (white/black),comprising of main-T runners of size 15x42mm of length 3000 mm, cross - T of size 15x42 mm of length 1200 mm and secondary intermediate cross-T of size 15x42 mm of length 600mm to form grid module of size 600 x 600 mm, suspended from ceiling using galvanised mild steel items (galvanizing @ 80 grams per sqm) i.e. 50 mm long, 8 mm outer diameter M-6 dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x2 mm. Galvanised iron perimeter wall angle of size 22x19x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450 mm center to center and 40mm long dry wall S.S screws. The work shall be carried out as per specifications, drawing and as per directions of the Engineer-in-Charge.						
	32.43.1	With 15 mm thick integral densified micro edge light weight calcium silicate false ceiling tiles	sqm	167	0	1268	1436
32.44	Providing and fixing in position wall panelling at all heights with integral densified calcium silicate panels/tiles of size 595 x 595mm, having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS:476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity <0.043 W/m K as per ASTM 518:1991, comprising of a frame made from especially fabricated galvanised mild steel sheet 0.50 mm thick pressed section (galvanizing @120 grams per sqm including both sides) i.e.vertical studs of size 48 x 34 x 36 mm are placed at 600mm center to center in a floor and ceiling channel section of size 50 x 32m fixed to the floor and soffit at 600mm centers using 12mm dia,50mm long wedge type expanded zinc alloy dash fastner with 10mm bolt. This same channel is then to be fixed in horiziontal direction at 600mm center to center so as to form a grid of 600mm x 600mm. Glasswool of 50mm thickness is then to be inserted in the slots and finally calcium silicate non combustible panels/tiles are to be screw fixed with self tapping pan head nickel coated mild steel screws of size 13 x 3.2mm on to this grid leaving an even groove of 1 mm between the panels. The joints between the panels are to be duly jointed and finished using recommended jointing calcium silicate based compound and fiber joint tape roll 50mm wide (90 metre)roll and two coats of primer suitable for panelling as per manufacturer's specification as per direction of Engineer-in-Charge all complete.						
	32.44.1	With 15 mm thick fully perforated square/butt edge light weight calcium silicate panels/ tiles	sqm	275	0	1708	1983
32.45	Providing and fixing 15 mm thick false ceiling tiles at all heights with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS:476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity < 0.043 W/m K as per ASTM 518:1991,in true horizontal level on the existing frame work consisting of T-sections and Lsections suitably fixed according to tile size as per direction of Engineer-in-charge.	sqm	153	0	822	975
	GLASS FIBRE REINFORCED GYPSUM CEILING TILES						
32.46	Providing & fixing false ceiling at all heights with GRG (Glass Fibre Reinforced Gypsum) false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having moisture content less than 2%, humidity resistance of 99%, NRC0.50 to 0.75 as per IS 8225:1987, Non combustible as per BS 476 (part 4)-1970 and light reflectance of 85% (minimum) to be laid in true horizontal level suspended on inter-locking metal T-Grid of hot dipped galvanised iron section of 0.33mm thick (galvanized @ 120 grams per sqm including both sides) comprising of main-T runners of size 15x32 mm of length 3000 mm, cross - T of size 15x32 mm of length 1200 mm and secondary intermediate cross-T of size 15x32 mm of length 600mm to form grid module of size 600 x 600 mm, suspended from ceiling using galvanised mild steel items (galvanizing @ 80 grams per sqm) i.e. 50 mm long, 8 mm outer diameter M-6 dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x2 mm. Galvanised iron perimeter wall angle of size 24x24x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450 mm center to center and 40 mm long dry wall wood screws. The work shall be carried out as per specifications, drawing and as per directions of the Engineer-in-Charge.						
	32.46.1	With semi perforated 12 mm thick micro tegular edged GRG false ceiling tiles.	sqm	167	0	944	1111
	32.46.2	With fully perforated 12 mm thick micro tegular edged or 10 mm thick square edged GRG false ceiling tiles.	sqm	167	0	1052	1219
	MINERAL FIBRE CEILING TILES						
32.47	Providing and fixing mineral fibre false ceiling tiles at all heights of size 595X595mm of approved texture, design and pattern. The tiles should have Humidity Resistance (RH) of 99%, Light Reflectance ≥ 85%, Thermal Conductivity k = 0.052 - 0.057 w/m K, Fire Performance as per (BS 476 pt - 6 &7)in true horizontal level suspended on interlocking T-Grid of hot dipped all round galvanized iron section of 0.33 mm thick (galvanized @120 gsm) comprising of main T runners of 15x32 mm of length 3000 mm, cross T of size 15x32mm of length 1200 mm and secondary intermediate cross T of size 15x32 mm of length 600 mm to form grid module of size 600x600 mm suspended from ceiling using galvanized mild steel item (galvanised@80gsm) 50 mm long 8mm outer diameter M-6 dash fasteners, 6 mm diameter fully threaded hanger rod up to 1000 mm length and L-shape level adjuster of size 85x25x2 mm, spaced at 1200 mm centre to centre along main 'T'. The system should rest on periphery walls /partitions with the help of GI perimeter wall angle of size24x24X3000 mm made of 0.40 mm thick sheet, to be fixed to the wall with help of plastic rawl plug at 450 mm centre to centre & 40 mm long dry wall S.S. screws. The exposed bottom portion of all T-sections used in false ceiling support system shall be pre-painted with polyester baked paint, for all heights. The work shall be carried out as per specifications, drawings and as per directions of the engineer-in-charge.						
	32.47.1	With 16 mm thick beveled tegular mineral fibre false ceiling tile (NRC 0.55 to 0.6	sqm	167	0	1321	1488
	32.47.2	With 20 mm thick beveled tegular mineral fibre false ceiling tile (NRC 0.7)	sqm	167	0	1574	1741
	32.47.3	With 16 mm thick beveled tegular mineral fibre Anti-microbial false ceiling tile confirming to ISO 5 (class 100)	sqm	167	0	1430	1597
	NON FIRE METALLIC DOOR FRAMES AND SHUTTERS						
32.48	Providing & Fixing in place metallic all plain Non Fire doors finished with Powder Coating In Regular RAL shades. Over all of thickness of the shutter to be 46mm thick manufactured from 0.8mm GPSP Galvanised Steel Sheet confirming to IS:277 with provision of Reinforcement Pad and necessary provision for recieving the appropriate hardwares .The Shutter shall have Paper Honeycomb core in fill . Door shall be coated with pure polyster/Epoxy Polyster powder having thickness of 60-80 micron as per directions of Engineer-in-charge.	sqm	317	0	3019	3336
32.49	Providing & Fixing in place metallic all embossed Non Fire doors (Embossed sheet in single side of door) finished with Powder Coating In Regular RAL shades as desired by Engineer- In-Charge. Over all of thickness of the shutter to be 46mm thick manufactured from 0.8mm GPSP Galvanised Steel Sheet confirming to (IS277) with provision of Reinforcement Pad and necessary provision for the recieving appropriate hardwares. The Shutter shall be filled with Paper Honeycomb core in fill . Doors should be Coated with pure polyster/Epoxy Polyster powder having coating thickness of 60-80 micron	sqm	317	0	3379	3696
32.50	Providing & Fixing in place metallic all Plain Wood finish Non Fire doors finished with wooden shades as desired by Engineer-In-Charge. Over all of thickness of the shutter to be 46mm thick manufactured from 0.8mm GPSP Galvanised Steel Sheet confirming to (IS277) With provision of Reinforcement Pad and necessary provision for the recieving appropriate hardwares .The Shutter shall be filled with Paper Honeycomb core in fill. Doors to be Coated with pure polyster/Epoxy Polyster powder having coating thickness of 60-80 micron .	sqm	317	0	3884	4201
32.51	Providing & Fixing in place metallic All Plain Embossed Wood Finish Non Fire doors (Embossed sheet in single side of door) finished with wooden shades as desired by Engineer- In-Charge. Over all of thickness of the shutter to be 46mm thick manufactured from 0.8mm GPSP Galvanised Steel Sheet confirming to (IS277) With provision of Reinforcement Pad and necessary provision for the recieving appropriate hardwares .The Shutter shall be filled with Paper Honeycomb core in fill . Doors shall be Coated with pure polyster/Epoxy Polyster powder having coating thickness of 60-80 micron.	sqm	317	0	4124	4441

32.52	Providing & Fixing in place metallic All Plain Embossed Wood Finish doors double leaf Non Fire doors (Embossed sheet in single side of door) finished with wooden shades as desired by Engineer- In-Charge. Over all of thickness of the shutter to be 46mm thick manufactured from 0.8mm GPSP Galvanised Steel Sheet confirming to (IS277) With provision of Reinforcement Pad and necressary provision for the recieving appropriate hardwares .The Shutter shall be filled with Paper Honeycomb core in fill . Doors shall be Coated with pure polyster/Epoxy Polyster powder having coating thickness of 60-80 micron.		sqm	475	0	3079	3555
32.53	Providing & Fixing in place metallic All Plain Embossed Wood Finish Non Fire doors (Embossed sheet in single side of door) finished with wooden shades as desired by Engineer- In-Charge. Over all of thickness of the shutter to be 46mm thick manufactured from 0.8mm GPSP Galvanised Steel Sheet confirming to (IS277) With provision of Reinforcement Pad and necressary provision for the recieving appropriate hardwares .The Shutter shall be filled with Paper Honeycomb core in fill . Doors shall be Coated with pure polyster/Epoxy Polyster powder having coating thickness of 60-80 micron.		sqm	475	0	4064	4540
32.54	Providing & Fixing in place door frame of Section 100x58mm made of GPSP Sheet (IS277) constructed from sheet thickness 1.2mm . Steel Frame Shall have a single rebate of 58mm duly filled with Puf . The Frame shall be finished Powder Coating In Requlr RAL shades as desired by Engineer- In-Charge . Door Frame should be Coated with pure polyster/Epoxy Polyster powder coating having thickness of 60-80 micron and provided with 3mm thick hinge reforcement plates.		metre	170	0	799	969
32.55	Providing & Fixing in place door frame of Section 170x58mm made of GPSP Sheet (IS277) constructed from sheet thickness 1.2mm with single rebate of 58mm duly filled with Puf. The Frame shall be finished Powder Coating In Requlr RAL shades as desired by Engineer- In-Charge and Coated with pure polyster/Epoxy Polyster powder coating having thickness of 60-80 micron. Frame should be provided with 3mm thick hinge reforcement plates.		metre	170	0	1028	1197
32.56	Providing & Fixing in place door frame of Section 100x58mm made of GPSP Sheet (IS277) constructed from sheet thickness 1.2mm with a single rebate of 58mm duly filled with Puf. The Frame shall be finished with Powder Coating In Requlr RAL shades as desired by Engineer- In-Charge with pure polyster/Epoxy Polyster powder coating having thickness of 60-80 micron. Frame should be provided with 3mm thick hinge reforcement plates.		metre	170	0	1028	1197
32.57	Providing & Fixing in place door frame of Section 170x58mm made of GPSP Sheet (IS277) constructed from sheet thickness 1.2mm with a single rebate of 58mm duly filled with Puf and finished with Powder Coating In Requlr RAL shades as desired by Engineer- In-Charge . Frame should be Coated with pure polyster/Epoxy Polyster powder coating having thickness of 60-80 micron and provided with 3mm thick hinge reforcement plates.		metre	170	0	1256	1426
	GREEN BUILDING ITEMS						
32.58	Providing and fixing thermal insulation on external wall with CFC Free closed cell, high performance rigid Polyurethane Foam(PUF) Insulation Slab conforming to IS: 12436 having density not less than 36±2 kg/m3, thermal conductivity (K-value) 0.021 W/m.K measured at 10 deg. C mean temperature and classified as “not easily ignitable” per BS: 476, Part-5, fixed with the help of adhesive (patch applied) & PVC fastener to the wall surface and all complete as per the instruction of engineer-in-charge						
	32.58.1	40 mm thick Polyurethane foam(PUF) rigid insulation board	sqm	22	0	980	1002
	32.58.2	50 mm thick Polyurethane foam(PUF) rigid insulation board	sqm	22	0	1100	1122
32.59	Providing and applying thermal insulation on external wall with impervious sprayed CFC free, closed cell rigid Polyurethane foam wall insulation conforming to IS- 12432 Part III (density of foam being 35±5 kg/m3, thermal conductivity (K-value) 0.023 W/m.K over a coat of polyurethane primer applied @ 6-8 sqm per litre and covering it externally as per specs and direction of engineer-in- charge.						
	32.59.1	40 mm thick PUF Spray	sqm	31	0	588	619
	32.59.2	50 mm thick PUF Spray	sqm	31	0	719	750
32.60	Providing & fixing on external side of finished external wall, extruded polystyrene (XPS) thermal insulating boards with ship lap joining on length side, (having thermal conductivity of 0.028 W/m.K on 90 days aging at 24 deg.C as per ASTM C518, compressive strength of over 250 kpa as per ASTM D1621, tensile strength of over 300 kpa as per ASTM D1623 and has flammability of Class B2 as per DIN 4102, water absorption of less than 1% as per ASTM D2842) with the help of a minimum 2 mm thick polymerized mortar adhesive & mountings as per manufacturer's guidelines; over the installed XPS boards, providing & laying a 3-4 mm thick finishing layer of polymerized mortar base coat with fibre glass mesh of min. 150 gsm embedded in it using notched trowel as per manufacturer's guidelines and as per the instruction of engineer-in- charge.						
	32.60.1	25 mm thick Extruded polystyrene rigid insulation board	sqm	32	0	387	418
	32.60.2	50 mm thick Extruded polystyrene rigid insulation board	sqm	32	0	686	718
	32.60.3	75 mm thick Extruded polystyrene rigid insulation board	sqm	32	0	1014	1046
	32.60.4	100 mm thick Extruded polystyrene rigid insulation	sqm	32	0	1342	1374
32.61	Providing and fixing between 2 layers of brick work/ concrete walls, thermal insulation with CFC free closed cell, high performance rigid Polyurethane Foam (PUF) insulation slab conforming to IS: 12436 having density not less than 36±2kg/m3, thermal conductivity (K- value) 0.021 W/m.K measured at 10 deg. C mean temperature and classified as “not easily ignitable” per BS: 476, Part-5 fixed to the wall with the screw, raw plug and washers etc. and holding in position with crisscross GI wire, in staggered form and all complete as per specs or directions of engineer-in-charge.						
	32.61.1	40 mm thick Polyurethane foam(PUF) rigid insulation	sqm	21	0	597	618
	32.61.2	50 mm thick Polyurethane foam(PUF) rigid insulation	sqm	21	0	717	739
32.62	Providing and injecting/pouring CFC free closed cell, high performance rigid Polyurethane foam between 2 layers of brick work/ concrete walls having thermal insulation not more than 0.024 W/m.K, core density 35±5 kg/m3 (conforming to IS-13205) and water absoption not more than 2.5%, inside wall cavity after making injection ports at 60 cm center to center. The insulation foam shall be injected with the help of high pressure specially designed foaming machine like gusmer/graco or equivalent in dry brick wall cavity including plugging of holes and all complete as per the instruction of engineer-in-charge.						
	32.62.1	40 mm thick PUF Spray	sqm	40	0	526	567
	32.62.2	50 mm thick PUF Spray	sqm	40	0	658	698
32.63	Providing and fixing thermal insulation with resin bonded Rock wool between 2 layers of brick work/ concrete walls conforming to IS: 8183 and density 48 kg/m3 having thermal conductivity value of not more than 0.043 W/m.K, wrapped in 200G virgin polythene bags fixed to the wall with the screw, rawl plug and washers and held in position by crisscross GI wire etc. and all complete as per specs or directions of engineer-in-charge.						
	32.63.1	25 mm thick Resin bonded Rock wool	sqm	43	0	162	205
	32.63.2	50 mm thick Resin bonded Rock wool	sqm	43	0	200	243
	32.63.3	65 mm thick Resin bonded Rock wool	sqm	43	0	238	281
	32.63.4	75 mm thick Resin bonded Rock wool	sqm	43	0	276	319
32.64	Providing and fixing between 2 layers of brick work/ concrete walls thermal insulation with Resin Bonded Fibre glass wool conforming to IS: 8183 having density 48 kg/m3, wrapped in 200G Virgin Polythene Bags fixed to wall with screw, rawl plug & washers and held in position by criss crossing GI wire etc. complete as per directions of Engineer-in-Charge.						
	32.64.1	12 mm thick Resin bonded Glass wool	sqm	43	0	157	200
	32.64.2	25 mm thick Resin bonded Glass wool	sqm	43	0	189	232
	32.64.3	50 mm thick Resin bonded Glass wool	sqm	43	0	240	283
32.65	Providing and fixing between 2 layers of brick work/ concrete walls extruded polystyrene (XPS) thermal insulating boards with ship lap joining on length side, (having thermal conductivity of 0.028 W/m.K on 90 days aging at 24 deg.C as per ASTM C518, compressive strength of over 250 kpa as per ASTM D1621, tensile strength of over 300 kpa as per ASTM D1623 and has flammability of Class B2 as per DIN 4102, water absorption of less than 1% as per ASTM D2842 fixed with suitable water based adhesive and fastener, complete in all respect as per the direction of Engineer-in-Charge.						

	32.65.1	50 mm thick Extruded polystyrene rigid insulation board	sqm	21	0	677	698
	32.65.2	75 mm thick Extruded polystyrene rigid insulation board	sqm	21	0	1028	1049
	32.65.3	100 mm thick Extruded polystyrene rigid insulation	sqm	21	0	1379	1400
32.66	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Rockloyd Rockwool (Non Combustible Grade) conforming to IS: 8183 and density 48 kg/ m3, wrapped in 200 G Virgin Polythene bags fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5mm x 24gauge wire mesh, for top most ceiling of building and all complete as per engineer in charge						
	32.66.1	25 mm thick Resin bonded Rock wool	sqm	128	0	246	373
	32.66.2	50 mm thick Resin bonded Rock wool	sqm	128	0	284	411
	32.66.3	65 mm thick Resin bonded Rock wool	sqm	128	0	322	450
	32.66.4	75 mm thick Resin bonded Rock wool	sqm	128	0	360	488
32.67	Providing and laying on smooth roof surface with CFC free, closed cell free Rigid Polyurethane foam slab over deck insulation conforming to IS -12436 (density of foam being 36±2 kg/m3) having thermal conductivity not more than 0.024 W/m.K, over a coat of cold adhesive like CPRX compound, laying 400 G polythene sheet over PUF slab and providing a wearing course of 40 mm thick cement screed 1: 2 : 4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) in chequered rough finish, in panels of 2.5 m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerized mastic, all complete as per direction of engineer-in-charge						
	32.67.1	40 mm thick Polyurethane foam(PUF) rigid insulation board	sqm	226	0	906	1132
	32.67.2	50 mm thick Polyurethane foam (PUF) rigid insulation board	sqm	226	0	1025	1251
	32.67.3	60 mm thick Polyurethane foam (PUF) rigid insulation board	sqm	226	0	1145	1371
	32.67.4	70 mm thick Polyurethane foam (PUF) rigid insulation board	sqm	226	0	1264	1490
32.68	Providing and laying roof insulation with impervious sprayed, closed cell CFC free Rigid Polyurethane foam over deck insulation conforming to IS - 12432 Pt. III (density of foam being 40-45 kg/cum), over a coat of polyurethane primer applied @ 6-8 sqm per litre,laying 400G polythene sheet over PUF spray and providing a wearing course of 40mm thick cement screed 1 : 2 :4 (1 cement : 2 coarse sand : 4 stone aggregate 20mm nominal size) in chequred rough finish,in panels of 2.5m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerised mastic and all complete as per direction of Engineer-in-Charge.						
	32.68.1	40 mm thick PUF Spray	sqm	226	0	775	1001
	32.68.2	50 mm thick PUF Spray	sqm	226	0	894	1120
	32.68.3	60 mm thick PUF Spray	sqm	226	0	1013	1239
	32.68.4	70 mm thick PUF Spray	sqm	226	0	1132	1357
32.69	Providing and laying on smooth roof surface with extruded polystyrene (XPS) thermal insulating boards with ship lap joining on length side, (having thermal conductivity of 0.028 W/m.K on 90 days aging at 24 deg.C as per ASTM C518, compressive strength of over 250 kpa as per ASTM D1621, tensile strength of over 300 kpa as per ASTM D1623 and has flammability of Class B2 as per DIN 4102, water absorption of less than 1% as per ASTM D2842, over a coat of cold adhesive like CPRX compound, laying 400 G polythene sheet over PUF slab and providing a wearing course of 40 mm thick cement screed 1: 2 : 4 (1 cement : 2 coarse sand : 4 stone aggregate 20 mm nominal size) in chequered rough finish, in panels of 2.5 m x 2.5 m and embedding with 24 G wire netting and sealing the joints with polymerized mastic, all complete as per direction of engineer-in-charge						
	32.69.1	50 mm thick Extruded polystyrene rigid insulation board	sqm	226	0	936	1162
	32.69.2	75 mm thick Extruded polystyrene rigid insulation board	sqm	226	0	1260	1485
	32.69.3	100 mm thick Extruded polystyrene rigid insulation	sqm	226	0	1583	1809
	SOLAR PANELS						
32.70	Supply Installation testing commissioning of Solar Photovoltaic grid connected roof top Plant conforming to MNRE specifications as amended, consisting of Mono/Poly Crystalline silicon solar cells, net metering facility, necessary protections, earthing, mounted on Aluminium/GI structure of suitable strength with following components complete as required:-						
	(a) Solar Photovoltaic Module manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.						
	(b) Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 400 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC						
	(c) Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient tempertature from 0 to 50 degrees C. The PCU shall adjust the voltage and frequency level to suit grid frequency						
	(d) Data Monitoring System complete with accessories.						
	(e) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required.						
	(f) Lightning and surge voltage protection.						
	(g) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1 kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary channel/conduit lugs and other accessories etc. as required.						
	32.70.1	Above 1 kWp and upto 10 Kwp	KWp				47961
	32.70.2	Above 10 kWp and upto 100 Kwp	KWp				42251
	32.70.3	Above 100 kWp and upto 500 Kwp	KWp				39397

CHAPTER NO. 33

RAIN WATER HARVESTING
AND
TUBEWELLS

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CHAPTER 33.0 - RAIN WATER HARVESTING AND TUBEWELLS

NOTE:
The rates are exclusive of GST but inclusive of all other taxes, Labour Welfare Cess and contractor's profit.

	CHAPTER 33.0 - RAIN WATER HARVESTING & TUBEWELLS							
	RAIN WATER HARVESTING							
33.1	Boring with 100 mm diameter casing pipe for hand pump / tubewell, in all soils except ordinary hard rocks requiring blasting, including removing the casing pipe after the hand pump / tube well is lowered and tested :							
	33.1.1	Up to 6 metres depth		metre	219	0	0	219
	33.1.2	Beyond 6 m and up to 12 m depth		metre	261	0	0	261
	33.1.3	Beyond 12 m and up to 18 m depth		metre	306	0	0	306
33.2	Providing and placing in position filters of 40 mm diameter G.I. pipe with brass strainer of approved quality.			metre	76	0	464	539
33.3	Providing and fixing to filter and lowering to proper levels 40 mm G.I. pipe for tube well including cleaning and priming the tube well.			metre	30	0	278	308
33.4	Providing and placing in position hand pump of approved quality for 40 mm diameter G.I. pipe complete with all accessories.			each	67	0	775	842
33.5	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four Nos. longitudinal & 9 Nos. cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.			each	11	0	999	1011
	TUBEWELLS							
33.6	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level.							
	33.6.1	All types of soil						
		33.6.1.1	300 mm dia	metre	83	256	0	339
		33.6.1.2	350 mm dia	metre	91	280	0	371
		33.6.1.3	400 mm dia	metre	116	359	0	475
	33.6.2	Rocky strata including Boulders						
		33.6.2.1	300 mm dia	metre	232	535	0	767
		33.6.2.2	350 mm dia	metre	251	543	0	795
		33.6.2.3	400 mm dia	metre	308	576	0	884
33.7	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre & upto 150 metre depth below ground level.							
	33.7.1	All types of soil						
		33.7.1.1	300 mm dia	metre	97	299	0	396
		33.7.1.2	350 mm dia	metre	107	332	0	440
		33.7.1.3	400 mm dia	metre	145	449	0	594
	33.7.2	Rocky strata including Boulders						
		33.7.2.1	300 mm dia	metre	263	551	0	814
		33.7.2.2	350 mm dia	metre	277	560	0	837
		33.7.2.3	400 mm dia	metre	359	687	0	1046
33.8	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.							
	33.8.1	100 mm nominal size dia		metre	2	0	506	508
	33.8.2	150 mm nominal size dia		metre	2	0	582	584
	33.8.3	200 mm nominal size dia		metre	2	0	903	905
33.9	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.							
	33.9.1	100 mm nominal size dia		metre	2	0	549	552
	33.9.2	150 mm nominal size dia		metre	2	0	630	632
	33.9.3	200 mm nominal size dia		metre	2	0	963	965
33.10	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/plain ended casing pipes of required dia, conforming to IS: 4270, of reputed & approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer-in-charge.							
	33.10.1	100 mm nominal size dia having minimum wall thickness 5.00 mm		metre	29	0	944	972
	33.10.2	150 mm nominal size dia having minimum wall thickness 5.00 mm		metre	34	0	1335	1369
	33.10.3	200 mm nominal size dia having minimum wall thickness 5.40 mm		metre	40	0	1664	1704
33.11	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/ plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge.							
	33.11.1	100 mm nominal size dia		metre	29	0	967	995
	33.11.2	150 mm nominal size dia		metre	34	0	1365	1400
	33.11.3	200 mm nominal size dia		metre	40	0	1694	1735
33.12	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.			cum	52	0	971	1023
33.13	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.			cum	52	0	971	1023
33.14	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.			cum	52	0	971	1023
33.15	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.			cum	62	0	1085	1147
33.16	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:							
	33.16.1	100 mm dia		each	8	0	154	162
	33.16.2	150 mm dia		each	9	0	171	180
	33.16.3	200 mm dia		each	11	0	228	240
33.17	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.							
	33.17.1	100 mm clamp		each	155	0	958	1114
	33.17.2	150 mm clamp		each	163	0	1010	1173

	33.17.3	200 mm clamp	each	186	0	1151	1337
33.18	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).						
	33.18.1	100 mm dia	each	0	0	186	186
	33.18.2	150 mm dia	each	0	0	232	232
	33.18.3	200 mm dia	each	0	0	255	255
33.19	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.		hour	0	228	391	619

CHAPTER NO. 34

ROAD FURNITURE

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Gurugram-122001 (Haryana)

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CHAPTER 34.0 - ROAD FURNITURE (TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES)							
Item No.	**Description**	**Ref. MORTH (Specifications**	**Unit**	**Labour Rate**	**Machinery Rate**	**Material Rate**	**Through Rate**
34.1	**Cast in Situ Cement Concrete M20 Kerb**	408					
	Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408						
34.1.1	**Using Concrete Mixer**		per metre	22	20	203	245
34.1.2	**Using Concrete Batching and Mixing Plant**		per metre	4	30	206	241
34.2	**Cast in Situ Cement Concrete M 20 Kerb with Channel**	408					
	Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408						
34.2.1	**Using Concrete Mixer**		per metre	26	26	397	449
34.2.2	**Using Concrete Batching and Mixing Plant**		per metre	5	45	402	452
34.3	**Printing New Letter and Figures of any Shade**	801					
	Printing new letter and figures of any shade with synthetic enamel paint black or any other approved colour to give an even shade						
34.3.1	**Hindi (Matras commas and the like not to be measured and paid for Half letter shall be counted as half)**		cm height per letter	1	0	0	1
34.3.2	**English and Roman (Hyphens not to be paid)**		cm height per letter	0	0	0	1
	Cautionary Sign Boards						
34.4	Cautionary sign board 900x900x900mm triangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports including three year outdoor weathering test report for sheeting tested in India condition from an independent test laboratory conforming to clause 6.7 of IRC 67-2012	801					
34.4.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	3248	3737
34.4.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2955	3444
34.5	Cautionary sign board 600x600x600mm triangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 3 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.5.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2348	2836
34.5.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2217	2706

34.6	Mandatory sign board 900 mm circular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.6.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	4368	4856
34.6.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	3837	4326
34.7	Mandatory sign board 600 mm circular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 3 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.7.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2848	3336
34.7.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2612	3101
34.8	Informatory sign board 800x600 rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.8.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	3673	4161
34.8.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	3272	3761
34.9	Informatory sign board 600x450 rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 3 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.9.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2748	3236

34.9.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2514	3002
34.10	Informatory sign board 600x600 rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 3 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.10.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	3172	3661
34.10.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	392	97	2872	3360
34.11	Informatory sign board 900x600 rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.11.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	410	97	5445	5951
34.11.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	410	97	5028	5535
34.12	Advance Direction sign board 900x900 square as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.12.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	454	97	8343	8894
34.12.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	507	97	7784	8388

34.13	Advance Direction signboard 1200x900 square as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.13.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	827	193	9291	10312
34.13.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	827	193	8433	9454
34.14	Advance Direction signboard 1200x1200 square as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012	801					
34.14.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	827	193	11121	12142
34.14.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	827	193	9918	10939
34.15	Advance Direction signboard 1200x1800 square as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and as per IRC 67 2012 fixed over 4 mm thick aluminum Composite material (ACM) sheeting having aluminum skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminum alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 without cost of definition plate firmly fixed to ground in foundation concrete M-25 of size 0.45x0.45x0.75m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory conforming to clause 6.7 of IRC 67-2012	801					
34.15.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	1201	193	14451	15846
34.15.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	1201	193	12649	14043
34.16	Definition Plate 600x200mm rectangular as per as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012. specifications. Fixed over 3mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.25 to 0.3 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25X25X3mm welded with vertical post of sign board complete as per clause 801 of MORT&Hspecifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012 .						
34.16.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**						
34.16.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IX as per ASTM D 4956 09 and as per IRC 67 2012**						

34.17	Direction/Diversion Plate 900x300mm rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012. specifications. fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25X25X3 angle iron fixed in position complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67- 2012						
34.17.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	230	5	1278	1513
34.17	Direction/Diversion Plate 900x300mm rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012. specifications. fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25X25X3 angle iron fixed in position complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67- 2012						
34.17.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	230	5	1079	1313
34.18	Direction/Diversion Plate 1800x300mm rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012. specifications. fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25X25X3mm fixed in position complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67- 2012						
34.18.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	390	1	2515	2906
34.18	Direction/Diversion Plate 1800x300mm rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012. specifications. fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25X25X3mm fixed in position complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67- 2012						
34.18.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	391	7	2111	2509
34.19	Hazard Marker sign board 300x900mm rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and IRC 67 2012, fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 firmly fixed to ground including foundation concrete M-25 of size 0.45x0.45x0.60m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67- 2012.						

34.19.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**		each	395	386	2464	3246
34.19	Hazard Marker sign board 300x900mm rectangular as per IRC 67- 2012 with retro reflective Sheeting as per ASTM D 4956 09 and IRC 67 2012, fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 25x25x3mm angle iron supported on a square hollow steel section post 60x60x3.2mm conforming to IS 4923 firmly fixed to ground including foundation concrete M-25 of size 0.45x0.45x0.60m for vertical post complete as per clause 801 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67- 2012.						
34.19.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	395	386	2371	3152
34.20	Overhead sign board 6000x1500mm cantilever type single sided as per IRC 67-2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012 fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 40x40x6mm angle iron supported on designed single support system of MS pipe and plates in the form of a cantilever type truss made with 350NB pipe @50kg per mtr as vertical support, 50NB pipe @ 4.50kg per mtr and 40NB pipe @ 3.61kg per mtr for truss including base plates, gusset plates,designed RCC foundation for fixing in ground complete as per clause 802 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012 .						
34.20.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**	(a)	each	15521	5681	161479	182681
34.20.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	15521	5681	153969	175171
34.20	Overhead sign board 6000x1500mm cantilever type single sided as per IRC 67-2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012 fixed over 4mm thick Aluminium Composite Material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 40x40x6mm angle iron supported on designed single support system of MS pipe and plates in the form of a cantilever type truss made with 350NB pipe @50kg per mtr as vertical support, 50NB pipe @ 4.50kg per mtr and 40NB pipe @ 3.61kg per mtr for truss including base plates, gusset plates,designed RCC foundation for fixing in ground complete as per clause 802 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012 .						
34.20.3	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**	(b)	each	16528	5681	205757	227966
34.20.4	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**	b (i)	each	16528	5681	190737	212946

34.21	Overhead sign board 9000x1500mm simply supported type double sided as per IRC 67-2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 – 2012 fixed over 4mm thick aluminium Composite material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 40x40x6mm angle iron supported on designed double support system of MS pipe and plates in the form of a simply supported type truss made with 350NB pipe @50kgper mtr as vertical support, 50NB pipe @ 4.50kg per mtr and 40NB pipe @ 3.61kg per mtr for truss including base plates, gusset plates, designed RCC foundation for fixing in ground complete as per clause 802 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012 .	24.53					
34.21.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**	(a)	each	24791	7386	337673	369850
34.21.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**	(b)	each	24791	7386	315144	347321
34.22	Overhead sign board 12000x1500mm simply supported type double sided as per IRC 67-2012 with retro reflective Sheeting as per ASTM D 4956 – 09 and as per IRC 67 . fixed over 4mm thick aluminium Composite material (ACM) sheeting having aluminium skin thickness of 0.4 to 0.5 mm on both sided and fixing the same with suitable size aluminium alloy rivets @ 200 mm c/c to back support frame of 40x40x6mm angle iron supported on designed double support system of MS pipe and plates in the form of a simply supported type truss made with 350NB pipe @50kg per mtr as vertical support, 50NB pipe @ 4.50kg per mtr and 40NB pipe @ 3.61kg per mtr for truss including base plates, gusset plates, designed RCC foundation for fixing in ground complete as per clause 802 of MORT&H specifications. Supplier shall provide a warranty as per clause 6.9 of IRC 67-2012 for retro reflective sheeting & a certified copy of test reports from an independent test laboratory including three year outdoor weathering test report for sheeting tested in India condition conforming to clause 6.7 of IRC 67-2012.						
34.22.1	**Using retro reflective Sheeting Type XI as per ASTM D 4956 09 and as per IRC 67 2012**	(a)	each	33055	8806	405317	447178
34.22.2	**Using high intensity Microprismatic grade retro reflective Sheeting Type IV as per ASTM D 4956 09 and as per IRC 67 2012**		each	33055	8806	375278	417139
34.23	**Hume pipe road indicator of 350mm dia NP-2 hume pipe 1200mm high, 900mm above ground level, 300mm embedded in ground in cement concrete 1:4:8 of size 0.75x0.75x0.60m, filled with earth and plugged from top with 300mm thick cement concrete 1:2:4, painted with two coats ready mixed exterior paint in black and white strips fixed in position complete as per PWD specifications**		each	73	39	1139	1251
34.24	**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work**	803					
	Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control						
34.24.1	**Over 10 cm in width**		sqm	90	0	20	110
34.24.2	**Up to 10 cm in width**		sqm	73	0	20	93
34.25	**Painting Lines, Dashes, Arrows etc on Roads in Two Coats on Old Work**	803					
	Painting lines, dashes, arrows etc on roads in two coats on old work with ready mixed road marking paint conforming to IS: 164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control						
34.25.1	**Over 10 cm in width**		sqm	66	0	12	78
34.25.2	**Up to 10 cm in width**		sqm	73	0	12	85
34.26	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface**	803					

	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.		sqm	12	2	557	571
	Note:- 1. A sealing primer may be applied in advance on cement concrete pavement to ensure proper bonding. Any laitance and/or curing compound to be removed where paint is required to be applied on concrete surface.						
	2.Cost of painter is already included in hire charges of road marking machine.						
34.27	**Kilometre Stone**	804					
	Reinforced cement concrete M25 grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc complete as per technical clause 804 of MORTH Specifications						
34.27.1	**5th kilometre stone (precast)**		nos.	476	193	3090	3760
34.27.2	**Ordinary kilometer stone (precast)**		nos.	250	83	1902	2235
34.27.3	**Kilometer Stone for Village Roads**		nos.	221	83	1509	1813
34.27.4	**200 meter stone**		nos.	114	35	507	656
	The rate for excavation, cement concrete, steel reinforcement, painting and lettering may be taken from respective chapters.						
34.28	**Boundary pillar**	806					
	Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting		nos.	106	20	877	1003
	In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.						
34.29	**GI barbed wire fencing**						
34.29.1	**G.I Barbed Wire Fencing 1.2 Metre High**	807					
	Providing and fixing 1.2 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 807		per metre	32	0	227	258
	Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective chapters.						
34.29.2	**G.I Barbed Wire Fencing 1.8 Metre High**	807					
	Providing and fixing 1.8 metres high GI barbed wire fencing with 2.4 m angle iron posts 50 mm x 50 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 12 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 807		per metre	41	0	387	428
	Cost of excavation for foundation and foundation concrete to be added separately in the cost estimate as per approved design. The rate for these items may be taken from respective chapters.						
34.29.3	**Fencing With Welded Steel Wire Fabric 75 mm x 50 mm**	Suggestive					
	Providing 1.20 metre high fencing with angle iron posts 50 mm x 50 mm x 6 mm at 3 metre center to center with 0.40 metre embedded in M15 grade cement concrete, corner, end and every 10th post to be strutted, provided with welded steel wire fabric of 75 mm x 50 mm mesh or 75 mm x 25 mm mesh and fixed to iron posts by flat iron 50 x 5 mm and bolts etc. complete in all respects.		per metre	43	1	610	653
	i) Adopt any one type of welded steel wire fabric 75 x 50 mm or 75 x 25 mm as per approved design.						
	ii) The item of excavation and cement concrete in foundation shall be measured and paid separately						
34.30	**Tubular Steel Railing on Medium Weight Steel Channel (ISMC series) 100 mm x 50 mm**	808					

34.30.1	Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on medium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2 m centre to centre, complete as per approved drawings		per metre	11	1	1312	1324
34.30	**Tubular Steel Railing on Precast RCC Posts, 1.2 m High Above Ground Level**	808					
34.30.2	Providing, fencing and erecting 50 mm dia painted steel pipe railing in 3 rows on precast M20 grade RCC vertical posts1.8 metres high (1.2 m above GL) with 3 holes 50 mm dia for pipe, fixed 2 metres centre to, complete as per approved drawing		per metre	15	5	1266	1286
34.31	**Reinforced Cement Concrete Crash Barrier**	809					
	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified		per metre	42	0	3013	3055
	i) Excavation and backfilling are incidental to work and not to be measured separately.						
	ii) Rate for RCC M 20 may be taken from chapter on super structure.						
34.32	**Metal Beam Crash Barrier**	810					
34.32.1	**Type - A, "W" : Metal Beam Crash Barrier**						
	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810		per metre	143	4	2626	2774
34.32.2	**Type - B, "THRIE" : Metal Beam Crash Barrier**						
	Providing and erecting a "Thrie" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 810		per metre	143	4	3449	3597
	In the case of median crash barrier, 'W' metal beam or thrie beam section should be provided on both sides of the vertical posts fixed in the median. Extra provision for metal beam railing and spacer is required to be made when fixed in the median depending on approved design.						
34.33	**Road Markers/Road Stud with Lense Reflector**						
	Providing and fixing of road stud 100x 100 mm, die-cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973		nos.	8	0	447	456
34.34	**Moulded Shank Road Stud**						

	Supplying and fixing of single mould twin shank reflective road studs made out of poly carbonate/ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face with retro reflectance and chromaticity values @ ASTM E 809 with photomatric range setup hall be as given in the detailed specifications and the product shall conform to ASTM D4280. The raised pavement marker shall also meet all the testing conditions of ASTM D4280 like abrasion resistance and fixed to the road surface using the epoxy adhesive. Two cylindrical Polymer Shanks of not less than 20 mm diameter and not less than 30 mm length shall be molded in the RPM body. The marker shall support a load of 13635 Kg tested in accordance with ASTM D4280. The marker shall withstand flexural strength of 909 kgf force in accordance with ASTM D4280. Marker lenses shall be moulded of Polycarbonate or methyl methecrylate conforming to ASTM D788. The supplier shall provide a 2 years warranty for satisfactory field performance as per clause 804.7.3 of MORT&H 5th revision specifications.		nos.	8	0	212	221
34.35	**Flexible Median Marker**						
	Providing and Fixing of Flexible Median Markers as per IRC 79:2019 which shall be made of combination of tough, high impact resistant molded thermoplastic body along with florescent yellow color retro-reflective type XI sheeting with minimum exposed reflective area 285 square mm and with rebound property. The reflective sheeting should confirm to Type XI Florescent Yellow sheeting as per IRC 67 2012 and ASTM D4956- 11. The flexible median marker shall have overall height of minimum 180 mm, body thickness of minimum 2mm and shank depth of minimum 30mm. The retro-reflective sheeting shall be on both sides of the Flexible Median Marker and shall be edge protected with no exposed edges which will prevent edge lifting, vandalism, sheeting damage, etc. The edge of sheeting should not come out easily by putting nails, sharp objects etc. The logo of the manufacturer shall be embossed on either side of the body. The product design has to with stand all natural impacts and should not get damaged if any pedestrian stamp on top of it intentionally or unintentionally. The product should bend up to 90 degree on both sides without breakage or damage.		nos.	8	0	200	208
34.36	**Solar RPM/ Stud**						
	Providing and installation of solar cateye produced from an engineered polymer selected for superior impact resistance and weather-ability. The top of the solar stud should be transparent for solar charging and light output in active mode. The base of the body shall be yellow or neutral white as approved by Engineer In-charge. The marker shall incorporate a solar panel (comprising of solar cells) for converting solar energy into electricity, a storage device for storing the energy, LEDs for illumination and a design for providing 360 degree smooth illumination. The Solar stud shall be round in shape for providing illumination in all directions. The solar stud shall also have high reflective lenses for conspicuity in passive mode and dual shanks for improved road presence. The solar studs are intended for application directly onto pavement surfaces and shall be applied with epoxy resin adhesives designed for use with raised pavement markers and as supplied by the marker manufacturer separately. The solar cateye shall be of height: 65 ± 2 mm & Maximum Diameter: 136 ± 4 mm. The body of the solar cateye shall be resistant to dust and water ingress as per IP 65 standards. The marker shall support a load of 13635 Kg tested in accordance with ASTM D4280.		nos.	0	0	1178	1178
34.37	**Road Delineators**	805					
	Providing and fixing of standard Metal Delineator as per IRC 79:2019 consistinof retroreflective area in white colour using full cube corner microprismatic non-metalliic retroreflective sheeting on each side conforming with IRC 67 2012 and meeting the coefficient of retroreflection values as per ASTM D 4956 Type XI table specification. The delineator shalll be painted with only black colour powder coat of minimum 40 microns thickness, on top of retroreflective sheeting only in white colour shall be pasted on both sides. the structure shall have height not less than 800 mm above ground, width not less than 100 mm and shall extend not more than 300 mm below ground while being installed. the delineator shall have grooves across the length to make the reflective sheet vandal proof. the delineator is meant for application on gaps in median, traffic islands, dangerous bends, roundabouts, narrow bridges etc or as desired by site engineer		nos.	14	0	1020	1034
	In case of soft ground, a proper foundation may be provided as per approved design. In case foundation is required to be provided, the items of excavation and foundation concrete are required to be measured and paid separately.						

34.39	**Rumble Strips**						
34.39.1	Providing and making rumble strips 15-20mm high at centre, 250mm wide placed at 1m centre to centre over freshly laid bituminous layer by using close graded premix surfacing material at approved locations to control speed. The close graded premix surfacing material type B shall conform to technical clause 512 of MORT&H specifications						
	The rate per sqm of premix carpet and road marking may be adopted from chapter 5 & 8 respectively for the quantities calculated from approved drawings						
	Rumble Strips with thermoplastic road marking						
34.39.2	Providing and making rumble strips 15-20mm high at centre, 250mm wide placed at 1m centre to centre over freshly laid bituminous layer by using close graded premix surfacing material at approved locations to control speed and marked with 100mm wide white strips of thermoplastic road marking paint. The close graded premix surfacing material type B shall conform to technical clause 512 and thermoplastic road marking paint shall conform to technical clause 803 of MORT&H specifications		sqm	13	0	73	86
	This is a specialised work and is generally done by firms who specialise in such jobs. The detailed designs and estimates are submitted by the firms along with their tender for checks by the Department. The cost of this work is required to be worked out based on approved design, drawings and estimate of the lowest tender. A separate contract for this work is concluded as the contractors for road and bridge works generally donot undertake such jobs.						
34.40	**Portable Barricade in Construction Zone**						
	Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 450, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001		each	430	0	2412	2842
34.41	**Permanent Type Barricade in Construction Zone**	suggestive					
34.41.1	**With steel components**						
	Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of450, complete as per IRC:SP:55-2001		each	527	0	3954	4481
34.41.2	**With wooden components**						
	Construction of a permanent type barricade made of wooden components, 1.5 m high from road level, fitted with 3 horizontal planks 200 mm wide and 3.66 m long on 100 x 100mm wooden vertical post, painted with yellow and white strips, 150 mm in width at an angle of450, complete as per IRC:SP:55-2001		each	655	0	5371	6026
34.41.3	**With bricks**						
	Construction of a permanent type barricade made with brick work in mud mortar, 1.5 m high, 4 m long, 600 mm thick, plastered with cement mortar 1:6, painted with yellow and white strips		each	2786	0	14767	17553
34.42	**Drum Delineator in Construction Zone**	suggestive					
	Provision of metal drum/empty bitumen drum delineator, 300 mm in diameter, 800 mm high, filled with earth for stability, painted in circumferential strips of alternate black and white 100 mm wide fitted with reflectors 3 Nos of 7.5 cm dia, all as per IRC:SP:55-2001		each	217	0	662	879
34.43	**Traffic Cone**	Suggestive					
	Provision of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene (LDPE) material with a square base of 390 x 390 x 35 mm and a height of 770 mm, 4 kg in weight, placed at 1.5 m interval, all as per BS 873		per metre	3	0	398	401
34.44	**Flagman**						
	Positioning of a smart flagman with a yellow vest and a yellow cap and a red flag 600 x 600 mm securely fastened to a staff 1 m in length for guiding the traffic		each	423	0	34	457
34.45	**Flexible Crash Barrier, Wire Rope Safety Barrier**						

	Providing and erecting a wire rope safety barrier with vertical posts of medium weight RS Joist (ISMB series) 100 mm x 75 mm (11.50 kg/m), 1.50 m long 0.85 m above ground and 0.65 m below ground level, split at the bottom for better grip, embedded in M 15 grade cement concrete 450 x 450 x 450 mm, 1.50 m center to center and with 4 horizontal steel wire rope 40 mm dia and anchored at terminal posts 15 m apart. Terminal post to be embedded in M 15 grade cement concrete foundation 2400 x 450 x 900 mm (depth), strengthened by a strut of RS joist 100 x 75 mm, 2 m long at 450 inclination and a tie 100 x 8 mm, 1.50 m long at the bottom, all embedded in foundation concrete as per approved design and drawing, rate excluding excavation and cement concrete.		per metre	86	3	2066	2155
34.46	**Anti-Glare Devices in Median**						
34.46.1	**Anti-glare screen with 25 mm steel pipe framework fixed with circular and rectangular vans**						
	Providing and erecting an anti - glare screen with 25 mm dia vertical pipes fabricated and framed in the form of panels of one metre length and 1.75 metre height fixed with circular vane 250 mm dia at top and rectangular vane 600 x 300 mm at the middle, made out of steel sheet of 3 mm thickness, end vertical pipes of the panel made larger for embedding in foundation concrete, applying 2 coats of paint on all exposed surfaces, all as per approved design and drawings.		per metre	42	0	113	155
	The items of excavation and cement concrete as per approved design to be measured and paid separately						
34.46	**Anti-glare screen with rectangular vane of MS sheet**						
34.46.2	Providing and erecting anti - glare screen with rectangular vanes of size 750 x 500 mm made from MS sheet, 3 mm thick and fixed on MS angle 50 x 50 x 6 mm at an angle of 450 to the direction of flow of traffic, 1.5 m center to center, top edge of the screen 1.75 m above ground level, vertical post firmly embedded in M-15 cement concrete foundation 0.60 m below ground level, applying 2 coats of paint on exposed faces, all complete as per approved design and drawings		per metre	28	13	814	855
	The items of excavation and cement concrete as per approved design to be measured and paid separately. Rate of painting has been analaysed separately in this chapter.						
34.47	**Cable Duct Across the Road**						
	Providing and laying of a reinforced cement concrete pipe duct, 300 mm dia, across the road (new construction), extending from drain to drain in cuts and toe of slope to toe of slope in fills, constructing head walls at both ends, providing a minimum fill of granular material over top and sides of RCC pipe as per IRC:98-1997, bedded on a 0.3 m thick layer of granular material free of rock pieces, outer to outer distance of pipe at least half dia of pipe subject to minimum 450 mm in case of double and triple row ducts, joints to be made leak proof, invert level of duct to be above higher than ground level to prevent entry of water and dirt, all as per IRC: 98 - 1997 and approved drawings.						
34.47.1	**Single row for one utility service**		per metre	26	5	2256	2287
34.47.2	**Double row for two utility services**		per metre	47	10	4165	4221
34.47.3	**Triple Row for three utility services**		per metre	85	14	6074	6173
	1.Inspection chamber at both ends is the responsibility of the agency who is laying the duct. Hence not included.						
	2.The rates for stone masonry / brick masonry and cement mortar to be adopted from respective clauses.						
34.48	**Traffic Impact Attenuators at Abutments and Piers**						
34.48.1	**With Scrap Tyres**		sqm	37	29	4607	4673
34.48.2	**Using Plastic/Steel Barrel, Filled with Sand**						
	Provision and installation of traffic impact attenuator at abutment/pier of flyovers bridges using plastic/steel barrels 0.60 m dia and 1.0 m in height, filled with sand in three rows and tied with20 mm steel wire rope as per approved design and drawings		sqm	69	19	1881	1969
34.49	**Painting Two Coats on New Concrete Surfaces**	803					
	Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces		sqm	33	0	25	58
34.50	**Painting on Steel Surfaces**	803					

	Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade		sqm	31	0	28	59
34.51	**Painting on Wood Surfaces**	803					
	Providing and applying two coats of ready mix paint of approved brand on wood surface after thorough cleaning of surface to give an even shade		sqm	31	0	33	64
34.52	**Gantry Mounted Variable Message Sign Board**						
	Providing and erecting gantry mounted variable message sign board electronically operated capable of flashing the desired message over a designed support system of aluminium alloy or galvanised steel, erected as per approved design and drawings and with lateral clearance as per clause 802.3						
	Gantry Support System		tonne	1290	284	76117	77691
	Overhead Gantry Sign Board (12 mtr Width)						
34.53	Providing and erecting 12 m wide overhead signs with a corrosion resistant aluminium alloy sheet reflected with high intensity retro-reflective sheeting with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of galvanized steel trusses of section and type to be mounted by bolts and nuts over RCC structure as per drawing		nos.	28189	8398	489428	526014
34.54	Providing and erecting overhead signs with a corrosion resistant aluminium alloy sheet reflected with high intensity retro-reflective sheeting with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of galvanized steel trusses of section and type to be mounted by bolts and nuts over RCC structure as per drawing		nos.	11121	3391	128490	143002
34.55	Providing and erecting overhead signs with a corrosion resistant aluminium alloy sheet reflected with high intensity retro-reflective sheeting with vertical and lateral clearance given in clause 802.2 and 802.3 and installed as per clause 802.7 over a designed support system of galvanized steel trusses of section and type to be mounted by bolts and nuts over RCC structure as per drawing		nos.	12786	3149	205891	221826
34.56	**Aluminium Flexible Prismatic Sheeting as per IRC 79-2019**						
	Providing and fixing Aluminum-backed flexible prismatic sheeting consisting of yellow colored flexible prismatic sheeting with non-metallic prismatic lens as retro reflective elements and conforming to ASTM D 4956-09 Type VI specification values for reboundable sheeting. AFP sheeting shall be of 1ft width with a 50 micron thick Aluminum (Al) foil with pressure sensitive adhesive and liner. AFP sheeting shall have screen printed arrow/slant line pattern in black color on top & shall not crack when tested for flexibility as per section S2.2.2 of ASTM D 4956-09. The AFP sheeting shall be applied with a neoprene contact adhesive with Polychloroprene as base & the edges of the product shall be sealed all around with a two-part epoxy based structural adhesive and shall be extremely resistant to peel-off & shall confirm to IRC 79-2019. The AFP shall be provided with govt test report from ARAI/ CRRI/ ICAT and report confirming to coefficient of retro reflection, Flexibility and impact resistance test as per ASTM which shall be submitted to engineer-in-charge before installation/ award of work.		sqm	69	0	10843	10912
34.57	**Retro Reflective Printed Sign Board Facia with 10 year warranty**						
	Design, manufacturing and assembly of retro reflective sign face (measured in Sq. or rectangular shape) made from micro prismatic Type XI sheeting as per ASTM D-4956-09 pasted on 4mm thick ACP/ ACM. Special Inks used for printing letters/ legends/ directions/ theme shall be certified for low volatile organic compound emission & shall be water based ink (non solvent & non eco solvent ink) with durability of 10 years atleast. The reflective sheeting signage facia shall be covered with ultra voilet overlaminate transparant film. The signage facia shall be warranted for 10 years as per IRC 67 and shall be supplied with government test report of 3 year outdoor weathering test conducted in India condition as per IRC 67-2012.		sqm	46	1182	5702	6930
34.58	**Pre-formed patterned pavement marking tapes for dry and wet reflectivity as per IRC 35 with 4 year warranty**						

	Providing and laying of pre-formed patterned pavement marking tapes, with pre-coated self-adhesive, having abrasion-resistant high refractive index microcrystalline ceramic beads bonded to a highly durable top coat, having a nominal thickness of 2.0 mm at pattern heights, meeting the requirements specified in ASTM D4505-12. The patterned surface shall have approximately 50% ± 15% of the surface area raised and presenting a near vertical face, angled from 0 degree to 60 degree, to traffic from any direction. All microcrystalline ceramic beads shall have a minimum index of refraction of 1.85 and/or 2.4 and ceramic beads shall show resistance to corrosion on exposure to a 1% solution of sulfuric acid. The applied marking surface to be level, uniform and free from streaks, cracks and holes. Markings shall have initial average skid resistance value of at least 45 BPN when tested according to ASTM E303 and meet the initial retro reflectance average values. The product shall be warranted for 4 years.		sqm	6	33	9955	9993
34.59	**Flexible Spring Post**						
	Providing and fixing of Flexible spring post wherein post and base shall be made from Poly urethane. The post shall be semi flat and semi circular in construction. The flat surface of the post shall be used for displaying department name/ logo.The product shall be flexible which help in returning the post to its original position without damaging the product or vehicle. The retro reflective tape applied on the post shall be as per ASTM D 4956 and shall be tested as per clause S2 of ASTM 4956 for flexibility, adhesion and impact resistance of reboundable sheeting. The message area for printing retro reflective area shall be 100 X 400 mm. The height of the post shall be 750 mm, the width of the post shall be 120 mm. The flexible spring post shall be applied in gaps in median, traffic islands, dangerous bends, roundabouts, narrow bridges etc. or as desired by site engineer.		nos.	5	0	1752	1757

CHAPTER NO. 35

MISCELLANEOUS (ROADS)

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CHAPTER 35.0 - MISCELLANEOUS (ROADS)							
(GEOSYNTHETICS AND REINFORCED EARTH, RIVER PROTECTION, REHABILITATION and REPAIRS OF ROAD & BRIDGES)							
Item No.	**Description**	**Ref. MORTH (Specifications**	**Unit**	**Labour Rate**	**Machinery Rate**	**Material Rate**	**Through Rate**
35.1	**Sub-Surface Drain with Geotextiles**	702					
	Construction of sub surface drain 200 mm dia using geotextiles treated with carbon black with physical properties as given in clause 702.2.3 formed in to a stable network and a planar geocomposite structure, joints wrapped with geotextile to prevent ingress of soil, all as per clause 702 and approved drawings including excavation and backfilling		running metre	321	0	255	576
	Surplus excavated material to be used at site. Hence seprate cost for disposal not added.						
35.2	**Narrow Filter Sub-Surface Drain**	702.4					
	Construction of a narrow filter sub- surface drain consisting of porous or perforated pipe laid in narrow trench surrounded by a geotextile filter fabric, with a minimum of 450 mm overlap of fabric and installed as per clause 702.3 and 309.3.5 including excavation and backfilling		running metre	321	0	254	575
	Surplus excavated material to be used at site. Hence Separate cost for disposal not added.						
35.3	**Laying Paving Fabric Beneath a Pavement Overlay**	703					
35.3.1	Providing and laying paving fabric with physical requirements as per table 704-2 over a tack coat of paving grade Bitumen VG - 10, laid at the rate of 1 kg per sqm over thoroughly cleaned and repaired surface to provide a water resistant membrane and crack retarding layer. Paving fabric to be free of wrinkling and folding and to be laid before cooling of tack coat, brooming and rolling of surface with pneumatic roller to maximise paving fabric contact with pavement surface		sqm	3	2	106	110
35.3.2	Supply of Hybird Geo Synthetic Non-Woven Glass Fibre Engineering Paving Mat Weight 136 GSM, Melting Temperature 200 °C Meeting MoRTH Specification for Roads and Bridges Works.		sqm	3	0	227	230
	Specifications: Laid over Tack coat under final top Asphalt/Bituminour layer on Roads						
35.4	**Laying Boulder Apron in Crates of Synthetic Geogrids**	704					
	Providing, preparing and laying of geogrid crated apron 1 m x 5 m, 600 mm thick including excavation and backfilling with baffles at 1 metre interval, made with geogrids having characteristics as per clause 704.2, joining sides with connectors/ring staples, top corners to be tie tensioned, placing of suitable cross interval ties in layers of 300 mm connecting opposite side with lateral braces and tied with polymer braids to avoid bulging, constructed as per clause 704.3. filled with stone with minimum size of 200 mm and specific gravity not less than 2.65, packed with stone spalls, keyed to the foundation recess in case of sloping ground and laid over a layer of geotextile to prevent migration of fines, all as per clause 704 and laid as per clause 2503.3 and approved design.		cum	279	0	3517	3796
35.5	**Reinforced Earth Structures**	3100					
	Reinforced earth Structures have four main components as under:						
	a) Excavation for foundation, foundation concrete and cement concrete grooved seating in the foundation for facing elements (facia material).						
	b) Facia material and its placement.						
	c) Assembling, joining with facing elements and laying of the reinforcing elements.						
	d) Earth fill with granular material which is to be retained by the wall.						
	Each component is analysed separately as under:						
	considering Average height of wall = 8 m.						
35.5.1	**Assembling, joining and laying of reinforcing elements.**	3102					
	With reinforcing element of steel / polymeric strips.		running metre	8	0	225	234
35.5.2	With reinforcing elements of synthetic geogrids		sqm	13	0	115	128
35.5.4	**Facing elements of RCC as per clause 3104 of MORT&H specifications**	3104	sqm	25	34	1342	1402
	1.The specification and construction details to be adopted shall be as per section 3100 of MoRTH Specification.						
	2.Drainage arrangement shall be made as per approved design and drawings.						
	3.The quantity of filler media shall be calculated as per approved design and specifications and shall be priced separately: Graded stone aggregates Item 27.10 (MORTH 13.10)						

(GEOSYNTHETICS AND REINFORCED EARTH, RIVER PROTECTION, REHABILITATION and REPAIRS OF ROAD & BRIDGES)							
	4.Excavation for foundation including foundation concrete and groove in the foundation for seating of bottom most facia panel and capping beam to be calculated as per design and priced separately. The rates for excavation and foundation concrete shall be taken from the chapter 12 & 13 in bridge section.						
	5.The earth fill to be retained is not included in this analysis. The same is to be worked out and provided separately complete as per clause 305.						
	6.For compaction of Earthwork, attention is invited to clause 3105.5 of MoRTH Specification.	,					
	7.Length of reinforcing strips will vary with the height of wall and will be as per approved design and drawings.						
	8.The type of reinforcing elements to be adopted shall be as per approved design and specifications.						
	9.The market rate for supply of reinforcing elements and their accessories are to be ascertained from reputed firms in the field of earth reinforcement.						
	10.The earth fill material shall be clean, free draining, granular with high friction and low cohesion, non-corrosive, coarse grained with not 10 per cent of particles passing 75 micron sieve, free of any deleterious matter, chlorides, salts, acids, alkalies, mineral oil, fungus and microbes and shall be of specified PH value.						
	11.Capping beam is to be priced separately as per approved design. The rate for cement concrete shall be taken from the chapter of sub-structure in bridge section.						
	12.The cost of reinforced earth retaining wall shall include following:						
	(I) Excavation for foundation including backfilling.						
	(ii) Foundation concrete as per approved design.						
	(iii) Cost of facial pannels and their erection .						
	(iv) Cost of reinforcing elements including their fixing and joining with the facial pannels.						
	(v) Drainage arrangement including filter media as per approved design and drawings.						
	13. The compacted earth filling to be retained shall form part of embankment.						
	PIPE CULVERTS						
35.6	**Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.**	2503					
	Boulder Laid Dry Without Wire Crates.		cum	503	0	1116	1619
	Including excavation for trimming for preparation of bed.						
	Nominal excavation required for preparation of bed has been taken into account while making provision for labour.						
35.7	**Boulder Apron Laid in Wire Crates**	2503					
	Providing and laying of boulder apron laid in wire crates made with 4mm dia GI wire conforming to IS: 280 & IS:4826 in 100mm x 100mm mesh (weaved diagonally) including 10 per cent extra for laps and joints laid with stone boulders weighing not less than 40 kg each.		cum	338	0	2005	2343
	Including excavation for trimming for preparation of bed.						
	Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.						
35.8	**Cement Concrete Blocks (size 0.5 x 0.5 x 0.5 m)**	2503					
	Providing and laying of apron with cement concrete blocks of size 0.5x0.5x0.5 m cast in-situ and made with nominal mix of M-15 grade cement concrete with a minimum cement content of 250 kg/cum as per IRC: 21-2000.		cum	0	0	4878	4878
35.9	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	2504					
35.9.1	**Stone/Boulder**		cum	503	0	1116	1619
35.9.2	**Cement Concrete Blocks of size 0.3x0.3 x0.3 m cast in cement concrete of Grade M15**		cum	0	0	4878	4878
35.10	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	2504	cum	529	0	1800	2329
	Includes Mazdoor required for trimming of slope to proper profile and preparation of bed.						

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35.11	**Geotextile Filter**	700 & 2504					
	Laying of a geotextile filter between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching.		sqm	17	0	115	132
	Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.						
35.12	**Gabian Structure for Retaining Earth**	2503.3					
	Providing and construction of a gabian structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire		cum	235	0	2216	2451
35.13	**Gabian Structure for Erosion Control, River Training Works and Protection works**	2503.3					
	Providing and constructing gabian structures for erosion control, river training works and protection works with wire crates of size 2 m x 1 m x 0.3 m each divided into 1m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10 sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 mm x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be securely tied with 4 mm galvanised steel wire.		cum	247	0	3578	3824
	Readymade woven wire crate rolls have been considered in the rate analysis. In case readymade rolls are not available, GI wire 4mm dia. @ 32 kg per 10 sqm may be provided. In that case 2 per cent of the cost of GI wire may be added for weaving the wire crates.						
	REPAIR AND REHABILITATION						
35.14	Removal of existing cement concrete wearing coat including its disposal complete as per Technical Specification without causing any detrimental effect to any part of the bridge structure and removal of dismantled material with all lifts and lead upto 1000 m	2809	sqm	43	32	0	76
35.15	Removal of existing asphaltic wearing coat comprising of 50 mm thick asphaltic concert laid over 12 mm thick mastic asphalt including disposal with all lift and lead upto 1000 m.	2809	sqm	32	25	0	56
35.16	Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical Specification	2807	sqm	82	57	591	730
35.17	Providing and inserting nipples with approved fixing compound after drilling holes for grouting as per Technical Specifications including subsequent cutting/removal and sealing of the hole as necessary of nipples after completion of grouting with Cement/Epoxy	2800	no.	94	0	65	159
35.18	Sealing of cracks/porous concrete by injection process through nipples/Grouting complete as per Technical Specification.	2806					
35.18.1	**Cement Grout**		kg	114	23	7	144
35.18.2	**Cement Mortar (1:1) Grouting**		kg	114	23	4	141
35.19	Patching of damaged concrete surface with polymer concrete and curing compounds, initiator and promoter, available in present formulations, to be applied as per instructions of manufacturer and as approved by the Engineer.	2800	sqm	63	45	644	753
	This item is a proprietory item available in market as pre-packed polymer concrete and is required to be applied as per instructions of the manufacturer.						
35.20	Sealing of crack / porous concrete with Epoxy Grout by injection through nipples complete as per clause 2803.1.	2803	kg	114	284	464	862

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35.21	Applying epoxy mortar over leached, honey combed and spalled concrete surface and exposed steel reinforcement complete as per Technical Specification	2804	sqm	42	0	395	438
35.22	Removal of defective concrete, cleaning the surface thoroughly, applying the shotcrete mixture mechanically with compressed air under pressure, comprising of cement, sand, coarse aggregates, water and quick setting compound in the proportion as per clause 2807.1., sand and coarse aggregates conforming to IS: 383 and table 1 of IS: 9012 respectively, water cement ratio ranging from 0.35 to 0.50, density of gunite not less than 2000 kg/cum, strength not less than 25 Mpa and workmanship conforming to clause 2807.6.	2807	sqm	42	80	118	241
35.23	Applying pre-packed cement based polymer mortar of strength 45 Mpa at 28 days for replacement of spalled concrete	2800.00	sqm	42	0	506	548
35.24	Eproxy bonding of new concrete to old concrete	2805.00	sqm	42	0	140	183
35.25	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestessing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification	2810.00	tonne	10178	9062	265277	284517
	Span assumed: 25 m						
	No. of cables: 4 no.						
	No. of anchorages : 8 no.						
35.26	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestessing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification	2810	tonne	8154	4435	260078	272667
	Span assumed: 50 m						
	No. of cables: 4 no.						
35.27	Providing external prestressing with high tensile steel wires/strands including drilling for passage of prestessing steel, all accessories for stressing and stressing operation and grouting complete as per drawing and Technical Specification	2810	tonne	8109	2498	250120	260727
	Span assumed: 100 m						
	No. of cables: 6 no.						
	No. of anchorages : 12 no.						
35.28	**Replacement of Bearings complete as per Technical Specification**	2808					
	Lifting of superstructure span by jacking up from below i.e. by placing the jacks on pier/abutment caps for span length of 30m.		no.	6801	0	142031	148833
	The work entails replacement of all the bearings on one side of the span.						
35.29	Rectification of Bearings as per Technical Specifications	2808	no.	6801	0	0	6801
	The rectification of 3 bearings included in this analysis are on the same side of the span.						
35.30	Replacement of Expansion Joints complete as per drawings		running metre	229	0	1630	1859
	The rate for the installation of new expansion joints may be taken from the chapter on superstructure. Broken concrete will have to be replaced which has been included in this analysis.						
35.31	Replacement of Damaged Concrete Railing - Dismantling cost		running metre	212	19	0	231
	The rate for the provision of new railing may be adopted from the chapter on superstructure.						
35.32	Replacement of Crash Barrier.		running metre	423	19	0	442
	The rate for the construction of new crash barrier may be adopted from chapter 8 on Traffic and Transportation.						
35.33	Replacement of Damaged Mild Steel Railing		running metre	169	19	0	189

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35.34	Repair of Crash Barrier		running metre	42	0	129	172
	Repair of concrete crash barrier with cement concert of M-30 grade by cutting and trimming the damaged portion to a regular shape, cleaning the area to be repaired thoroughly, applying cement concert after erection of proper form work.						
	It is assumed that damage is to the extent of 10 per cent of the volume of concrete .This will require 0.30 cum of concrete.						
35.35	Repair of RCC Railing		running metre	9	0	127	136
	Carrying out repair of RCC M30 railing to bring it to the original shape.						
	It is assumed that damage is to the extent of 10 per cent .						
35.36	Repair of Steel Railing		running metre	17	0	256	273
	Repair of steel railing to bring it to the original shape						
	It is assumed that the damage to the steel railing is to the extent of 10 per cent .						

Annexure

LIST OF RECOMMENDED MAKES OF MATERIALS FOR USE

NOTES:

1. Unless identified in the nomencleture, the material of the first/standard quality from the following approved makes are to be used.

2. Material specified in the List of preferred Makes shall be got approved from Engineer in Charge before its use on work . Decision Engineer-in-Charge shall be final regarding selection of the makes.

3. In case it is estaiblished that the brands specified below are not avilable in the market, contractor shall submit alternative proposal for approval of the Engineer-in-Charge.

4. In respect of other materials, any ISI marked material can be used on the work with the prior approval of the Engineer-in-Charge. In such situation, cost adjustment (if required) shall be made after approval of the competent authority.

S. No.	Material	Approved Manufacturer/Brand Name
A.	**CIVIL WORKS**	
1	Ordinary Portland Cement / Portland Pozzolona Cement.	ACC, Birla,Ultratech, Ambuja Cement, J.K. Cement, Century Cement, Shree Cement, Jaypee Cement, CCI
2	White Cement	Birla White , J.K. White
3	RMC	ACC, Ultra Tech (Birla), RMC India, Lafarge, M/S NDCON Construction.
4	Reinforcement Steel	SAIL, TISCO, RINL, JSW, JSPL
5	Reinforcement coupler	Dextra, G-Tech
6	Structural Steel	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd.(RINL), JSW/Jindal
7	Polycarbonate Sheet	GE Plastic, LEXAN, DPI, Danpalon, Tuflite, Polygal
8	Profile steel sheet	Ezydeck of TATA, Lloyd Superdeck, JSW /Jindal
9	Galvanised/Galvalume Profile Sheets	Tata, Jindal, Kamdhenu
10	Sandwich Profile panel	Lloyd, Synergy, Metclo
11	Block Boards, Plyboards	DURO, CENTURY, Greenlam
12	Particle Board	Action TESA, Greenlam, Merino, Duro, Century
13	Laminates	Action TESA, Greenlam, Century Ply, Merino, Sunmica, Formica, Decolam
14	Prelaminated MDF Board	Green Penelmax, Marino, Veer, Century
15	Laminates	Vigro, Century, Merino, Greenlam, Legend, Orion
16	Plywood/MDF/Patical board	Vigro, Century, Greenlam, Legend, Orion
17	Flush door shutters (Decorative/Non Decorative)	Jayna, Century, Durian, Green ply, Merino, Dura Merino, Century ply, Greenlam
18	Wire gauge shutters	Jayna, A1 teak, MP wood
19	Fire Rated Doors	Signum Fire Protection, Shakti Metdoor, NAVAIR, Sukri, Promat International, Harman
20	Panelled doors	National, Swastik, Kitply, Orion
21	Wooden Door Frames and Shutters	Goyla, Jayna, Kutty
22	FRP Doors & Frames	Ashoo Model Arts, Selected Product Co., Fiberways, Jayna Doors of Jain wood Industries, Jain Doors Pvt. Ltd.
23	Plywood/ Veneer	Green ply, Century, Merino, Duro, Durian
24	Floor Spring & Door Closure	Godrej, Dorma, Dorset, Kich, Hardwyn,Hafele
25	Aluminium Section/profiles	Hindalco, Jindal, Indalco, Omalco
26	AnodisedAluminium Hardware (Heavy Duty)	Kilong, Alualpha, Classic, Hardima, Everite, Sigma, Earl Bihari, Dorma
27	Aluminium hinges	Classic/Argent/Crown
28	Door Fittings	Hafele, Dorma, Hardwyn, Godrej, Dorset
29	Stainless Steel hard ware fittings	Dorma, Hafele, Godrej, Geze, Dorset
30	S.S. Door & window & Fittings	Jindal, Dorma, Kich, Dorset, Godrej, Ozone , Hafele, Geze
31	Friction Stay Hinges	Earl-Bihari, Hettich
32	Steel Nuts, Blts and Screws	Kundan, Puja, Atul
33	Dash / Anchoring Fasteners	HILTI, Fischer, Bosch, Canon
34	M.S. tubular windows Press steel door frames	AGFUV, NCL Windoors, SEN HARVIC, NAVAIR, SUKRITI
35	UPVC Doors & Windows	Fenesta, Aluplast, NCL VEKA, Syntex, Jain Doors, Jayna
36	UPVC doors and window hardware	Rotto, Dorset, Kinlong
37	Locks/Latch	Godrej, Harrison, Plaza, Dorma, Yale, Dorset
38	Mortise Locks	Godrej, Everite, Ozone, Hettich
39	Hardware	Godrej, Everite, Hettich, Ozone
40	Anti Microbial hardware	Williams Architectural, Daro,Gainsborough
41	Door closers, floors springs	Godrej, Everite, Ozone
42	Veneers	Vigro, Century, Merino, Greenlam, Legend, Orion
43	Stainless steel wire mesh	Sterling enterprises, Trimurty
44	Spider Fittings	Droma, Sevax, Hettich
45	Hermitically Sealed Performance glass & Toughened glass.	Saint Gobin, Asahi, Pilington, Viracon (Processed by them or their approved Processors).
46	Colour coated GI Steel window / door frames	NCL Buildtek, Madhu Industries, Sen Harvic

47	False Ceiling System Metalic, Mineral Fibre, Gypsum	Armstrong, Hunter Douglas, USG Boral, Saint Gobain, Aerolite, Lloyd Insulations
48	Gypsum Board	Saint Gobain, USG.
49	Calcium Sillicate false ceiling i/c frame work	Aerolite, Hilux,Armstrong
50	Mineral Fibre Ceiling Panels	Armstrong, USG Boral
51	Metal Ceiling Panels	"Armstrong", HunterDouglas, "Durlum", "USG Boral"
52	Gypsum Board Ceiling	"Saint Gobain", "Armstrong", "Lafarge", USG Boral"
53	Clear/Float/Frosted/ Toughen Glass/ Refractive Glass	Saint Gobain, AIS, Modi, ASAHI, Glaverbel
54	Glass Panes	Modi Guard/Saint Gobain/ASAHI
55	Stainless Steel Railing, Accessories etc.	JINDAL, Dorma, Kich, GEZE, Godrej
56	Silicon based water repellant /Weather Sealant	G.E. Plastics, Dow Corning, Wacker, BASF, Pidilite
57	Poly-Sulphide Sealant	Fosroc, Pidilite, Markchem, Sika, BASF
58	Wooden Laminated Flooring	Pergo, Unitex, Armstrong, Epitome
59	Wood Flooring	Armstrong, Egger, Flcormaster, Haro.
60	Mosaic tiles/ Chequered Tiles	Ultra Tiles, NITCO, Nitco, Unistone, K.K Manhole
61	Ceramic Tiles	Kajaria, Somany, Johnson, Nitco, Orientbell, Oasis, Varmora
62	Vitrified Tiles (Antiskid/Matt/Glazed) (Double glazed)	Kajaria, Somany, Kajaria, Johnson, Nitco, Oasis, Varmora
63	Unglazed Vetrified Heavy Duty Tiles	Johnson-(Endura), Somany-(Dura Stone), Kajaria, Oasis, Varmora
64	Mosaic Tiles	Somany Neelnox, Kristalz, Inex, Sanstone
65	Paver block & Kerb Stone	Pavcon, KK, Oswal Industries, NITCO, TUFTEK, Hindustan Tile
66	Clay Tile for roof	KENJAI, JOHNSON
67	Anchors & Fasteners	Hilti, Rawlplug or Equivalent
68	Wood Wall Panelling	Armstrong, Seasoned natural product
69	Acoustical Wall Panelling	Armstrong, Anutone
70	Toilet Partitions	Merino, Green-Lam
71	Furniture / Cabinets	HermanMiller, Godrej
72	Modular Kitchen	Hafele, Veneta Cucine, Hacker, Hettich
73	Drywall Partitions	Gyproc-Saint Gobain", USB Boral
74	Aluminum Louveres	"Hunter Douglas', Colt, CS, Gordan, KNAUF
75	Cement Based Wall putty	Birla White, JK White, Berger, Asian Paints
76	Oil Bound Washable Distemper / Dry Distemper	Asian Paints, Nerolac, Berger, Dulux ICI
77	1st Quality Acrylic Distemper (washable/Ready mix/ Low VOC)	Asian Paints, Nerolac, Berger, Dulux ICI
78	Plastic Emulsion Paint	Asian Paints, Nerolac, Berger, Dulux ICI
79	Premium Acrylic Emulsion Paints (Interior)	Asian Paints, Nerolac, Berger, Dulux ICI
80	Textured Exterior Paint	Asian paints, Nerolac, Berger Paints, Ultratech Paints, Spectrum, Heritage
81	Acrylic Smooth Exterior Paint	Asian Paints, Nerolac, Berger, Dulux ICI
82	Plaster of Paris	Shree Ram/Adhar Shree/Sakami/JK Cement
83	Premium Acrylic Smooth Exterior Paint with Silicon additive	Asian Paints, Nerolac, Berger, Dulux ICI
84	Synthetic Enamel Paint	Asian Paints, Nerolac, Berger, Dulux ICI
85	Cement Primer	Asian Paints, Nerolac, Berger, Dulux ICI
86	Steel Primer(Red Oxide Chromate Primer) Zinc	Asian Paints, Nerolac, Berger, Dulux ICI
87	Wood Primer	Asian Paints, Nerolac, Berger, Dulux ICI
88	Epoxy Paint	Asian, Nerolac, Berger, ICI
89	Fire Paint	Asian Paints, Akzo Nobel , PROMAT, Jotun
90	Water Proofing Cement Paint	Snowcem, Berger, ICI, Asian Paints
91	Melamine Polish	Asian Paints, Pidilite, ICI Dulux.
92	Water Proofing Compounds, Admixtures, Plasticizer,	Fosroc, Pidilite Industries, Markchem, CICO, Sika, , BASF
93	Integral Water proofing compound with cement (For Plaster & Mortar)	Fosroc, Markchem, JK cement, CICO
94	Grouts, Tile Adhesive	BASF, Ardex Endura, Markchem, Ferrous Crete, Pidilite, Scot Chemicals, STP Limited
95	Stone Adhesive	Pidilite - Fevimate excel, BASF, Markchem, Ardex Endura, MYK Laticrete
96	Injection Grouting	Pidilite, SIKA, Markchem, FOSROC
97	Curing compound	FOSROC, Sika, Markchem, BASF
98	Mould Releasing Agent	Marchem
99	High Tensile steel/ Polyproplyne/Glass fibre	Marchem, Owen Corning
100	PVC pipes & Fittings	Suprime, Finolex, AKG, SFMC
101	Plastic seat covers of W.C.	Commander, Diplomant, Hindware, Somany
102	PVC flushing Cistern	Commander Hardware (Slimline), Hindustan, Somany
103	CPVC Pipe & fitting	Astral, Supreme, Ashirwad, Prince
104	CI Pipes	Electro Steel, Kesoram
105	G.I. / M.S. Pipe	Tata, Jindal (Hisar), Praksh Surya
106	G.I. Fittings	Unik, AVR, Zoloto, ICS

107	HDPE Pipes	Reliance, Jain Pipes, ORIPLAST, Supreme
108	DI PIPES / Fittings	Electrosteel, Jindal, TATA, Kesoram,
109	RCC Pipes	Jain Pipe Co. (Newai), Mahaveer Enterprises (Newai), Work well spun pipes, Pali.
110	Gunmetal Valves (Full way chech Valves.)	Leader, Zoloto, SANT
111	Stone ware Pipes & Gully Traps	Prefect, parry, Anand
112	UPVC pipe and Fittings	Astral, Supreme, Ashirwad, Finolex
113	Centrifugally Cast (spun) Iron Pipes & Fittings	NECO, HIF, SKF, RIF,
114	MS Pipes	Kirloskar, Electro Steel.
115	Ball Valves	Zoloto, IBP, Arco
116	Butterfly Valves	Audco
117	G.I. Double Flanged Sluice Valves	Kirloskar, IVS, Burn
118	C.I. Double Flanged Non Return Sluice Valves	Kirloskar
119	Sluice Gate	Jash Yashwant / EEV / Oriental casting / Indian valve Pvt Ltd
120	CI double flanged swing check type reflux (non return) valves	aarko, venus, leader, bir, panja, upadhay
121	C.I. Manhole covers, frames & GI Gratings	NECO, Kapilansh, SKF, RIF,
122	SFRC Manhole covers & gratings	KK, JAIN, PARGATI
123	CP Brass Fittings (Superior Range)	Jaquar, Grohe, Roca, Somany, Kohler
124	CP Brass Fittings (Normal Range)	Hindware, Jaguar, Parryware, Somany, Prima
125	Sanitary ware, Fittings & accessories (Superior Range)	Kohler, Roca, Jaquar, Somany
126	Sanitary ware, Fittings & accessories (Superior Range)	Hindware, CERA, Jaguar, ROCA, Somany, Prima
127	Mirror Glass	Atul, Modi Guard, Jaquar, CERA
128	Stainless Steel Sink	Neelkanth, Niralli, Jyna
129	Fire Clay Sink & Drain Board	Parryware, Hindware, Cera
130	Extruded Polystrene Insulation Board	Dowcorning, Supreme, Texas, Analco
131	Heat Resistant Tiles	Swastik, Thermatek
132	Gypsum Plaster	Ferrous Crete, Gyproc Saint Gobain, UltraTech
133	Floor hardener	Ironite, Ferrok, Markchem, Hardonite
134	Modular Expansion Joint	Herculus, Sanfield India Ltd., Vexcolt
135	Expansion joint	Z-tech, Soperma
136	Expansion Joint/filler board/ Joint covers	Vexcolt, Dupont, Sanfield, Z-Tech, Insuboard
137	Glass Wool	Dow Corning, U.P. Twiga, Isover
138	AAC Block	UltraTech, Orilite, Seporex (Buildtex), HIL-Aerocon, Finecrete, RS Green
139	AAC Block Adhesive	Xtralite, Ardex Endura, Markchem, Ferrous Crete
140	Bitumen	Indian Oil, Hindustan Petroleum, Bharat Petroleum
141	APP	Bitumin co. Ltd, STP, Dermabit Technow NICOL/Torchtar
142	PVC/Synthetic Water Storage Tank	Sintex/Uniplast, Polycon
143	Indian/European WC, Wash Basin and other Sanitary Installation	Parryware, Hindware, Cera, Jaquar, Hindustan
144	Bevelled Edge Mirror	ATUL/JOLLY/MODIGAURD
145	Glass reinforced Jali	Uni Stone,Dalal, Ultra Tech
146	Bamboo wood products	Epitome, Eco Products
147	Fiber Cement Board / Cement Board	Bison, Hicem, Everest
148	Gypsum Board Partition	Saint Gobain Gyproc, USG Boral, Armstrong, Vans Gypsum
149	Aluminium Composite Panels (ACP) / Honeycomb Composite Panels/Zinc Composite Panels	Alucobond, Reynobond, Alubond, Alstrong
150	Transformers	Kirlosker, Crompton & GEC
151	Diesel Engine	field marshal, bright India King
152	Chlorinator	Fontus
153	HDPE Tank	Sintex
154	Signages	Proplite, 3M, Ozone
155	Fire Check Door	Navair
156	Fire Check Door Hardware	Blocker FS
157	Non fire door Hardware	Blocker FS
158	Fire rated Glass	Pyrobeck
159	Fire Cut Smoke Curtain	NERCO or equivalent
160	Signages	Prolite, Ozone
161	Terracotta Dry cladding for exterior walls	Hunter Douglas, Terreal, NBK, Moeding, AgrobBuchta
162	Carpet Tiles and Rolls	Forbo flotex, Floor Master, Modulys, Aqua, Carus
163	Standing seam metal roofing system	Kingspan, Sanko, Interfal
164	Vinyl flooring	Polyfloor, Haro, Armstrong or Equivalent
165	Paver Block	Dalal tiles Pvt Ltd or Equivalent
166	AAC Block	HIL ltd, Fine Crete or Equivalent
167	Modular Wardrobe	Williams Architectural, Daro,Gainsborough,Hulsta

168	EPDM Granule Flooring/surface	RCJ Enterprices- Colorplay EPDM Granuels, ALP Overseas EBACO india, Synotts International
169	Raft Retaning wall Water proofing with fully bonded membrane	Soperma, Isoletma, Sintec
170	Over deck water proffing PU membrane	Soperma, Isoletma, Sintec
B.	**ELECTRICAL ITEMS**	
1	CABLE	Finolex / POLYCAB/ KEI/ UNIVERSAL/ Havells/ Lapp Kabel/ Bonton/ Ravin/RR KABEL
2	CABLE TRAY	Slotco / Apex / Indiana / Steelway / Venus / Super
3	WIRE with copper conductor	Havells/ KEI/ Finolex/ Polycab
4	CONDUIT: PVC	AKG, PRECISION, Finolex, Anchor,
5	CONDUIT: MS	AKG /BEC / NIC
6	DWC pipe	Duraflex, Finolex, Jain irrigation, Tirupati
7	Switch & Socket/ Industrial Socket/ Fan Regulator/ Metal Boxes , swtching Accessories (MODULAR TYPE)	NORTH WEST(Stylus) /Anchor Panasonic- Vision or Ave / Legrand (Arteor) / Schneider ZENCELO
8	Switch & Socket/ Industrial Socket/ Fan Regulator/ Metal Boxes , swtching Accessories (CONVENTIONAL TYPE)	Anchor , CONA, Vinayak, Kinjal
9	FANS : Ceiling/Exhaust/kitchen fresh air	Havells, Bajaj, Crompton, USHA, Khaitan ,Atomberg, Orient
10	Electrical Geysers for Hot water	RACOLD/HAVELLs/CROMPTON/ Orient
11	LUMINAIRES/ Light fittings	PHILIPS / REGENT / WIPRO/ Bajaj/Crompton/Havells
12	ACB, MCCB, MCB ,timer, SFU , Changeover switch, indicating Lamps, Meters	ABB / Siemens / Schneider / L&T / Legrand/C&S
13	PANEL and Feeder Pillars : Manufacturers/builder	Siemens / L&T / Schneider Electric /ABB/LEGRAND/C&S or their Certified Licenced Channel partners/System Integrators
14	HVAC: GI SHEET for ducting	TATA / SAIL / Jindal
15	HVAC : Grille / Diffuser /Volume control dampers/ Fire Dampers	Trox / System Air/ Carryaire/ Airmaster/ Titus/ Air Flow/ Conair/ Mapro/ Opella/ MEI
16	HVAC : VRV/SPLIT /Window AC	Carrier Aircon / Voltas /Blue Star/ Panasonic/ O GENERAL/ HITACHI/ DAIKIN
17	INSULATION i/c PUF, Fibre GLASS, Rock Wool, Phenolic Foam, Nitrile rubber	TWIGA/LLOYD INSULATION/ Supreme Industries/ Owens Corning/ ARMAFLEX
18	VALVES	LEADER,SANT, ZOLOTO, BUGATTI, AUDCO, C&R, KSB