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PUBLIC WORKS DEPARTMENT

SCHEDULE OF RATES FOR BUILDINGS 2021 - 2022

VOLUME 2

GOVERNMENT OF KARNATAKA

PUBLIC WORKS DEPARTMENT

SCHEDULE OF RATES FOR BUILDINGS

2021 - 2022

VOLUME - 2

PREFACE

1. The Karnataka Schedule of rates for Buildings comprising of the Specifications, Rate Analysis & Technical details is a comprehensive document for the State Engineers. It consists of the following chapters prepared by Superintending Engineers of Public Works Department under the authority of Chief Engineers of various PWD zones as per GO No : PWD 69 RDF 2020 DATED 11-01-2021.

Sl No.	Chapter	Prepared By SE, PWD
1	Earthwork	Ballari
2	Concrete	Ballari
3	Mortar	Ballari
4	Anti Termite Treatment	Bengaluru
5	Masonry	Ballari
6	Stone Masonry	Ballari
7	Roofing	Hassana
8	Finishing	Dharwada
9	Flooring	Bengaluru
10	Cladding	Bengaluru
11	Steel &Aluminium	Dharwada
12	Wood & PVC Work	Buildings Circle, Bengaluru
13	Water Supply & Drainage works	Shivamogga
14	Sanitary Works	Hassana
15	Water Proofing	Bengaluru
16	Energy Conservation Building Code	Bengaluru
17	Rain Water Harvesting	Belagavi
18	Structural Glazing &Aluminium Composite Panel	Kalaburgi
19	Dismantling & Demolition	Mangaluru
20	Repairs to Buildings	Mysuru
21	Conservation of Heritage Structures	Mysuru

2. The Karnataka schedule of rates for Buildings is prepared considering the current market rates of materials in the PWD Bangalore division jurisdiction and the minimum wages for labour as per the labour department of Karnataka circular wef 01-04-2021.

3. The material rates in the SR are exclusive of GST.

4. The basic structure of the rate analysis is adopted as per the recommendation of the Technical Working Group with the adequacies of CPWD and KPWD with modifications. The rate analysis is reworked based on the first principles and inputs from Technical Working Group and Industry experts and as per actual site experience.

5. In order to unify the rate analysis, preparation methodology for Buildings, Roads & Bridges and as per recommendations of Technical Working Group, the labour welfare cess as per Building Construction workers (Regulation & Employment and Conditions of service) act @ 1% which was subsumed in the Rate analysis is extracted from all the items and given in the form of Contractor's profit over Overhead charges as prevailing in MoRTH.

   Definition of Overhead charges at 10%:The Committee has defined the items covered under Overhead Charges of 10% as:

Supervision	4%
Site office, store shed	3%
Labour Amenities, Workmen compensation Act	2%
Quality Control, lab test	1%
Total	10%

   Definition of Contractors Profit at 10%:For theProcurement of Materials, Mobilization of Labour and Machinery, Livelihood for executing the work.

   If not specifically indicated in the items themselves, the rates appearing in this schedule are inclusive of cost of all supply, carriage, handling, fitting, fixing, toll charges and all other incidental works involved in any floor, at any level including all necessary jointing materials, scaffolding to any height, usage charges of tools and plants, and all ancillary materials but exclusive of GST.

   To arrive at complete rate of different items in this Schedule, 1% Sundries, 1% water charges, 10% overhead and 10% contractor's profit have been considered along with the aforesaid material cost, labour cost and other cost etc.

6. The area specific loading as per Vol-1 Common SR shall be added to the finished rate of items mentioned in this Schedule of rates.

7. ***Issue rates :*** "*The prevailing market rates of cement & steel will be assessed and the basic rates shall be approved by the Superintending Engineer PWD & published quarterly i.e., 1st April, 1st July, 1st October & 1st January whenever the variation in price is more/less than 10% over the previously approved rates*". *Rates are to be calculated and issued for OPC, PPC, PSC, TMT Bars, Mild Steel and Structural Steel and Bitumen etc., The Superintending Engineer shall issue office memorandum with wide publicity and obtain rate from GST registered vendors.*

8. ***Non-scheduled Rates :*** For the items which are not included in the Schedule of Rates termed as *Non-Scheduled item rates* shall be approved by the respective PWD Circle Superintending Engineers. *The technical sanctioning authority may decide rates of such non-schedule items judiciously based on market : basic rates without adding area specific loading.*

9. Reference codes : Wherever any reference is made to any Indian Standard, American Society of Testing Materials or British Standards, it shall be taken as reference to the latest edition with all amendments issued thereto. In the event of any variation between the Buildings specifications and the reference Standard, the former shall take precedence over the latter. The rate analysis with related IS codes are self explanatory for the procedure to be followed during construction

10. The rates in the Schedule of Rates are inclusive of all lead and exclusive of lift charges.

11. The floor height, space requirements, occupancy loads shall be as per NBC 2016 Chapter 4 and floor height for calculation purpose is considered as 3.60m and for every subsequent floors, the lift charges shall be paid separately.

12. Safety in Construction : The contractor shall employ only such methods of construction, tools and plant as are appropriate for the type of work or as approved by the Engineer-in-Charge in writing. The contractor shall take all precautions and measures to ensure safety of works and workmen and shall be fully responsible for the same. Safety pertaining to construction works such as excavation, centering and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and gas welding, use of hoisting and construction machinery shall be governed by relevant safety codes and direction of the Engineer-in-Charge.

13. All works shall be carried out with due regard to the convenience of the occupants and the arrangement and programme of work must be adjusted accordingly. In case of works within Jails, Hospitals and restricted areas etc. the Rules & Regulations of Authorities concerned must be strictly followed. The rates given in the Schedule are deemed to be inclusive of all such factors and contingencies.

14. All materials, tools and plants are to be arranged for the work. All labours (Skilled & Unskilled) including their housing, sanitation, procurement of food stuff, medical aids etc. are to be arranged by the contractor. Cost of transport of labour, materials and all other relevant items shall have to be borne by the contractor.

15. Materials obtained by dismantling Government structures or parts thereof shall remain the property of Government. The contractor shall sort out and stack the serviceable materials within the premises and also dispose of the unserviceable rubbish etc. as per instruction of the Engineer-in-Charge or his representative. The contractor shall remain

the custodian of such dismantled materials till the charge of the same is taken over by the Engineer-in-Charge or his representative.

16. Carriage of materials (unless specifically considered in the Rate Analysis) is the sole responsibility of the contractor for which no extra payment shall be made. The contractor shall use his judgment to decide on unloading dismantled materials in appropriate places.

    In extraordinary cases, where the area for disposal is not available in the respective district limits, extra provision shall be decided by the Executive Engineers with due approval from Superintending Engineers.

17. The usage of River Sand is discouraged and recommends for adoption of M-Sand or Processed Sand for construction works. However, if the availability of River Sand is abundant, separate data may be prepared by the concerned Superintending Engineers.

18. The storage and stacking of Building materials like Cement, Bricks, Concrete blocks, M-Sand, Steel, Flooring tiles, Timber& Paints shall be done by the contractor in an appropriate way as directed by the Engineer in charge. The Engineer shall check and certify the pattern & quality of the same before adopting in construction works.

19. The TMT steel used in construction works should conform to IS 1786 / IS 2830 for both Physical and Chemical tests and the same shall be tested by departmental Quality Assurance laboratories.

    The reinforcement including authorized spacer bars and overlaps shall be measured in lengths for different diameters, as actually used in works nearest to a centimetre and their weight calculated on the basis of coefficient as per standard table given below. Wastage and un-authorised overlaps shall not be paid for.

Cross Sectional Area and Mass of Steel Bar as per IS: 1786-2008

Dia of the bar (mm)	Cross sectional area in mm2	Mass per m run in kg
6	28.3	0.222
8	50.3	0.395
10	78.6	0.617
12	113.1	0.888
16	201.2	1.58
18	254.6	2.00
20	314.3	2.47
22	380.3	2.98
25	491.1	3.85
28	615.8	4.83
32	804.6	6.31

36	1018.3	7.99
40	1257.2	9.86

20. The rates of materials indicated in the SR are only for deriving the finished rates of items and for working out data rates and shall not be adopted for making direct payments.

21. The Cement co-efficients adopted in the SR are as per Chief Engineer, Quality Assurance Zone, Bengaluru letter no. CE:QAZ:BNG:TS:AE-3:2020-21 :709 DATED 17-03-2021 as follows

Sl No.	Grade of Concrete	Cement Co-efficient in kg/m3
1	M20	320
2	M25	340
3	M30	360
4	M35	390
5	M40	420

22. As per recommendations of Technical working group, rates for formwork shall be added on percentage basis to the finished concrete item rate as per table below :

Sl No.	Type of structure	Percentage on finished rate of concrete per m^3
1.	Foundation upto Plinth	-
	Isolated	8%
	All other types	3%
2.	Foundation, Sub structure	5%
3.	Columns & Piers	10%
4.	Beams & Lintels of Building	20%
5.	Roof (Straight & Arched)	20%
6.	Roof (Curved)	22%
7.	Plastering & Painting of New walls & Ceiling	25%
8.	Painting of old walls & ceiling	20%
9.	Architectural projection of major sections	30%
10.	Domes & Sloped roofs	45%
11.	Chejjas, Canopy & Other Architectural projections of minor sections	45%

23. While using RMC, taking out the samples at worksite is mandatory for conducting necessary tests. It is the responsibility of the contractor to assure and ensure quality of RMC at workspot as per mix design for which the Executive Engineer shall obtain necessary test certificates as per IS standards.

24. The items related to Construction & Demolition waste are included in the SR according to the rules specified by National Green Tribunal – SLC & Govt letter no. PWD 95 EAP 2021 dated 15-03-2021.

25. For the works carried out in other states, respective state SRs shall be followed. Eg. For the Works in Tirumala, Andhra Pradesh State SR shall be followed.

26. The '*Engineer-in-Charge*' shall mean the Executive Engineer of the Division concerned. The Sub divisional Officer concerned is authorized to carry out on behalf of the '*Engineer-in-Charge*' general supervision, day to day instructions with approval of materials and workmanship. In case of dispute, the decision of the '*Engineer-in-Charge*'shall be final and binding.

27. The GST of 12% shall be added separately to the estimate as per Govt Order No. PWD 51 RDF 2019, Bengaluru Dated : 18-03-2022.

28. Adoption of SI units in all construction work is made mandatory as per recommendation of Technical Working Group.

29. As per the GO : PWD 51 RDF 2019, Bengaluru Dated : 18-03-2022. The Common SR for Engineering Departments (Vol-1) along with the New SR for Buildings named "Karnataka Schedule of Rates for Buildings (Vol-2)" is issued w.e.f 18-03-2022.

30. Due care has been taken to prepare the *Revised Specifications & Rate Analysis for Buildings 2021-22* to the best of efforts. However, errors might have crept in inadvertently. Any mathematical errors are noticed and in case of any error or omission in the rate analysis, it may be brought to the notice of the undersigned, so that the same can be attended to. Suggestions for improvement are welcome.

Sd/-
(B. H. Manjunath)
Member Secretary
Technical Working Group
& Superintending Engineer
Public Works Department, Bengaluru Circle

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i. International System of Units (SI)

- Basic units: * meter (length) * kilogram (mass) * second (time) * Ampere (electric current) * degrees Celsius (temperature) * (luminous intensity)
- It is equal to a Newton per square meter and corresponds to the familiar pounds per square inch (psi): 1 psi = 6.89 kilopascal.
- The following are some of the common conversion factors for SI Unit conversions.

Quantity or Test	Value in Trade or Customary Unit	X	Conversion Factor	=	Value in SI Unit	Symbol
Area	square inches		6.45		square centimeters	cm^2
	square feet		0.0929		square meters	m^2
	square yards		0.836		square meters	m^2
	acres		0.405		hectares	ha
Basis Weight* or	lb (17x22-500)		3.760		grams per square meter	g/m^2
Substance	lb (24x36-500)		1.627		grams per square meter	g/m^2
(500-sheet ream) or	lb (25x38-500)		1.480		grams per square meter	g/m^2
Grammage* when	lb (25x40-500)		1.406		grams per square meter	g/m^2
expressed in g/m^2	pounds per 1000 sq ft (Paperboard)		4.882		grams per square meter	g/m^2
Breaking Length	meters		0.001		kilometers	km
Burst Index	g/cm^2		0.0981		kilopascals	$KPa.m^2/g$
	g/m^2				grams per square meter	g/m^2
Bursting Strength	pounds per square inch		6.89		kilopascals	kPa
Caliper	mils		0.0254		millimeters	mm
Concora Crush	pounds		4.45		newtons	N
Edge Crush	pounds per inch		0.175		kilonewtons per meter	kN/m
Energy	British thermal units (Btu)		1055		joules	J
Flat Crush	pounds per square inch		6.89		kilopascals	kPa
Force	kilograms		9.81		newtons	N
	pounds		4.45		newtons	N
Length	angstroms		0.1		nanometers	nm
	microns		1		micrometers	µm
	mils		0.0254		millimeters	mm
	feet		0.305		meters	m
Mass	tons (2000 lbs.)		0.907		metric tons	t
	pounds		0.454		kilograms	kg
	ounces (avd p)		28.3		grams	g
Mass per Unit Volume	ounces per gallon		7.49		kilograms per cubic meter	kg/m^3
	pounds per cubic foot		1.60		kilograms per cubic meter	kg/m^3
Puncture Resistance	foot pounds		1.36		joules	J
Ring Crush	pounds (for a 6" length)		0.0292		kilonewtons per meter	KN/m
Stiffness (Taber)	gram centimeters (Taber Units)		0.0981		millinewton meters	mN• m
Tear Strength	grams		9.81		millinewtons	mN
Tensile Breaking Load	pounds per inch		0.175		kilonewtons per meter	kN/m
	kilograms per 15 millimeters		0.654		kilonewtons per meter	kN/m
Volume, Fluid	ounces (US Fluid)		29.6		milliliters	mL
	gallons		3.79		liters	L
Volume, Solid	cubic inches		16.4		cubic centimeters	Cm^3
	cubic feet		0.0283		cubic meters	m^3
	cubic yards		0.765		cubic meters	m^3

ii. Basic Cost of Materials

Sl.No.	Material Component	Unit	Basic Rate Rs.
001	Acid and alkali resistant tiles	10Nos	500.00
002	Acid Proof cement	t	7800.00
003	Acid proof paint (chocolate or black)	l	225.00
004	Acrylic distemper 1st quality having VOC content less than 50 grams/ l	kg	40.00
005	Acrylic emulsion having VOC content less than 50 grams/ l	l	94.00
006	Acrylic exterior paint	l	200.00
007	Acrylic Exterior Primer	l	100.00
008	Acrylic polymer base coating	L	310.00
009	Adhesive	kg	25.00
010	Adjustable Fastening Pawl for vision glass panel	each	35.00
011	Adjustable prop-2.0 x2.0 m	each	1080.00
012	Adjustment clip 85x30x0.8mm	each	5.00
013	Allignment Bracket	each	475.00
014	Allignment Pipe - 3.00 Mtr.	each	995.00
015	Aluminium casement window fastener (Anodised AC 15)	each	48.00
016	Aluminium casement window fastener (polyester powder coated)	each	51.52
017	Aluminium casement window fastener (powder coated)	each	52.64
018	Aluminium Composite panel curved	m^2	3600.00
019	Aluminium Composite panel straight	m^2	3000.00
020	Aluminium Grill as per IS 1868	kg	279.00
021	Aluminium paint	l	150.00
022	Aluminium primer	l	120.00
023	Aluminium round shape handle (anodised AC 15) outer dia 100 mm	each	60.00
024	Aluminium round shape handle (polyester powder coated) outer dia 100 mm	each	62.00
025	Aluminium round shape handle (powder coated) outer dia 100 mm	each	60.00
026	Aluminium sheets Grade 5052, 4 mm thick for Internal Corner/ Column Corners/ (for form work)	m^2	11500.00
027	Aluminium sheets Grade 5052, 4 mm thick for Mid Soldier/End soldier (for form work)	m^2	32000.00
028	Aluminium sheets Grade 5052, 4 mm thick for wall panel/deck panel/ WRB panel/Kicker Panels/door closing panels (for form work)	m^2	8500.00
029	Aluminium Strip 40 mm wide and 2 mm thick	kg	240.00
030	Aluminium strips	m^2	254.00
031	Aluminium T or L Sections	kg	190.00
032	Aluminium washer 2 mm thick 15 mm dia	100 Nos	10.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
033	Aluminum tower bolts	Nos	58.00
034	Aluminum U Profile (For Edges)	m	225.00
035	Ammonium chloride	kg	22.00
036	Anchor Bolts 750mm	Nos	110.00
037	Anchor Fastener - M10 For one point spider fitting =12x2=24 nos,For two point spider fitting =2x2=4 nos For 400mm fin plates =5x6=30 nos Total=58 nos	each	10.00
038	Anchor Fastner - M10	each	10.00
039	Anchor Wing Nut Ø100 mm	each	64.00
040	Anodised Aluminium butt hinges 100x75x4 mm	10 Nos	393.00
041	Anodising 15 microns on aluminium sections	kg	38.00
042	Anodising 25 microns on aluminium sections	kg	48.00
043	Anti Dust Tape	m	5.00
044	Anticorrosive bituminous paint (black)	l	100.00
045	Antuvala / Maravaj	kg	12.00
046	ARMS GS HD - Top Hung -20"- Type P- Couple	pair	1350.00
047	Baker rod	m	6.00
048	Ball bearing for rolling shutters	each	260.00
049	Base jack	each	145.00
050	Bhuthalle Jute	kg	10.00
051	Bilwapathre fruit	kg	10.00
052	Bitumen based Primer	L	125.00
053	Bitumen felt type- 3 grade 1	m2	212.00
054	Black colour dark shade pigment	kg	70.00
055	Black Japan paint	l	90.00
056	Black plastic seat (solid) with lid C.P.brass hinges and rubber buffers	each	325.00
057	Black plastic seat (solid) with lid C.P.brass hinges and rubber buffers	each	325.00
058	Bleaching powder	kg	18.00
059	Bolt+Nut - 16 x 30 mm	each	18.00
060	Bolt+Nut - 16 x 80 mm	each	30.00
061	Bolts and nuts upto 300 mm in length	q	5300.00
062	Border tiles 200x75mm size 5mm thick	each	16.00
063	Bottle Trap	each	620.00
064	Boulder 50 mm to 200 mm	m^3	666.00
065	Brass 100mm mortice latch and lock with 6 levers without pair of handles	each	195.00
066	Brass bib-cock 15 mm dia	each	210.00
067	Brass brackets (curtain rods) 20 mm	each	45.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
068	Brass curtain rod 25 mm dia 1.25 mm thick	m	90.00
069	Brass double acting spring hinges 150 mm	each	480.00
070	Brass hanging type door stopper	Nos	75.00
071	Brass single acting spring hinges 125 mm	each	285.00
072	Breather Tape	m	25.00
073	Bright finished or black enameled mild steel butt hinges 100x58x 1.90 mm	10 Nos	80.00
074	Burnt stone slabs 10cms thick	m^2	430.00
075	C Carrier Connector	each	11.00
076	C Suspension Clip	each	8.00
077	C Wall angle section 20x30x20x0.50 mm (3.00 meter long) Including Wastage @ 10%	m	95.00
078	C.I. bracket for wash basin and sinks	pair	88.00
079	C.I. bracket for wash basin and sinks	pair	88.00
080	C.I. trap for standard urinal with vent arm with operating and other couplings in C.P.brass: 50 mm dia	each	190.00
081	C.I. trap for standard urinal with vent arm with operating and other couplings in C.P.brass: 80 mm dia	each	225.00
082	C.I.mouth, brass ferrule 15 mm dia	each	140.00
083	C.I.mouth, brass ferrule 20 mm dia	each	160.00
084	C.I.mouth, brass ferrule 25 mm dia	each	225.00
085	C.P. Brass angle valve 15 mm	each	350.00
086	C.P. Brass bibcock 15 mm	each	300.00
087	C.P. Brass Centre Hole Basin Mixer With Cast Spout (Kigston/Marc/ Prima/ Parko/Hindware)	each	1600.00
088	C.P. Brass chain with 40mm dia rubber plug	each	40.00
089	C.P. Brass long body bibcock 15 mm	each	500.00
090	C.P. Brass long nose bibcock 15 mm	each	500.00
091	C.P. Brass stop cock (concealed) 15 mm	each	420.00
092	C.P. brass waste 32 mm	each	85.00
093	C.P. brass waste 40 mm	each	100.00
094	C.P.brass chain with 40 mm dia rubber plug	each	40.00
095	C.P.brass toilet paper holder of standard size	each	280.00
096	C.P.brass trap40 mm dia	each	315.00
097	C.P.brass union 40 mm dia	each	210.00
098	Cadmium plated full threaded steel screws (30x4 mm dia)	100 Nos	27.00
099	Calcium Silicate tegular edged celling tiles 495x495 mm and 15 mm thick	m^2	685.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
100	Carbon 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	380.00
101	Carbon 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	468.00
102	Carbon 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	598.00
103	Carbon 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	270.00
104	Carbon 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	312.00
105	Cement	t	From UNI SR
106	Cement Board	m^2	235.00
107	Cement primer	l	50.00
108	Ceramic Glazed tiles	m^2	450.00
109	Ceramic Glazed Tiles Ist quality 300 x 300 in all shades designs except White, Ivory, Grey, Fuem Red Brown etc.	m^2	300.00
110	Ceramic Glazed Tiles Ist quality 300 x 300mm	m^2	175.00
111	Ceramic Tiles Pieces for Crazy Flooring	q	145.00
112	Challies	each	768.00
113	Chequered precast cement concrete tiles 22mm thick using marble chips of size 6mm	m^2	370.00
114	Chicken Mesh	m^2	12.00
115	Chlordane 20% E.C	L	134.00
116	Chlorpyriphos 20% E.C. / Lindane 20% E.C.	L	134.00
117	Chromium plated Brass butt hinges	10 Nos.	805.00
118	Chromium plated Brass screws 20 mm	100 Nos.	160.00
119	Chromium plated Brass screws 25 mm	Nos.	180.00
120	Circular C.I. Box for ceiling fan internal dia 140 mm, 73 mm height, toplid of 1.5mm thick MS sheet	each	55.00
121	Clay tiles 230x75x10	Nos.	17.00
122	Coal (steam)	q	120.00
123	Coal Tar	l	30.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
124	Coir veneered board 4mm thick Second class teak wood plugs	m^2	260.00
125	Colour glazed tiles 15x15 cms 10mm thick	Each	25.00
126	Coloured (other than black) solid P.V.C. seat in European W.C. pan	each	350.00
127	Coloured High density polythylene/ poly propylene 10 lit. (full flush) capacity controlled low level flushing cistern with fittings	each	575.00
128	Coloured Pedestal type W.C. pan 580x440 mm (European type)	each	1600.00
129	Coloured Vitreous china 10 lit. (full flush) capacity controlled low level flushing cistern with all fittings	each	550.00
130	Coloured Vitreous china 10 lit. low level cistern	each	850.00
131	Common burnt clay Non Modular bricks class designation 3.5	No.	7.00
132	Concrete designer tiles	m^2	560.00
133	Concrete paver block of grade M-30 made of C&D waste	m^2	475.00
134	Connection Block for vision glass panel	each	35.00
135	Copper acetate	kg	300.00
136	Copper chloride	kg	300.00
137	Copper nitrate	kg	210.00
138	Corner drive	each	255.00
139	Corrugated G.S. sheet	q	5600.00
140	CP Brass Single lever telephonic wall mixer of approved make	each	4500.00
141	Crushed stone 2.36 mm to 12.5 mm size	m^3	900.00
142	Cudddapah slab 2.5cms thick	m^2	300.00
143	Cup lock	each	48.00
144	Curtain wall striker for vision glass panel	each	85.00
145	Dark Color shade pigment	kg	70.00
146	Dash fastner/ chemical fastener	each	250.00
147	Dash hold fastener 12.5 mm dia, 50 mm long with 6 mm dia bolt	each	11.00
148	Debit Pin - 250mm	each	60.00
149	Decorative plywood 4 mm Second class teak wood plugs	m^2	320.00
150	Diesel oil	L	82.00
151	Distemper primer	l	76.00
152	Door spacer 45x45x5-1135mm Long	each	360.00
153	Door spacer 45x45x5-985mm Long	each	315.00
154	Double action hydraulic floor spring with brass cover plate	each	1620.00
155	Double action hydraulic floor spring with stainless steel cover plate	each	1500.00
156	Double coupler	each	46.00
157	Dry distemper	kg	38.00
158	Enamel paint	l	160.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
159	EPDM Gasket for uPVC window/door	m	15.00
160	EPDM Gasket in Kg (Above 60 g / m)	kg	150.00
161	Epoxy based bonding adhesive	Kgs	735.00
162	Epoxy Grout	kg	380.00
163	Epoxy paint	l	215.00
164	Epoxy Primer	L	300.00
165	Expandable fastener with plastic sleeve	Each	6.00
166	Expandable fastener with plastic sleeve and M.S. screws : 32 mm long	each	11.00
167	Expandable fastner with plastic sleeve and M.S Screws 25 mm long	Each	10.00
168	Expandable fastner with plastic sleeve and M.S. screws. 40 mm long	Each	13.00
169	Expandable fastner with plastic sleeve and M.S. screws. 52 mm long	Each	14.00
170	Exterior primer	kg	143.00
171	External corner 2050 mm	each	1400.00
172	External corner 825 mm	each	590.00
173	Extra for mechanical devices chain and cranked operation for operating rolling shutters: exceeding 10.00 m2 and up to 16.80 m2 area of door	m^2	800.00
174	Extra for mechanical devices chain and cranked operation for operating rolling shutters: exceeding 16.80 m2 area of door	m^2	800.00
175	Extra for providing grilled rolling shutters with 8 mm dia M.S. rod	m^2	500.00
176	Fibre reinforced by organic and/ or inorganic synthetic fibres cement barge boards 6 mm thick.	m	400.00
177	Fibre reinforced by organic fibres and / or inorganic synthetic fibres cement corrugated sheet 6 mm thick	m^2	225.00
178	Fibre reinforced by organic fibres and/ or inorganic synthetic fibres cement ridge finial.	Pair	165.00
179	Fibre reinforced by organic fibres and/or inorganic synthetic fibres cement conjugated serrated adjustable ridge.	m	210.00
180	Fire clay kitchen sink: 600x450x250 mm	each	1300.00
181	Fire retardant paint	l	240.00
182	Fire Stop	m	480.00
183	Flat 50x3mm size upto 10 mm in thickness	q	4500.00
184	Flat pressed 3 layer particle board (medium density) Grade I :12 mm thick	m^2	288.00
185	Flat Washer Ø16, 3mm thik	each	5.00
186	Flate head bolt for brackets of spider glazing	Nos	650.00
187	Flats exceeding 10 mm in thickness	q	4950.00
188	Flats up to 10 mm in thickness	q	4850.00
189	Flexible (coil shaped) PVC waste pipe for sink and wash basin 32 mm dia with length not less than 700 mm i/c PVC waste fittings	each	35.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
190	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	35.00
191	Float glass panes of nominal thickness	m^2	309.00
192	Float glass panes of nominal thickness 4 mm (weight not less than 10 kg/m2)	m^2	309.00
193	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/ m^2)	m^2	515.00
194	Float glass panes of nominal thickness 8 mm (weight not less than 20.00 kg/m2)	m^2	628.00
195	Floor enamel paint in all shades except green	l	276.00
196	Flush pipe and spreaders G.I.for range of four squatting plates urinal	each	450.00
197	Flush pipe and spreaders G.I.for range of three squatting plates urinal	each	310.00
198	Flush pipe and spreaders G.I.for range of two squatting plates urinal	each	275.00
199	Flush pipe and spreaders G.I.for single set of one squatting plate urinal	each	190.00
200	Flush pipe with union spreaders and clamps all in C.P. brass for double stall	each	425.00
201	Flush pipe with union spreaders and clamps all in C.P. brass for range of four stall	each	610.00
202	Flush pipe with union spreaders and clamps all in C.P. brass for range of three stall	each	525.00
203	Flush pipe with union spreaders and clamps all in C.P. brass for single stall	each	270.00
204	Flushing Cistern P.V.C. 10 lts capacity (low level) (White) (with fittings, accessories and flush pipe)	each	575.00
205	Food grade epoxy coating	L	225.00
206	Fuel (Fire wood)	L	65.00
207	G.I Ceiling Section (80 x26mm x26mm x10.5mm each lip x 0.55 mm)	m	46.00
208	G.I. back (jam) nuts 25 mm dia	each	18.00
209	G.I. back (jam) nuts 65 mm dia	each	25.00
210	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Range of four lipped urinals	each	1430.00
211	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Range of three lipped urinals	each	1050.00
212	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Range of two lipped urinals	each	765.00
213	G.I. flush pipe and C.P. brass spreader including C.P. connecting pipe Single lipped urinal	each	445.00
214	G.I. inlet connection	each	70.00
215	G.I. pipes 40 mm dia	m	290.00
216	G.I. tees (equal) 25 mm	each	65.00
217	G.I. tees (equal) 65 mm	each	452.00
218	G.I. Union 15 mm nominal bore	each	35.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
219	G.I. Union 20mm nominal bore	each	55.00
220	G.I. Union 25 mm nominal bore	each	115.00
221	G.I. Union 32 mm nominal bore	each	145.00
222	G.I. Union 40 mm nominal bore	each	230.00
223	G.I. Union 50 mm nominal bore	each	310.00
224	G.I. Union 65 mm nominal bore	each	525.00
225	G.I. Union 80 mm nominal bore	each	575.00
226	G.I.plain sheets 0.63mm thick	q	5000.00
227	Galvanised Steel angle hanger (Ceiling angle) (Size 25x10x0.50mm)	m	12.00
228	Galvanised Steel angle hanger (Celling angle) (Size 25x10x0.50mm)	m	12.00
229	Galvanised steel bolts & nuts 10 mm dia and 125 mm long round head with slots	Nos	9.00
230	Galvanised steel bolts & nuts 6 mm dia and 25 mmlong round head with slots	10 Nos	4.00
231	Galvanised Steel ceiling section(size 80x26x0.50mm)	m	46.00
232	Galvanised Steel connecting clips (2.64mm dia and 230 mm long GI wire)	each	4.00
233	Galvanised Steel connecting clips (2.64mm dia and 230 mm long GI wire)	each	4.00
234	Galvanised Steel intermediate Channel (Size 15x45x15x0.90mm)	m	38.00
235	Galvanised Steel intermediate Channel(Size 15x45x15x0.90mm)	m	38.00
236	Galvanised Steel intermediate cross T section Size 24 x 25 x 0.33 mm (1.2 m long)	each	40.00
237	Galvanised Steel intermediate cross T section Size 24 x 25 x 0.33.(0.6 m long)	each	20.00
238	Galvanised steel J or L hooks 8 mm dia	Nos	12.00
239	Galvanised Steel main Tee ceiling section Size 24x38x0.33mm (3.00 m long)	each	120.00
240	Galvanised Steel perim Channel (Size 20x27x30x0.50mm)	m	22.00
241	Galvanised Steel perim Channel(Size 20x27x30x0.50mm)	m	22.00
242	Galvanised Steel perimeter wall Angle Size 24 x 24 x 0.40 mm (3.00 m long)	each	65.00
243	Galvanised steel plain sheets	q	5000.00
244	Galvanised Steel soffit cleat (Size 27x37x25x0.60mm)	each	3.00
245	Galvanised wire mesh of average width of aperture 1.4 mm and nominal dia of wire 0.63 mm	m^2	250.00
246	Geotextile 120 gsm	m^2	30.00
247	Geotextile 60 gsm	m^2	25.00
248	GI flashing - 1.2 mm Thick	kg	59.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
249	GI Metal Tile Clip in Perforated Beveled edge global white colour tiles of size 600x600 mm and 0.5 mm thick	m^2	782.00
250	GI Metal Tile Clip in Plain Beveled edge global white colour tiles of size 600x600 mm and 0.5mm thick	m^2	677.00
251	GI Metal Tile Lay-in Perforated Tegular edge global white color tiles of Size 595x595mm and 0.5 mm thick	m^2	715.00
252	GI Metal Tile Lay-in Plain Tegular edge global white color tiles of Size 595x595mm and 0.5 mm thick	m^2	612.00
253	GI/Aluminium Sheet (0.8 mm thick)	kg	55.00
254	Glass wool of densiity @ 48 kg /m3 with black glass tissue (BGT)	m^2	250.00
255	Glue	kg	75.00
256	Granite of any colour, 18 mm thick (slab area above 0.50 m2)	m^2	1800.00
257	Gravel 1.5 mm to 2 mm	m^3	210.00
258	Gravel 5 mm to 10 mm	m^3	190.00
259	Green or blue medium shade pigment	kg	56.00
260	Gun metal cramp	kg	315.00
261	Gunmetal non-return valve-horizontal (screwed end) 25 mm dia	each	350.00
262	Gunmetal non-return valve-horizontal (screwed end) 32 mm dia	each	475.00
263	Gunmetal non-return valve-horizontal (screwed end) 40 mm dia	each	575.00
264	Gunmetal non-return valve-horizontal (screwed end) 50 mm dia	each	840.00
265	Gunmetal non-return valve-horizontal (screwed end) 65 mm dia	each	1525.00
266	Gunmetal non-return valve-horizontal (screwed end) 80 mm dia	each	2300.00
267	Gunmetal non-return valve-vertical (screwed end) 25 mm dia	each	400.00
268	Gunmetal non-return valve-vertical (screwed end) 32 mm dia	each	552.00
269	Gunmetal non-return valve-vertical (screwed end) 40 mm dia	each	750.00
270	Gunmetal non-return valve-vertical (screwed end) 50 mm dia	each	950.00
271	Gunmetal non-return valve-vertical (screwed end) 65 mm dia	each	1550.00
272	Gunmetal non-return valve-vertical (screwed end) 80 mm dia	each	2600.00
273	Gypsum Tiles Fully Perforated Square edge of Size 595x595 mm and 12.5 mm thick	m^2	375.00
274	H.P. or L.P. ball valve with polythene floats: 15 mm dia	each	215.00
275	H.P. or L.P. ball valve with polythene floats: 20 mm dia	each	240.00
276	H.P. or L.P. ball valve with polythene floats: 25 mm dia	each	260.00
277	Hanger rod 4 mm thick	each	8.00
278	Hard board 6 mm thick	m^2	115.00
279	Hard board 6 mm thick 600x450 mm Wooden cleats	m^2	115.00
280	Hardening compound	kg	21.00
281	HDPE membrane	m^2	300.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
282	Hermetically sealed double glazed unit made with 6 mm thick clear float glass both side having 12 mm air gap	m^2	2200.00
283	High Albedo paint having minimum Solar Reflective Index (SRI) 108	kg	300.00
284	High polymer modified quickset tile adhesive.	kg	9.00
285	Hold fasts	each	32.00
286	Hollock wood in scantling	10 cudm	357.00
287	Honne wood beading 10 mm wide	m	15.00
288	Honne wood beading 20x20 mm	m	25.00
289	Honne wood planks 20mm thick	m^3	64000.00
290	Honne wood scantling	m^3	64000.00
291	Honne wood scantiling for styles and rails 25 mm thick	m^3	64000.00
292	Honne wood scantling for styles and rails 25 mm thick	m^3	64000.00
293	Honne wood scantling for styles and rails 30mm thick	m^3	64000.00
294	Honne wood scantling for styles and rails 35 mm thick	m^3	64000.00
295	Honnewood	m^3	64000.00
296	Honnewood planks for panels 20mm thick	m^3	64000.00
297	Honnewood planks for panels 25mm thick	m^3	64000.00
298	Horizontal perforated clay bricks 400x100x200	Nos	42.00
299	Horizontal perforated clay bricks 400x150x200	Nos	52.00
300	Horizontal perforated clay bricks 400x200x200	Nos	62.00
301	Hydrochloric acid	kg	35.00
302	Indian Marble stone slab	m^2	1850.00
303	Integral Crystalline Admixture	kg	100.00
304	Intermediate cross T-section 24x25x0.3mm (0.6 mtrs long)	each	17.00
305	Intermediate cross T-section 24x25x0.3mm (0.6 mtrs long)	each	17.00
306	Intermediate cross T-section 24x25x0.3mm (1.2 mtrs long)	each	35.00
307	Intermediate cross T-section 24x25x0.3mm (1.2 mtrs long)	each	35.00
308	Iron pintels including welded pin	each	37.00
309	Ist quality Acrylic distemper(Ready mix) having VOC content less than 50 grams/ l	kg	53.00
310	Italian Marble stone slab	m^2	3600.00
311	Jaggery (15 kg/ m3 of mortar - 2.10X15)	kg	25.00
312	Joint filler	kg	26.00
313	Joint filler	kg	26.00
314	Joint finisher	kg	23.00
315	Joint tape roll	roll	100.00
316	Joint Tape roll (120mm Roll)	roll	100.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
317	Jungle wood scantling	m^3	29100.00
318	Kadukkai (15 kg/m3 of mortar - 2.10X15)	kg	12.00
319	Kerosene oil	l	76.19
320	L. Bracket	Nos	25.00
321	Laterite 230x75x10mm	Nos	23.00
322	Light house polish	m	186.00
323	Lime	q	600.00
324	Lime	kg	6.00
325	Lime mortar of mix 1:1 (1 lime putty : 1 sand)	m^2	2500.00
326	Linseed oil (double boiled)	l	200.00
327	Liquid Ammonia 5%	L	160.00
328	M.S Tube	m	225.00
329	M.S. bail plug 100 mm dia	each	160.00
330	M.S. bail plug 150 mm dia	each	170.00
331	M.S. bail plug 200 mm dia	each	185.00
332	M.S. cap 100 mm dia	each	85.00
333	M.S. cap 150 mm dia	each	125.00
334	M.S. cap 200 mm dia	each	170.00
335	M.S. pipe 100 mm dia casing pipe	each	677.00
336	M.S. pipe 150 mm dia casing pipe	m	955.00
337	M.S. pipe 200 mm dia casing pipe	m	1186.00
338	M.S. socket 100 mm dia	m^2	105.00
339	M.S. socket 150 mm dia	m^2	175.00
340	M.S. socket 200 mm dia	m^2	225.00
341	Machine moulded common burnt clay modular perforated bricks of class designation 5.0	No.	12.00
342	Machine moulded perforated common burnt clay Non Modular bricks of class designation 5.0	No.	10.00
343	Main C Carrier Size 10x38x10x0.70 mm (3.00 meter long) Including Wastage @ 10% on Grid for cut outs	m	115.00
344	Main T ceiling sections 24x38x0.3 mm (3 m long)	each	115.00
345	Mangalore ridge tiles 20 mm thick	each	8.00
346	Mangalore tiles 20 mm thick	each	8.00
347	Manually operated Bevel Gear Box for operating rolling shutters	each	2500.00
348	Masking tape	m	2.00
349	Mathi or nandi wood planks for panels 20 mm thick	m^3	52250.00
350	Mathi wood beading 10 mm wide	m	15.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
351	Mathi Wood or Nandi Wood	m^3	52500.00
352	Mathi/Nandi wood panel 25mm thick	m^3	55000.00
353	Mathi/Nandi wood scantiling for styles and rails 25 mm thick	m^3	52250.00
354	Mathi/Nandi wood scantling	m^3	52500.00
355	Mathi/nandi wood scantling for styles and rails 30 mm thick	m^3	52250.00
356	Mathi/nandi wood scantling for styles and rails 35	m^3	52500.00
357	MDF panel filling 18/19 mm thick	m^2	425.00
358	Melamine Polish	l	300.00
359	Metal Primer (U.G.)	l	105.00
360	Micro Alloyed High Carbon steel	kg	70.00
361	Mild steel hooks	each	32.00
362	Mild steel plates	q	5400.00
363	Mild steel rivets	q	5100.00
364	Mild steel round bar 12 mm dia and below	q	4850.00
365	Mild steel round bar above 12 mm dia	q	4750.00
366	Mild steel sheets of 1.00 mm thickness for tanks	q	4850.00
367	Mild steel sheets with bolts and nuts to rest on pintels	each	120.00
368	Mild steel tubes electric resistant or induction butt welded ERW	kg	50.00
369	Mild steel tubes hot finished seamless type	kg	70.00
370	Mild steel tubes hot finished welded type	kg	49.00
371	Mild steel tubes hot finished welded type	kg	57.00
372	Mild stel bolts 6 mm dia and 25 mm long with hexagonal head	Nos	1.00
373	Mineral fibre ceiling tiles 595 x 595 and 19 mm thick	m^2	920.00
374	Mirror of superior make glass 60x45 cm	each	450.00
375	Mirror polished granite	m^2	1800.00
376	Modular common burnt clay bricks of class designation 3.5	No.	9.00
377	Mosquito proof coupling of approved design	each	30.00
378	MS Brackets/Aluminium Alloy Brackets	kg	88.00
379	Multi surface paint	l	300.00
380	Natural colour insulating board: 12 mm thick	m^2	210.00
381	Non staining water resistant Clear silicon filling in gap	m	65.00
382	Oil type wood preservative	l	130.00
383	Openable window made out of multi chambered upvc	m^2	5644.00
384	Ordinary varnish	l	100.00
385	Ovel shape 450x350 mm (outer dimensions) Mirror with Plastic moulded frame	each	290.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
386	P.T.M.T. Bib cock with nozzle 15mm	each	110.00
387	P.T.M.T. extension nipple 15mm	each	25.00
388	P.T.M.T. extension nipple 20mm	each	50.00
389	P.T.M.T. extension nipple 25mm	each	68.00
390	P.T.M.T. Stop cock (concealed) 15mm	each	120.00
391	P.T.M.T. Urinal cock 15mm dia	each	95.00
392	P.V.C. automatic flushing cistern 5 lts capacity	each	450.00
393	Painting with Red/Black Apex Duco paint	m^2	250.00
394	Panels - 12 mm thick multi-cell polycarbonate panels system	m^2	1900.00
395	Panels - 16 mm thick multi-cell polycarbonate panels system	m^2	2600.00
396	Panels - 18 mm thick multi-cell polycarbonate panels system	m^2	2850.00
397	Panels filled with MDF board 25 mm thick	m^2	400.00
398	Particle board (three layer medium density) 12mm thick	m^2	500.00
399	Particle board (three layer medium density) 18mm thick	m^2	560.00
400	Particle board (three layer medium density) 25mm thick	m^2	850.00
401	Pea Gravel	m^3	190.00
402	Perimeter wall angle 24x24x0.3mm	each	80.00
403	Perimeter wall angle 24x24x0.3mm (3 m long)	each	80.00
404	Pesticides (Chloropyriphos equivalent)	L	134.00
405	Pigment	kg	50.00
406	Pigment cladding	kg	9.00
407	Pin-127	each	55.00
408	Pin-50	each	15.00
409	Pink primer (for wood)	l	105.00
410	Plaster of Paris	kg	5.00
411	Plastic acrylic emulsion paint	l	200.00
412	Polished Vitrified floor tile 100X100 cm	m^2	1200.00
413	Polished Vitrified floor tile 50x50 cm	m^2	560.00
414	Polished Vitrified floor tile 60 X 120 cm	m^2	1280.00
415	Polished Vitrified floor tile 60X60 cm	m^2	650.00
416	Polished Vitrified floor tile 80X80 cm	m^2	850.00
417	Polycarbonate End Cap	Nos.	50.00
418	Polyester powder coating 50 microns on aluminium sections	kg	67.00
419	Polymerized plaster reinforced with glass fibre mesh	m^2	254.00
420	Polythene Roll - 150mm Long.	each	6.00
421	Polythene Sleeve 90 x 150mm	each	3.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
422	Polyurethane foam (PUF) slab 40mm thick average with PU slab density 36+/-2 kg/m³	m²	338.00
423	Polyurethane foam (PUF) slab 50mm thick average with PU slab density 36+/-2 kg/m³	m²	559.00
424	Polyurethane foam (PUF) slab 60mm thick average with PU slab density 36+/-2 kg/m³	m²	796.00
425	Polyurethane foam (PUF) slab 70mm thick average with PU slab density 36+/-2 kg/m³	m²	1028.00
426	Polyurethane foam (PUF) spray 40mm thick average with PU foam	m²	580.00
427	Polyurethane foam (PUF) spray 40mm thick average with PU slab density 35+/-5 kg/m³	m²	725.00
428	Polyurethane foam (PUF) spray 50mm thick average with PU foam	m²	150.00
429	Polyurethane foam (PUF) spray 50mm thick average with PU slab density 35+/-5 kg/m³	m²	750.00
430	Polyurethane foam (PUF) spray 60mm thick average with PU foam	m²	1261.00
431	Polyurethane foam (PUF) spray 70mm thick average with PU foam	m²	1577.00
432	Powder coating 50 microns on aluminium sections	kg	61.00
433	Pre laminated both side solid foam uPVC profile (45x20mm)	m	134.00
434	Precast chequered cement tiles 22 mm thick Dark shade using ordinary cement	m²	225.00
435	Precast chequered cement tiles 22 mm thick medium shade using 50% white cement, 50% ordinary cement	m²	360.00
436	Precast heat resistant terrace tiles (size 300x300 mm) and	m²	409.00
437	Precast R.C.C. perforated slab	each	740.00
438	Precoated galvanised iron profile sheet 0.50 mm TCT	m²	350.00
439	Precoated galvanised steel barge board (upto 300mm)	m	230.00
440	Precoated galvanised steel crimp curve	m²	230.00
441	Precoated galvanised steel flashings/aprons 0.50mm TCT	m	210.00
442	Precoated galvanised steel gutter	m	420.00
443	Precoated galvanised steel gutter 600mm overall girth	m	440.00
444	Precoated galvanised steel north light curves	m	230.00
445	Precoated galvanised steel plain ridges .50 mm TCT	m	210.00
446	Precoated Glvanised steel Flashings	mtr	210.00
447	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	m²	490.00
448	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	m²	500.00
449	Premium acrylic emulsion of interior grade having VOC content less than 50 grams/ l	l	200.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
450	Premium Acrylic exterior paint	l	210.00
451	Premixed super white gypsum plaster	kg	6.00
452	Pressed clay tiles 20 mm thick 250 x 250 mm size	Nos	8600.00
453	Pressed steel door frames (mild steel sheet 1.60 mm) Profile "B"	m	200.00
454	Pressed steel door frames (mild steel sheet 1.60 mm) Profile "C"	m	220.00
455	Pressed steel door frames (mild steel sheet 1.60 mm) Profile "E"	m	250.00
456	Primer (for gypsum board)	L	85.00
457	Primer (for gypsum board// calcium silicate board)	L	85.00
458	Primer for cement paint	l	90.00
459	Protective Tape	m	20.00
460	PTMT - Towel Ring 215x200x37mm	each	110.00
461	PTMT - Waste Coupling 31/32 mm	each	34.00
462	PTMT Angle Stop cock with Flange 15mm	each	85.00
463	PTMT Ball Cock 15mm Complete with Epoxy Coated Aluminium Road & H.D. Ball	each	75.00
464	PTMT Ball Cock 20mm Complete with Epoxy Coated Aluminium Road & H.D. Ball	each	110.00
465	PTMT Ball Cock 25mm Complete with Epoxy Coated Aluminium Road & H.D. Ball	each	275.00
466	PTMT Ball Cock 40mm Complete with Epoxy Coated Aluminium Road & H.D. Ball	each	420.00
467	PTMT Ball Cock 50mm Complete with Epoxy Coated Aluminium Road & H.D. Ball	each	820.00
468	PTMT Bottle Trap 31/32MM	each	200.00
469	PTMT Bottle Trap 38/40MM	each	200.00
470	PTMT grating 100 mm dia.	each	16.00
471	PTMT Liquid Soap Container of 400ml capacity	each	95.00
472	PTMT pillar cock	each	115.00
473	PTMT pillar cock (fancy) 15 mm foam flow.	each	125.00
474	PTMT push cock 12 mm dia. 20 mm BSP	each	46.00
475	PTMT push cock 15 mm dia.	each	55.00
476	PTMT Shelf 450x124x36mm	each	150.00
477	PTMT Soap Dish/Holder 138x102x75mm	each	58.00
478	PTMT Swiveling shower 15mm	each	65.00
479	PTMT Towel Rail (450mm)	each	125.00
480	PTMT Towel Rail (600mm)	each	145.00
481	PTMT Urinal Spreader 15mm	each	55.00
482	PTMT Waste Coupling 31/32MM	each	34.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
483	PTMT Waste Coupling 38/40MM	each	39.00
484	PU Elastomeric Single component liquid	kg	290.00
485	PU Waterproofing Membrane single component	kg	245.00
486	Pulley 25 mm dia	each	48.00
487	Pulley 40 mm dia	each	35.00
488	Putty for wood work	kg	28.00
489	PVC Cone	each	5.00
490	PVC Edge beading	m	32.00
491	PVC Laminated Gypsum Tiles (Square edge) of Size 595x595 mm and 12.5 mm thick	m^2	880.00
492	PVC Pipe Ø20mm - 150mm long	each	5.00
493	Rawl plug 50mm	each	22.00
494	Ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ l	l	105.00
495	Rectangular shape 1500x450 mm Mirror with Plastic moulded frame	each	670.00
496	Rectangular shape 453x357 mm Mirror with Plastic moulded frame	each	290.00
497	Rectangular type with openable circular lid 150 mm size 18 mm high with 100 mm dia. (110 gm)	each	118.00
498	Red oxide	kg	85.00
499	Red oxide Zinc chromate primer	l	120.00
500	Red salwood	m^3	42000.00
501	Red, chocolate, orange, buff or yellow (red oxide of iron) light shade pigment	kg	60.00
502	Red, chocolate, orange, buff or yellow (red oxide of iron) light shade pigment	kg	60.00
503	Reeded glass 3mm thick	m^3	275.00
504	Reinforcement Coupler 16 mm dia	each	31.00
505	Reinforcement Coupler 20 mm dia	each	41.00
506	Reinforcement Coupler 25 mm dia	each	72.00
507	Reinforcement Coupler 28 mm dia	each	83.00
508	Reinforcement Coupler 32 mm dia	each	114.00
509	Rolling shutter made of 80x1.25 mm machine rolled laths	m^2	1400.00
510	Rolling shutters of 80x0.90 mm laths	m^2	1300.00
511	Rolling shutters of 80x1.2 mm laths	m^2	1375.00
512	Roofing paint for iron sheets in red colour	L	120.00
513	Roofing paint for iron sheets in red colour	l	120.00
514	Rubber Gasket	m	15.00
515	S type louvers	Nos	260.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
516	S.C.I. gully or nahani grating 100 mm dia	each	25.00
517	Sal wood Scantling	m^3	42250.00
518	Salem Stainless steel AISI - 304 (18/8) Orrisa pattern W.C. pan 724mm X 578mm		4500.00
519	Salem Stainless steel AISI - 304 (18/8) Round basin 405mm X 355mm	each	1500.00
520	Salem Stainless steel AISI - 304 (18/8) Wash basin 530mm X 345mm	each	2000.00
521	Salwood	m^3	42250.00
522	SBS(Styrene Butadiene Styrene) Modified Self-Adhesive waterproofing Membrane	m^2	245.00
523	Second class teak wood in scantling	10 cudm	776.00
524	Second class kail wood in planks 10	m^3	260.00
525	Second class teak wood in planks	10 cudm	791.00
526	Self Drilling Screws (25mm)	Nos.	18.00
527	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	25.00
528	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	33.00
529	Shellac	kg	300.00
530	Shower rose C.P.brass for 15 to 20 mm inlet 100 mm dia	each	110.00
531	Shower rose C.P.brass for 15 to 20 mm inlet 150 mm dia	each	125.00
532	Silicon and acrylic emulsion	l	120.00
533	Silicon Gasket in Kg (Above 50 g / m)	kg	465.00
534	Sodium pentachlorophenate	kg	150.00
535	Soffit cleat (Size 27x37x25x1.60mm)	each	4.00
536	Soldier tie 370mm	each	290.00
537	Solid concrete blocks 400x100x200 mm	No.	31.00
538	Solid concrete blocks 400x150x200 mm	No.	38.00
539	Solid concrete blocks 400x200x200 mm	No.	47.00
540	Solid foam uPVC sheet 20mm thick prelaminated on both side	m^2	2153.00
541	Solvent cement adhesive	L	170.00
542	Spacer tape 6.4 mm thick x 6 mm wide	m	10.00
543	Special Primer (C.W.)	l	160.00
544	Spigot for standard jointing	kg	43.00
545	Spirit	l	48.00
546	Spring T-connector	each	5.00
547	SS Bolt with washer of sizes for structural glazing / ACP Cladding	each	35.00
548	SS Screws - # 8 x 19	each	6.00
549	SS Screws of sizes for structural glazing /ACP Cladding	each	3.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
550	Stainlees steel kitchen sink - with drain board 510 x 1040mm bowl depth 200 mm.	each	3000.00
551	Stainlees steel kitchen sink - with drain board 510 x 1040mm bowl depth 225 mm.	each	3200.00
552	Stainless steel (Grade-304)hollow section round/square tubes	kg	230.00
553	Stainless steel (SS 304 grade) adjustable friction window stay 205 x 19 mm	each	197.80
554	Stainless steel (SS 304 grade) adjustable friction window stay 255 x 19 mm	each	225.00
555	Stainless steel (SS 304 grade) adjustable friction window stay 355 x 19 mm	each	195.00
556	Stainless steel (SS 304 grade) adjustable friction window stay 510 x 19 mm	each	535.00
557	Stainless steel (SS 304 grade) adjustable friction window stay 710 x 19 mm	each	925.00
558	Stainless steel bolts/square bar and plates	kg	120.00
559	Stainless steel cramp	kg	290.00
560	Stainless steel dash fastener of 8 mm dia and 75 mm long bolt	each	17.00
561	Stainless steel kitchen sink - with drain board 510x1040mm bowl depth 178 mm	each	3000.00
562	Stainless steel kitchen sink - with drain board bowl depth 250 mm.	each	3500.00
563	Stainless steel kitchen sink - without drain board 470x420mm bowl depth 178 mm	each	1200.00
564	Stainless steel kitchen sink - without drain board 610x460mm bowl depth 200 mm.	each	1500.00
565	Stainless steel kitchen sink - without drain board 610x510mm bowl depth 200 mm	each	2200.00
566	Stainless steel screw 50mm	100 Nos.	300.00
567	Stainless steel screws 25 mm x4 mm	100 Nos	42.00
568	Stainless steel screws 30 mm x3 mm	100 Nos	36.00
569	Stainless steel U Channel of size (50x25x2mm)	m	160.00
570	Stainless steel wire guage (Grade-304) aperture 1.4 mm and 0.50mm dia wire	m^2	413.00
571	Steel beading 10x10x1.6mm (box type)	m	27.00
572	Steel glazed door, window/ ventilator, all members viz. F7D, F4B, K11 and K12B etc.	kg	54.00
573	Stone chippings/ screenings 10/ 11.2 mm nominal size	m^3	1350.00
574	Stone cleaning chemical approved by ASI	L	295.00
575	Stone for masonry work	m^3	952.00
576	Stone surface strengthening chemical approved by ASI	L	295.00
577	Structural sealant - 6 mm x 12 mm	m	25.00
578	Structural steel such as tees, angles channels and R.S. joists	q	5932.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
579	Structurals such as tees,angles channels and R.S. Joists	kg	59.00
580	Super Durable Powder coating 60-80 microns on aluminium sections	kg	50.00
581	Superior copal varnish	l	115.00
582	Superior spar varnish	l	115.00
583	Synthetic enamel paint in all shades except black or chocolate shade	l	165.00
584	Synthetic enamel paint in black or chocolate shade	l	175.00
585	Synthetic ployster triangular fibre of length 6 mm effective diameter 10-40 microns and specific gravity of 1.34 to 1.40	kg	410.00
586	Table moulded Bricks of class designation 50 (modular)	No.s	14.00
587	Table rubbed polished stone 18mm	m^2	1500.00
588	Teak wood	m^3	175000.00
589	Teak wood beading	m	60.00
590	Teak wood class II for styles and rails	m^3	150000.00
591	Teak wood planks for panels 20 mm thick	m^3	150000.00
592	Teak wood planks for panels 25 mm thick	m^3	140000.00
593	Teak wood scantiling for styles and rails 30mm thick	m^3	150000.00
594	Teak wood scantling for styles and rails 35 mm thick	m^3	150000.00
595	Terracota clay tiles 12x2x2	Nos	19.00
596	Terracota clay tiles 12x4x2	Nos	29.00
597	Textured exterior paint	l	280.00
598	Thermal insulation of roofing with expanded polystyrene (110mm thick) with aluminium strips	m^2	358.00
599	Thermal insulation of roofing with expanded polystyrene (120mm thick) with aluminium strips	m^2	398.00
600	Thermal insulation of roofing with expanded polystyrene (50mm thick) with aluminium strips	m^2	150.00
601	Thermal insulation of roofing with expanded polystyrene (70mm thick) with aluminium strips	m^2	227.00
602	Thermal insulation of roofing with expanded polystyrene (90mm thick) with aluminium strips	m^2	281.00
603	Through and bond stone size 24 x24 x39 cm	No.	48.00
604	Tie Rod for Bracket - 500mm	each	115.00
605	Top cover for rolling shutters 1.25 mm thick	m	800.00
606	Top cover of Rolling shutters 0.90 mm thick	m	450.00
607	Top cover of Rolling shutters 1.20 mm thick	m	560.00
608	Top wedge Block	each	120.00
609	Toughened glass 12 mm thickness with hole	m^2	1750.00
610	Turf Paver (500 x 500 x 40 mm)	m^2	510.00
611	Turpentine oil	L	50.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
612	Twisted steel/ deformed TMT bars Fe-500D or more	q	5877.00
613	Two component Acrylic polymer modified cementitious membrane	kg	80.00
614	U Polycarbonate Connector	m	175.00
615	Unplasticised P.V.C.connection pipe with brass union 30 cm long 15 mm bore	each	30.00
616	Unplasticised P.V.C.connection pipe with brass union 30 cm long 20 mm bore	each	35.00
617	Unplasticised P.V.C.connection pipe with brass union 45 cm long 15 mm bore	each	35.00
618	Unplasticised P.V.C.connection pipe with brass union 45 cm long 20 mm bore	each	48.00
619	UV stabilised 2 mm thick corrugated FRP sheet	m^2	485.00
620	UV stabilised 2 mm thick plain FRPsheet	m^2	430.00
621	Vertical perforated clay bricks 400x100x200	Nos	34.00
622	Vertical perforated clay bricks 400x150x200	Nos	44.00
623	Vertical perforated clay bricks 400x200x200	Nos	54.00
624	Vertical Soldier -1100mm	each	365.00
625	Vitreous china angle back wash basin 400x400 mm	each	425.00
626	Vitreous china angle back wash basin 600x480 mm	each	725.00
627	Vitreous china flat back wash basin 450x300 mm	each	280.00
628	Vitreous china foot rests 250x125x25 mm	pair	103.00
629	Vitreous china foot rests 250x130x30 mm	pair	100.00
630	Vitreous china indian type w.c. pan size 580 mm	each	475.00
631	Vitreous china lipped front urinal	each	470.00
632	Vitreous china orrisa type w.c. pan size 580 mm	each	1290.00
633	Vitreous china pedestal type water closet	each	1025.00
634	Vitreous china squatting plate urinal	each	1053.00
635	Vitreous china toilet paper holder of standard size	each	110.00
636	Vitrified floor tile 100X100 cm	m^2	1100.00
637	Vitrified floor tile 50x50 cm	m^2	500.00
638	Vitrified floor tile 60 X 120 cm	m^2	1150.00
639	Vitrified floor tile 60X60 cm	m^2	560.00
640	Vitrified floor tile 80X80 cm	m^2	800.00
641	Vitrous china pedestal for wash basin	each	950.00
642	Wall Attached Bracket 600x1000mm	each	985.00
643	Wall tie-150 (355 mm)	each	45.00
644	Water based acrylic primer	l	165.00
645	Water based acrylic PU dispersion	kg	240.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
646	Water based primer	l	195.00
647	Water proofing cement paint	kg	38.00
648	Water proofing materials	kg	35.00
649	Water repellent chemical approved by ASI	l	1200.00
650	Water thinnable cement primer for interior wall surface having VOC content less than 50 grams/ l	l	50.00
651	Wax polish (ready made)	kg	230.00
652	Weather Sealant - DC 789	cartridge	120.00
653	Weather Sealant - Non Staining (600 ml)	each	212.00
654	Weather Sealant - Normal (300 ml)	each	38.00
655	Weather Silicon sealant	cartridge	112.00
656	Weather/ structural non sag. Elastomeric PU sealant (600ml) sausage) for joints in RCC/ Brick/ stone/ Wood/ Ceramic/ Gypsum/ Aluminum work complying to ASTM C 920, DIN 18540 - F & ISO 11600 incl. all taxes	each	543.00
657	wedge	each	14.00
658	Wedge expansion hold fastner 1/4" or 6 mm, 36.5mm length	Each	11.00
659	Wedge expansion hold fastner 3/8" or 10 mm, 44.5mm length	Each	13.00
660	Welding by electric plant	cm	2.00
661	Welding by gas plant	cm	2.00
662	White Cement	kg	20.00
663	White cement based polymer modified	kg	15.00
664	White cement based polymer modified self curing compound in powder form	kg	15.00
665	White cement based putty	kg	13.00
666	White face insulating board:12 mm thick	m^2	235.00
667	White glazed fire clay draining board 600x450x25 mm	each	500.00
668	White glazed tiles 15x15 cms 6mm thick	Each	23.00
669	White lead	kg	170.00
670	White plastic seat (solid)with lid C.P.brass hinges and rubber buffers	each	410.00
671	White Salwood	m^3	42000.00
672	White Vitreous china 10 lit. (full flush) capacity controlled low level flushing cistern with all fittings	each	700.00
673	White vitreous china clay half stall urinal flat back 580x380x350 mm or angle back 450x375x350 mm with waste fittings as per IS : 2556	each	865.00
674	White Vitreous china flat back wash basin 550x400 mm	each	550.00
675	White Vitreous china flat back wash basin 630x450 mm	each	725.00
676	White vitreous china laboratry sink 450x300x150 mm	each	1500.00
677	White vitreous china laboratry sink 600x450x200 mm	each	2500.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
678	White Vitreous china Surgeon type wash basin of size 660x460 mm	each	1100.00
679	Wire Coupling Clip	each	9.00
680	1 mm thick 35 mm wide bright finished stainless steel piano hinges	m	47.00
681	1 Point wall mounted spider fitting of SS-316 grade without flat head bolt and anchor fastener (c/c routel distance 200mm)	each	1300.00
682	100 mm S.C.I. trap with vent heel	each	325.00
683	100% Premium acrylic dirt resistance Silicone additives exterior paint	l	270.00
684	100mm thick average resin bonded rock wool slab having density 36+/-5 kg/m3	m^2	168.00
685	100mm thick extruded polystyrene (XPS) thermal insulating boards	m^2	974.00
686	100mm thick rock wool with resin bonded slab density 48kgs/m3	m^2	168.00
687	110mm thick thermal insulation of roofing with expanded polystyrene	m^2	302.00
688	12.5 mm thick Fully Perforated gypsum board	m^2	410.00
689	12.5 mm thick tapered edge Glass Reinforced Gypsum (GRG) board	m^2	40.00
690	12.5 mm thick tapered edge gypsum moisture resistant board	m^2	275.00
691	120mm thick thermal insulation of roofing with expanded polystyrene	m^2	332.00
692	125 mm grating with waste hole	each	25.00
693	12mm thick glass wool with resin bonded slab density 48kgs/m3	m^2	108.00
694	15 mm C.P.brass tap	each	270.00
695	15 mm dia PTMT stop cock (male thread)	each	60.00
696	15 mm nominal bore and 30 cm length PVC connection pipe with P.T.M.T. Nuts	each	38.00
697	15 mm nominal bore and 45 cm length PVC connection pipe with P.T.M.T. Nuts	each	52.00
698	15 mm PTMT bib cock	each	65.00
699	15 mm PTMT bib cock long body with flange	each	100.00
700	15 mm PTMT bib cockwith flange (fancy)	each	90.00
701	18 mm thick Flamed finish granite stone slab	m^2	1000.00
702	2 HP Mild Steel Auto Reverse Shutter Gearbox	each	20000.00
703	2 mm PVC sheet	m^2	300.00
704	2 Point spider fittings of SS-316 grade with fin but without flat head bolt(c/c routel distance 200mm)	each	1659.00
705	2.5 cms thick Tandur blue slabs	m^2	270.00
706	2.5cms thick Shahabad slabs	m^2	355.00
707	2.5-track x 2-panel sliding windows	m^2	5339.00
708	20 mm dia holding down bolts	q	6100.00
709	20 mm dia. PTMT stop cock	each	68.00
710	20mm thick grey granite	m^2	1350.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
711	20mm thick Machine polished granite stone slabs	m^2	1550.00
712	20mm thick Shiva gold granite	m^2	1900.00
713	21mm thick clear toughened Laminated glass for fins with holes	m^2	6000.00
714	254mm x 254mm 15mm Ceramic Cool Tiles	m^2	510.00
715	25mm thick average resin bonded rock wool slab having density 36+/-5 kg/m3	m^2	54.00
716	25mm thick extruded polystyrene (XPS) thermal insulating boards	m^2	241.00
717	25mm thick glass wool with resin bonded slab density 48kgs/m3	m^2	211.00
718	25mm thick rock wool with resin bonded slab density 48kgs/m3	m^2	54.00
719	27.5 cm long wire spring grade No. 2 for rolling shutters	each	300.00
720	2-track x 2-panel sliding windows	m^2	5085.00
721	3-track x 2-panel sliding windows	m^2	5763.00
722	4 Point spider fittings of SS-316 grade with fin but without flat head bolt(c/c routel distance 200mm)	each	3318.00
723	40 mm thick Granite stone slabs fine dressed	m^2	1440.00
724	400 mm long fin plate without fastners	pair	5930.00
725	40mm thick average PU foam spray having density 35+/-5 kg/m3 density	m^2	338.00
726	40mm thick average resin bonded rock wool slab having density 36+/-5 kg/m3	m^2	76.00
727	40mm thick rock wool with resin bonded slab density 48kgs/m3	m^2	76.00
728	4mm thick plain glass	m^2	425.00
729	5 mm BS prelam PVC sheet	m^2	870.00
730	5 mm semi finished PVC sheet	m^2	435.00
731	5 mm SS prelam PVC sheet	m^2	740.00
732	50mm thick average PU foam spray having density 35+/-5 kg/m3 density	m^2	559.00
733	50mm thick average resin bonded rock wool slab having density 36+/-5 kg/m3	m^2	89.00
734	50mm thick extruded polystyrene (XPS) thermal insulating boards	m^2	466.00
735	50mm thick extruded polystyrene (XPS) thermal insulating boards density 32 kg/m4	m^2	466.00
736	50mm thick glass wool with resin bonded slab density 48kgs/m3	m^2	300.00
737	50mm thick rock wool with resin bonded slab density 48kgs/m3	m^2	89.00
738	50mm thick thermal insulation of roofing with expanded polystyrene	m^2	122.00
739	5mm PVC sheet	m^2	650.00
740	6 mm dia G.I. adjustable hangers including clips (up to 1.2 m length)	each	20.00
741	6 mm thick clear heat strengthened glass	m^2	650.00
742	6 mm thick High performance glass	m^2	1000.00

Sl.No.	Material Component	Unit	Basic Rate Rs.
743	60 mm thick Cobble Stones	m^2	425.00
744	600x120 mm glass shelf with anodised aluminium angle frame, C.P. brass brackets and guard rail of standard size	each	300.00
745	60mm thick extruded polystyrene (XPS) thermal insulating boards	m^2	480.00
746	60mm thick thermal insulation of roofing with expanded polystyrene density 20kg/m3	m^2	180.00
747	65mm thick average resin bonded rock wool slab having density 36+/-5 kg/m3	m^2	113.00
748	65mm thick rock wool with resin bonded slab density 48kgs/m3	m^2	113.00
749	70mm thick extruded polystyrene (XPS) thermal insulating boards	m^2	703.00
750	70mm thick thermal insulation of roofing with expanded polystyrene	m^2	227.00
751	75 mm thick Cobble Stones	m^2	470.00
752	75mm thick average resin bonded rock wool slab having density 36+/-5 kg/m3	m^2	128.00
753	75mm thick extruded polystyrene (XPS) thermal insulating boards	m^2	720.00
754	75mm thick extruded polystyrene (XPS) thermal insulating boards density 32 kg/m5	m^2	720.00
755	75mm thick rock wool with resin bonded slab density 48kgs/m3	m^2	128.00
756	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	200.00
757	8 mm thick tapered edge calcium silicate board	m^2	265.00
758	8mm thick Calcium silicate perforated tiles of size 595 x595mm	m^2	833.00
759	8mm thick Granite tiles	m^2	500.00
760	90mm thick thermal insulation of roofing with expanded polystyrene	m^2	242.00

Note :

The material rates (excluding GST) are rounded off and listed for infomation purpose and shall not be used for direct payments.

General Notes

Chapter 1 : Earth Work – Refer UNI SR

Chapter 2 : Concrete Works – Refer UNI SR

Chapter 3 : Mortar - Refer UNI SR

Chapter 4 : Anti Termite Treatment

Sub-terranean termites are responsible for most of the termite damage in buildings. Typically, they form nests or colonies underground. In the soil near ground level in a stump or other suitable piece of timber in a conical or dome shaped mound. The termites find access to the super-structure of the building either through the timber buried in the ground or by means of mud shelter tubes constructed over unprotected foundations.

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:

Chlorphriphos emulsifiable concentrate of 20%

Lindane emulsifiable concentrate of 20%

Anti-termite treatment chemical is available in concentrated form in the market and concentration is indicated on the sealed containers. To achieve the specified percentage of concentration, Chemical should be diluted with water in required quantity before it is used. Graduated containers shall be used for dilution of chemical with water in the required proportion to achieve the desired percentage of concentration. For example, to dilute chemical of 20% concentration. 19 parts of water shall be added to one part of chemical for achieving 1% concentration.

Engineer -in-Charge shall procure the chemical of required concentration in sealed original containers directly from the reputed and authorized dealers, Chemical shall be kept in the custody of the Engineer-in-Charge or his authorized representatives and issued for use to meet the day's requirements. Empty containers after washing and concentrated chemical left unused at the end of the day's work shall be returned to the Engineer-in-Charge or his authorized representative.

Measurements: Concentrated chemical in sealed containers shall be measured in litres. Chemicals of different types and concentration shall be measured separately.

Safety Precautions

Chemical used for anti-termite treatment are insecticides with a persistent action and are highly poisonous. This chemical can have an adverse effect upon health when absorbed through the skin, inhaled as vapours or spray mists or swallowed.

The containers having emulsifiable concentrates shall be clearly labelled and kept securely closed in stores so that children or pet cannot get at them. Storage and mixing of concentrates shall not be done near any fire source or flame. Persons using these chemical shall be warned that absorption though skin is the most likely source of accidental poisoning. Particular care shall be taken to prevent skin contact with concentrates and prolonged exposure to dilute emulsion shall also be avoided. After handling the concentrates or dilute emulsion, workers shall wash themselves with soap and water and wear clean clothing, especially before eating. In the event of severe contamination, clothing shall be removed at once and the skin washed with soap and water. If chemical has splashed into the eyes, they shall be flushed with plenty of soap and water and immediate medical attention shall be sought.

Treatment

Once the termites have an ingress into the building, they keep on multiplying and destroy the wooden and cellulosic materials, and as such it becomes essential to take measures for protection against termites. Anti termite measures described below are necessary for the eradication and control of termites in existing building. To facilitate proper penetrations of chemical in to the surface to be treated, hand operated pressure pump shall be used.

To have proper check for uniform penetration of chemical, graduated containers shall be used.

Proper check should be kept so that the specified quantity of chemical is used for the required area during the operation. Chemical treatment for the eradication and control of sub-terranean termites in existing building shall be done as per IS 6313 (Part III). Treatment shall be got done only from the approved specialized agencies using the chemical procured directly by the Executive Engineer from reputed and authorized dealers.

Treatment along outside of foundations: The soil in contact with the external wall of the building shall be treated with chemical emulsion at the rate of 7.5 L/m2 of vertical surface of the sub-structure to a depth of 300 mm. To facilitate this treatment, a shallow channel shall be excavated along and close to the wall face. The chemical emulsion shall be directed towards the wall at 1.75 L/m of the channel. Rodding with 12 mm diameter mild steel rods at 150 mm apart shall be done in the channel. If necessary, for uniform dispersal of the chemical to 300 mm depth from the ground level. The balance chemical of 0.5 L/m shall then be used to treat the backfill earth as it is returned to the channel directing the spray towards the wall surface.

If there is a concrete or masonry apron around the building, approximately 12 mm diameter holes shall be drilled as close as possible to the plinth wall about 300 mm apart, deep enough to reach the soil below and the chemical emulsion pumped into these holes to soak the soil below at the rate of 2.25 L/m.

In soils which do not allow percolation of chemicals to desired depth, the uniform disposal of the chemical to a depth of 300 mm shall be obtained by suitably modifying the mode of treatment depending on site condition.

In case of RCC foundations the soil (backfill) in contact with the column sides and plinth beams along with external perimeter of the building shall be treated with chemical emulsion at the rate of 7.5 L/m2. of the vertical surface of the structure. To facilitate this treatment, trenches shall be excavated equal to the width of the shovel exposing the sides of the column and plinth beams upto a depth of 300 mm or upto the bottom of the plinth beams, if this level is less than 300 mm. The chemical emulsion shall be sprayed on the backfill earth as it is returned into the trench directing the spray against the concrete surface of the beam or column as the case may be.

Treatment of Soil under Floors : The points where the termites are likely to seek entry through the floor are the cracks at the following locations:

- At the junction of the floor and walls as result of shrinkage of the concrete;
- On the floor surface owing to construction defects;
- At construction joints in a concrete floor, cracks in sections; and
- Expansion joints in the floor.

Chemical treatment shall be provided in the plinth area of ground floor of the structure, wherever such cracks are noticed by drilling 12 mm holes at the junction of floor and walls along the cracks on the floor and along the construction and expansion joints at the interval of 300 mm to reach the soil below. Chemical emulsion shall be squirted into these holes using a hand operated pressure pump to soak the soil below until refusal or upto a maximum of one litre per hole. The holes shall then be sealed properly with cement mortar 1:2 (1 cement: 2 coarse sand) finished to match the existing floors. The cement mortar applied shall be cured for at least 10 days as per instruction of the Engineer-in-charge.

Treatment of Voids in Masonry : The movement of termites through the masonry wall may be arrested by drilling holes in masonry wall at plinth level and squirting chemical emulsions into the holes to soak the masonry. The holes shall be drilled at an angle of 45 degree from both sides of the plinth wall at 300 mm intervals and emulsion squirted through these holes to soak the masonry using a hand operated pump. This treatment shall also be extended to internal walls having foundations in the soil. Holes shall also be drilled at wall corners and where door and window frames are embedded in the masonry or floor at ground. Emulsion shall be squirted through the holes till refusal or to a maximum of one litre per hole. Care shall be taken to seal the holes after the treatment.

Treatment at Points of Contact of Wood Work : The wood work which has already been damaged beyond repairs by termites shall be replaced. The new timber shall be dipped or liberally brushed at least twice with chemical in oil or kerosene. All existing wood work in the building which is in contact with the floor or walls and which is infested by termites, shall be treated by spraying at the points of contacts with the adjoining masonry with the chemical emulsion by drilling 6 mm holes at a downward angle of about 45 degree at junction of wood work and masonry and squirting chemical emulsion into these holes till refusal or to a maximum of half a litre per hole. The treated holes shall then be sealed.

Infested wood work in chaukhats, shelves, joints, purlins and other items in contact with the floor or the walls shall be provided with protective treatment by drilling holes of about 3 mm diameter with a downward slant to the core of the wood work on the inconspicuous surface of the frame. These holes should be at least 150 mm centre to centre and should cover in entire frame work. Chemicals shall be liberally infused in these holes. If the wood is not protected by paint or varnish two coats of the chemicals shall be given on all the surfaces and crevices adjoining the masonry.

Chapter 5 & 6 : Stone & Brick Masonry

The contractor shall provide for all labour, materials, operations, equipments and incidentals necessary and required for the completion of all Stone work in Foundation and up to plinth and for brickwork as per drawings from the Architecture & Designs. As per the recommendations of the Technical Working Group, the Stone masonry work in Superstructure is discouraged and the item is not considered in the SR.

The quality of clay bricks, Fly ash bricks & Solid concrete blocks & other masonry units shall be as per relevant IS standards and approved by the Executive Engineer. The finished rates are inclusive of scaffolding charges and separate charges need not be paid unless specified separately.

Chapter : 7 Roofing works

The items considered in this chapter includes, GI Sheets, Inorganic fibres, Asbestos sheets, Galvalume sheets, various categories of Truss, False ceilings of Calcium silicate, Mineral Fibres, Gypsum boards and other categories of paneling. The item description is self explanatory for the work to be executed. Relevant IS codes are to be referred for selection of materials and the work to be done with unit of measurement in m, m^2 basis as per design drawings.

Chapter : 8 Finishing works

Plastering :

Materials: The materials of mortar cement and sand, including water should be of the standard specifications. The materials shall be first dry mixed, by measuring with boxes to have the required proportion (as specified), and then water added slowly and gradually and mixed thoroughly.

Preparation of Surface: The surface of the wall shall be washed and cleaned and kept wet for two days before plastering. The surface of the wall shall be brushed, cleaned, washed, watered and wetted with water before plastering. In case of cement plaster on cement concrete the face shall be lightly roughened, cleaned, washed and wetted.

Laying: The thickness of plastering shall be minimum 12 mm (1/2") with appropriate rendering as per IS 2402- 1963. To ensure uniform thickness of plaster, patches of 15 cm x 15 cm (6") strips 1 m (3') apart of 10 cm (4") wide plaster shall be applied first at about 2 m (6 ft) apart to act as a guide. First mortar shall be dashed and pressed over the surface and then brought to a true smooth and uniform surface by means of float and trowel. Wall plastering shall be started from top and worked down towards floor. Ceiling plastering shall be completed before starting of wall plaster. The plastered surface shall be kept wet for at least 10 days. The surface should be protected from rain, sun, frost etc. All the edges shall be rounded to minimum diameter so that the edges are not damaged during and after construction. The rounding should be least and need to be approved by the Engineer in charge prior to completion of work.

20 mm (3/4") thick plaster if required, should be applied in two layers, first rough layer of mortar 12 mm (1/2") thick shall be dashed and pressed on the surface and when the rough layer has sufficiently set, not later than 48 hours, another layer 8 mm thick shall be applied and pressed smooth by float and trowel.

RCC structures with vertical finishes which requires rendering shall be done to minimum 6mm. Due care shall be taken to fix in line and level with clean surface finish.

If specified, the final surface shall be given special finishing textures, as scaped textures, canvas textures, cork-float finish etc. with required tools by engaging an expert worker in the profession.

Overcoming unsatisfactory appearance shall be the main criteria for Plastering.

Painting :

Materials: All materials shall be delivered to premises in their original unbroken containers or package and bear the manufacturers name, label and brand. Formula and the mixed proportion need to be provided in writing by the contractor before application. Manufacturers colour charts shall be submitted for colour selection. Colour sample shall be submitted on one 400 mm x 400 mm cement board per sample for each type of paint for approval by the Engineer in charge.

Preparation of Surfaces: All oil, grease, dirt, dust, loose mill scale and any other foreign substance shall be removed from the surface to be painted, polished and white washed by the use of solvent and clean wiping materials. In the event the surfaces become otherwise contaminated in interval between cleaning and painting, re-cleaning will be done by the contractor at no additional cost. All surfaces to be painted with approved quality paints shall be free from dust, dirt, fungus, lichen, algae, etc.

For the coat of primer and the paint works, the contractor need to make sure that all the temporary features and removable items such as power points, mirror, geysers etc are to be mounted down before the application of the paint or primer.

Application: The painting shall be laid on evenly and smoothly by means of crossing and laying-off, the latter in the direction of the grain of wood. The crossing and laying off consists of covering the area with paint, brushing the surface hard for the first time and then brushing alternatively in opposite direction at right angles to the same.

Where so stipulated, the painting shall be carried out using spray machines suited for the nature and location of the work to be carried out. The application of paint, especially on the main gates and other external feature shall be applied with spray machines as mentioned. Only skilled and experienced workmen shall be employed for this class of work.

The painted surfaces shall present a uniform appearance and semi-glass finish free from streaks, blisters etc.

Preparation of Surfaces:

***i) Wood*:** Sand paper to a smooth even surface and then dust off and wipe clean, touch up all knots and pit pockets with shellac on interior wood. After priming coat has been applied thoroughly fill all nail holes, irregularities and cracks. Use plaster wood filler for stained or natural finish and putty, glazier putty or wood for painted work.

***ii) Plaster Work*:** Fill all holes, cracks and abrasions with Plaster of Paris, properly prepared and applied and smoothed off to match adjoining surfaces. Do not use sand paper on plaster surfaces. Plaster shall be allowed to dry for at least 4 (twelve) weeks before the application of paint.

***iii) Steel and Iron*:** All surfaces shall be washed with mineral spirits to remove any dirt or grease before applying paint. Where rust or scale is present, it shall be wire brushed and sand papered clean. All clean surfaces shall be given one coat of approved phosphate before prime coat in accordance with the manufacturer's specifications. Shop coats of paint that have become marred shall be cleaned off, wire brushed, and spot primer place over the affected area. Paint shall be applied in a manner extending full protection to all surfaces, by applying one coat of primer to all surfaces in an even and complete coverage, after primer coat has dried (three or more) successive coats of proper enamel colour shall be applied for a complete weather resistant surface.

iv) *Galvanized Metal*: Galvanized metal, when new, shall be thoroughly cleaned with naphtha and treated with a moderate solution prepared by mixing 38 grams of copper acetate in a litre of soft water of 39 gm of copper nitrate and 13 g ammonium chloride in a litre of soft water, prepared in a wooden container and applied with a brush. Allow to dry thoroughly and brush off before applying paint, as per the instruction for steel and iron application.

***v) Protect and Clean*:** At all times, the general and liberal use of drop cloths shall be a primary requirements for protection purposes. Place drop cloths to adequately protect all finished work. Remove and replace all items of finish hardware, device plates, accessories, lighting fixtures or other removable items. In no case shall any finish hardware or other specified items already fitted into place be painted, unless otherwise specified. Contractor shall protect not only his work at all times, but shall also protect adjacent work and materials by suitable covering during the progress of his work. Upon completion of his work, he shall remove all paint and varnish spots from floors, glass and other surfaces. Any defaced surfaces shall be cleaned and the original finish restored. He shall remove from the premises all rubbish and accumulated material and shall leave the work in clean, orderly and acceptable conditions.

The finish should be as per satisfaction of the Engineer in charge. The area needs to be well protected until the building is completely taken over.

Chapter : 9 Flooring

The items considered in this chapter includes, Vitrified tiles of all widely used sizes, Granite flooring, Chequered tiles flooring, Cobble stones & Red oxide. The description provided in the specifictions is self explanatory for the work to be executed. Relevant IS codes are to be referred for selection of materials and the work to be done with unit of measurement in m^2 basis. For selection of colour & pattern of tiles, the contractor shall obtain the consent of the Executive Engineer.

The vitrified tiles are preferably to be fixed with Cement mortar and for tile on tile work, special adhesives from reputed manufacturers and BIS certified agencies shall be considered.

The vitrified tiles considered in the rate analysis are of reputed top brands with certified IS specification. The marble items are recommended to be used for valuation purpose only.

Chapter : 10 Cladding

The items considered in this chapter includes, Tile cladding, Granite cladding, Clay tiles, Kitchen slabs, Laterite cladding of standard sizes as per IS Codes and other standards. The description provided in the specifications is self explanatory for the work to be executed. Relevant IS codes are to be referred for selection of materials and the work to be done with unit of measurement in m^2 basis. The choice of colour & pattern of cladding material , the contractor shall obtain the consent of the Executive Engineer.

The cladding tiles are preferably to be fixed with Cement mortar and for tile on tile work, special adhesives from reputed manufacturers and BIS certified agencies shall be considered.

Chapter : 11 Steel & Aluminium

Materials: Steel tubes used in the truss / ramps shall be hot finished tubes, Channels, Angles conforming to IS 1161-1968 and IS 806-1968.

Fabrication: The fabrication of trusses / ramps using steel tubes shall conform to IS 800 and welding shall conform to IS 820 and IS 816-1956. The component parts built up C- Channels, I-Beams, rafters, struts, ties, purlins etc of the structure shall be assembled in such a manner that they are neither twisted nor damaged. The members of the truss shall be welded and assembled according to the drawing. All materials shall be straightened before assembly, if necessary, unless required to be of a curvilinear form and shall be free from twist. Cutting and welding at joints, junctions and corners shall be done to suit requirements. Fabrication joints shall not have gaps exceeding 10mm before welding; at no time will putties or fillers be used to seal holes or gaps in welded areas.

Laying: The contractor is required to produce fabrication drawings before fabrication work commences. These drawings need to be verified by the Engineer in charge, for proper installation of the truss. The contractor shall temporarily install the trusses, purlins, I-sections, Channels etc on the ground for the proper verification before installation in the project

Welding: The elements of the trusses need to be properly welded on the ground before installing them in their final position. All joints shall be tack welded and dimensions and alignment checked prior to full welding. All welds shall conform to IS codes and shall be of an acceptable workmanship.

Bolting: Washers shall be specially shaped where necessary, or other means used, to give the nuts and the heads of bolts a satisfactory bearing. In all cases where the full bearing area of the bolt shall not be within the thickness of the parts bolted together washers of appropriate thickness shall be provided to allow the nut to be completely tightened. Edges should be dressed to a neat and workman like finish free from distortion where parts are to be in contact metal-to metal. No dissimilar metals that will encourage electro-chemical corrosion shall be used.

For hooking the truss, base plates need to be installed in the concrete at the time of casting the concrete. The base plates need to be properly anchored with the J-hooks or U-hooks unless otherwise specified. During casting of the concrete, it needs to be made sure that the heads of the screws are not damaged. During the casting procedure all threaded protrusions shall have a protective covering to eliminate thread damage and fouling of the threads with concrete. Please note that the contractor needs to install expansion bolts wherever necessary, i.e. all the metal sections need to be fixed to the structural elements with the help of the expansion bolt.

Hilty expansion bolts are preferred and the length of the bolts shall be minimum of 10 mm dia. and 300 mm length.

Flattened Ends: In tubular construction, the ends of tubes may be flattened or otherwise formed to provide for welded, riveted or bolted connections provided that the methods adopted for such flattening do not injure the material. The change of section shall be gradual. Fabricated sample shall be approved by the Engineer in charge prior to fabrication for the work. Hammering of ends to alter their configuration is "not" an acceptable method of changing the section. Hydraulic or mechanical pressure applied in a steady manner thus not altering the molecular structure of the tubing shall be the acceptable practice.

Painting: All tubes shall be painted with two coats of red oxide paint at the workshop before delivery at site. The truss complete in all respects shall be erected at site and fixed in position true to shape and plane. Sample of the workmanship shall be approved prior to work. After erection, re-cleaning and painting with two or more coats of red oxide paint may be required and shall be done at no extra charge by the contractor. A total and complete seal of the metal shall be maintained, to have the work accepted.

Measurement:

The measurement shall be done in weight of the work done in kg. The rate shall include the cost of all the tubes, base plates, J-hooks or U-hooks, bolts, welding, completely erected in position including labour. The rate also includes the cost for required number of coats over anticorrosive paint of approved quality and brand. The metal sections shall be fixed to the structural elements with the help of expansion bolts only. Nothing extra shall be provided for the expansion bolts.

Nothing extra shall be paid to the contractor for the purlin support and the base plaster unless specified. The metal C-Channels, I-beams, truss, rafters, purlins are also included within the particular rate and nothing extra shall be provided to the contractor unless specified.

Chapter : 12 Wood and PVC Work

The chapter consists of all the wood work items operated in the State. The usage of Teak wood is not recommended unless in specific cases, approved by the Government. The items such as Salwood (Red & White) are recommended for all Departmental buildings.

Chapter : 13 Water Supply & Sanitary Works (Refer BWSSB SR)

For any other items which are not found in SR and which are essential for the successful completion of work shall adopt items of BWSSB SR.

Chapter : 14 Sanitary Works (Refer BWSSB SR)

Necessary Sanitary items of reputed brand specification required for Building works conforming to relevant Indian Standard codes as specified in the appendix IV with appropriate & mostly used sizes & item rates are considered in this chapter. For any other items which are not found in SR and which are essential for the successful completion of work shall adopt items of BWSSB SR.

Chapter : 15 Water Proofing works

All waterproofing work shall be carried out by the contractor through a specialized Waterproofing agency as specified in the tender. The work shall be carried out strictly in accordance with the instructions of the manufacturer of the waterproofing materials used in waterproofing treatment and the contractor shall be responsible for the proper production of record of ingredients used and the performance of the waterproofing work done.

The entire work shall be covered by a performance guarantee for waterproofing for the period mentioned in the product description.

1. Preparation of Surfaces: The surface on which the water proofing is to be applied shall be thoroughly cleaned. All the unwanted impurities need to be cleaned as far as applicable prior to the application of the materials. The graded roof surface, concrete fillets, and faces of wall shall be thoroughly cleaned with wire brush and all scales, mortar dropping etc. removed. Any cracks shall be cut into "V' section and filled up flush with cement mortar 1:4 or blown up. Cleaning of surface or treating the cracks shall not be paid for separately.

2. Mixing & Application: If the waterproofing compound approved has two elements to be mixed, the contractor shall mix in presence of the Engineer in charge or the site representative as per the instruction of the manufacturers' specification. Furthermore, all the mixing procedures and application procedures shall be thoroughly applied as per the manufacturers' specification. Special care need to be taken during mixing. Where the treatment consists of two layers, the second layer shall be laid similar to the first with joints in the two layers properly staggered.

The items of PU based & SBS are to be used generally for all type of concrete structure.

Measurements: The rate for the waterproofing work to be carried out under the contract shall include all labours, materials, tools, plants, equipments, transport and all the operations

required for carrying out and completing the work, whether spelt out in detail or not, but including removing all loose materials, loose scales, mortar droppings and oil, grease etc. and removing all debris / rubbish outside the site premises, curing where required.

Chapter : 16 Energy Conservation Building Code

The Purpose of Karnataka Energy Conservation Building Code

Rapid increase in building stock in major cities, coupled with increase in electricity use for space conditioning is resulting in rapid increase in electricity use in building sector. Projection done by NITI Aayog indicates that the electricity consumption for the building sector is expected to increase 6-13 times by 2047, and as indicated by BEE, the energy consumption of overall building sector will raise by more than 600% in the upcoming decade. Data collected from a sample of urban middle-income apartments shows that electricity for providing thermal comfort contribute to 30- 60% of the annual electricity consumption. With the important aspect of thermal comfort into consideration, which is of utmost importance in all kinds of housing, but more so in case of affordable housing, so as to ensure health and well-being of the occupants the Bureau of Energy Efficiency, Government of India envisaged a phased approach for the states for the development of the building energy conservation code.

In connection to this, the Karnataka Energy Conservation Building Code (ECBC) – 2014 was notified in the Gazette on 27th November 2014 by the Government of Karnataka. It came into effect in the State from the date of notification. Further, the Karnataka Renewable Energy Development Limited(KREDL) has updated the existing K ECBC 2014 and the new version of Karnataka ECBC 2018 and ECBC Rules 2018 have been prepared in-line with Bureau of Energy Efficiency ECBC 2017. The updated K ECBC (Code) -2018 and K ECBC Rules-2018 were notified by the Energy Department, Government of Karnataka and which were notified in the Gazette on 28th May 2020.

In pursuance to this, the list of energy efficient building materials (Civil) was prepared by the Karnataka Renewable Energy Development Limited for inclusion in the Public Works Department Schedule of Rates. Accordingly, many of the energy efficient materials were added in the Civil SR of PWD in the year 2018-19.

With the advancement in technologies and need for revision of the Civil SR of PWD, the KREDL with the support of ECBC Cell, Architects and in consultation with the various stakeholders has prepared the updated list of energy efficient building materials.

The need for ECBC and the rating systems

The cooling/heating load of a building has the highest electricity consumption in a building, thus by utilising ECBC or energy efficient materials, the cooling/heating load can be significantly reduced. This will in turn reduce the total electricity consumption & result in cost savings. This reduction in cooling/heating load can be done by providing insulations to the wall/roof and by

providing Energy Efficient glass for windows and a suitable evaluation tool is essential to evaluate the performance of the Energy Efficient Building. The tool comprises a predefined set of criteria relating to the design, construction, and operations of buildings.

In India, there are predominantly three rating systems –

Leadership in Energy and Environmental Design (LEED),

The rating systems from Indian Green Building Council (IGBC) and

The Green Rating for Integrated Habitat Assessment (GRIHA).

These green rating systems aim to quantify the environmental, economic and socio-economic benefits of a building design with an emphasis on sustainable site planning, optimized energy performance, efficient materials, construction practices, water and waste management strategies and indoor environmental quality.

In Karnataka, with the incorporation of items of ECBC materials in SR of 2018-19, various large scale works have been taken by the Public and Private sector. One such example in the Government sector building is the Kumara Krupa Guest house in Bengaluru, which is one of the first ECBC compliant buildings in India. It has used AAC blocks for External wall and Insulation for the roof. Similarly, KREDL building in Nagarbhavi, Karnataka is aiming to become the first Super ECBC compliant Building in Karnataka by adopting measures like very high efficient glass for the façade, AAC blocks for external walls and roof insulation. Apart from the above mentioned buildings, there are various buildings at different stages of construction which have or will adopt energy efficient building materials/equipment in their construction practices.

The materials proposed to be added to the ECBC section of the SR have the significant thermal resistance properties. These properties will reduce heat gain through building envelope (Wall, Roof & Window) by restricting the flow of heat from outside to inside of the building. Thus, the energy required to cool the building will be reduced, which will lead to reduction in electricity consumption. Materials with higher thermal resistance and lower thermal transmittance value will make the building energy efficient. Technically when compared to a conventional building an ECBC building will consume 25-30% less electricity, depending upon the location and climatic conditions. All materials suggested to be incorporated in the ECBC section of the SR have lower thermal transmittance value (U-value) and higher thermal resistance value (R-value), and are called as insulation materials. These materials also aims at limiting heat gains/loss from building envelope. Building envelope consists of the walls, roof, windows and fenestration. Major parts of India have hot and humid climates. Research presented in the National Building Code (NBC) and Handbook on Functional Requirement for Buildings (SP: 41), both published by the Bureau of Indian Standards, has established a direct correlation between the design of building envelop and the heat gains from the building envelope. Heat gains in turn determine the indoor temperatures, thermal comfort and sensible cooling demand. Current designs of building envelope are often not

guided by considerations of heat gain and resultant cooling requirement to achieve indoor thermal comfort. It is seen that current practices of commercial buildings design and construction show a large variation in heat gains and hence in the sensible cooling demand. The ratio between the minimum to maximum sensible cooling demand can vary by as much as 1:4.

Apart from the insulation material, a specific type of roof tile has also been proposed which has a high solar reflective index, i.e. it reflects more than 70% of the solar radiation incident on the surface of the roof. This reduces the cooling load on the building significantly, and simultaneously increasing the thermal comfort for the occupants.

Thus to reduce heat gains/loss from building envelope a set of building materials have been suggested which will reduce the mentioned phenomenon to occur. The suggested materials have low thermal conductivity compared to conventional materials, which is most important requirement for material to reduce heat gain/loss. Below are the materials along with their place of application (whether wall or Roof) and their corresponding thermal conductivity values (K-value).

1. *Providing and fixing polyurethane foam (PUF) slab 40 mm thick average with PU slab density 36+/-2 kg/m^3*

Polyurethane foam panels/slabs are made of isocyanate and polyether. There are two types of polyurethane foam: soft foam and rigid foam. Soft foam is open-cell structure, hard foam is closed-cell structure.

For wall insulation, advantages of PUF slab compared to EPS/XPS: Compared to EPS and XPS for wall insulation, PUF slab has best performance at every aspect like better thermal efficiency, better temperature resistance and better compressive strength, so it's widely used in high energy saving projects.

2. Epoxy based bonding adhesive

The adhesive must have high adherence, must be waterproof and water vapor permeable. It can also be acrylic polymer-based adhesive. The adhesive should be applied to the insulation board at a total consumption of 6-7 Kg/m2. The adhesive must have class A1 fire rating as per UNE-EN 13501-1, and the diffusion coefficient of water vapor less than or equal to 15 and preferably with CE marking.

3. Providing and fixing cast in situ polyurethane foam (PUF) spray with PU foam spray.

Sprayed PU foam is a two-component chemically modified polyurethane foam which achieves superior U-value and air-permeability results.

Spray applied PUF is best suited for varying wall profiles, where installation of prefabricated boards is difficult. Closed cell polyurethane foam provides an extra layer of resilience against the ingress of wind driven rain and flood water. Since it is completely monolithic, there would not be any gaps in between thereby reducing thermal bridging.

4. Providing Extruded Polystrene thermal insulating boards

Extruded polystyrene (XPS) foam is a pre-formed closed cell rigid insulation that's also formed with polystyrene polymer, but manufactured using an extrusion process, and is often manufactured with a distinctive colour to identify product brand. Due to the manufacturing process, XPS insulation is typically available only in standard dimension square or rectangular boards. Advantages of XPS boards it has very good cost performance, good thermal insulation, better compression properties compared to EPS and it is easy to apply.

5. Providing and fixing polyurethane foam (PUF) spray with PU foam spray for Cavity wall insulation

Sprayed PU foam is a two-component chemically modified polyurethane foam which achieves superior U-value and air-permeability results. Injected PU foam can be used in cavities for a superior performing insulation which also helps to bond the inner and outer leaves providing strength to the building.

Advantages: Spray applied PUF is best suited for varying wall profiles, where installation of prefabricated boards is difficult. Closed cell polyurethane foam provides an extra layer of resilience against the ingress of wind driven rain and flood water. Since it is completely monolithic, there would not be any gaps in between thereby reducing thermal bridging.

6. Providing and fixing glass wool slab- resin bonded with density for Cavity wall insulation.

Glass wool, also known as fibreglass, is made from a mixture of natural and recycled glass which is melted at 1,450°C and is then spun quickly to create fibres. These fibres are then bound together to be used as insulation. The glass fibres create pockets of air which act as barriers to prevent heat loss, because air is a poor conductor of heat.

Advantages of glass wool insulation are: It is non-combustible/fire proof and Perfectly suited to seal uneven surfaces, because of its compressibility

Disadvantages of glass wool insulation: When processing and installing glass wool insulation, mineral fibers are released. These may cause irritation and inflammations of the eyes, skin, and airways. It is therefore advisable to wear a mask, dust goggles and gloves.

7. Providing and fixing rock wool slab - resin bonded rock wool for Cavity wall

Mineral wool, also known as rock wool or stone wool, is made from a selection of raw materials, such as stone and glass.

These raw materials are treated in a similar way to glass, in that they are melted at high temperatures until they melt, and then they are spun to form fibres, similar to wool. This wool is then packaged up into batts, rolls or slabs.

Advantages of rockwool insulation are that it provides superior fire resistance properties without fire stops requirements. It is More breathable material compared with EPS. It offers solid support for the render. It provides excellent acoustic insulation and it is completely recyclable.

8. Overdeck insulation with Polyurethane foam

This is a two component (Polyol and isocyanate based) spray applied polyurethane based insulation system which applied directly over the roof by spraying. This insulation has an advantage of non-interference with internal construction activities/operations of a building, jointless adhesion to roof surfaces due to seamless and monolithic nature of spray and speedy application.

Minimum requirements for Spray applied polyurethane foam as per ASTM D7425: Density – Greater than 40 Kg/m3, Thermal conductivity – Less than 0.025 W/mK, Closed cell content – Greater than 90%, Compressive strength – Minimum 276 KPa, Tensile strength – Minimum 276 KPa, Water absorption – Less than 5%. The spray applied PUF should be CFC and HCFC free, in compliance to IS 12432 Part 3, and fire resistance property conforming to Class B2 as per DIN 4102.

Advantages of spray PUF for over deck insulation: The thermal conductivity of spray applied polyurethane foam is lesser than EPS/XPS boards. And hence, it has better thermal efficiency. Since it is an in- situ spray application, it is completely jointless and monolithic. It is a fully bonded system to the mother slab with rigid PU foam, thereby ensuring complete dimensional stability. All joints, corner, terminations and pipe penetrations can be treated effectively through system as it is spray applied.

9. Under deck insulation with Polyurethane foam

Under deck insulation is not effective when compared to over deck insulation. As per the NBC 2016, If the thermal barrier is provided under RCC roof, as in under-deck insulation, some heat passes through it and heats up the ambience of the room. This decreases the comfort level of the room and if the building is air conditioned, increases the air conditioning load. Over-deck insulation is, therefore, considered advantageous over under-deck insulation in hot climates.

Expanded polystyrene (EPS) foam is a pre-formed closed-cell insulation that's manufactured by "expanding" a polystyrene polymer; the appearance is typically a white foam

Plastic insulation material (the likes of which can be found as merchandise packaging). Expanded polystyrene is very versatile because it can be moulded and cut into different shapes.

Advantages of EPS Boards Since these are preformed boards, does not require any trained technician for application.

10. *High Efficient glazing (Double & Triple Glazing):*

Insulating glass (IG) consists of two or more glass window panes separated by a vacuumor gas-filled space to reduce heat transfer across a part of the building envelope. A window with insulating glass is commonly known as **double glazing or a double-paned window, triple glazing or a triple-paned window, or quadruple glazing or a quadruple-paned window**, depending upon how many panes of glass are used in its construction. Solar Heat Gain Co-efficient (SHGC) & Visual Light Transmittance (VLT) are the major properties that account for selection of glazing along with thickness of the glass.

Advantages of High Efficient Glazing: It reduces radiative heat transfer into the dwelling units. Thereby reducing overall heat transfer per unit area of the occupied region.

Chapter : 17 Rain Water Harvesting

Definition : Rainwater harvesting is the collection of rainfall. In most cases, a roof is used for this purpose.

The rainwater then flows through the gutters, into a collection tank. The collected water can be used for small scale irrigation (of vegetable gardens etc.), clothes washing, bathing and after treatment also for drinking and food preparation.

Rainwater offers advantages in water quality for both irrigation and domestic use. Rainwater is naturally soft (unlike well water), contains almost no dissolved minerals or salts, is free of chemical treatment, and is a relatively reliable source of water for households

A rooftop rainwater harvesting system consists the following elements:

(a) Collection area

(b) Conveyance/piping system,

(c) Filtration /treatment

(d) Storage

(e) Usage/ Recharge

The collection area in most cases is the roof of a house or a building. The effective roof area and the material used in constructing the roof influence the efficiency of collection and the water quality.

A conveyance system usually consists of gutters or pipes that deliver rainwater falling on the roof top to manholes or other storage vessels. Both drain pipes and roof surfaces should be constructed of chemically inert materials such as wood, plastic or fiberglass, clay tiles etc in order to avoid adverse effects on water quality.

The water ultimately is stored in a storage tank, which should also be constructed of an inert material. Reinforced concrete, Brick masonry, fiberglass, or stainless steel are suitable materials.

Storage tanks may be constructed as part of the building, or may be built as a separate unit located some distance away from the building.

The specifications of various types of piping systems used in RWH, manholes, manhole covers, Open surface drains, road gully chamber, Dispersion trenches, soak pits are provided in the same can be adopted.

The Specifications for Storage tanks/Underground sumps shall be followed as per IS 2470:1986 (Part I & II).

The recharge wells/pits are provided with the bore wells to recharge the ground water table directly draining rainwater through filter media to the aquifer. The recharge wells/pits are also used for drawing water from the aquifer by making deep tube well in the or near the recharge pit.

The specifications for tube well for the withdrawal of underground water are also provided in this chapter with the relevant IS codes to be followed.

For detailed Rain Water Harvesting pit, the manual of Rain Water Harvesting specified by CPWD, DMA, RDPR shall be followed.

Chapter 18 : Structural Glazing

The technical specification of CPWD & IS Codes specified shall be followed for the material selection, procedure for installation & the testing criteria.

Chapter 19 : Dismantling & Demolition

Dismantling – The term “dismantling” implies carefully taking up or down and removing the building materials without damaging them. The articles dismantled shall be lowered to the ground and not thrown. Dismantling work shall cover complete removal of the existing structure or part of a work including all relevant items as indicated or as directed, clearing the site, sorting out useful materials and stacking them as described and disposing of the unserviceable materials.

Demolition – The term “demolition” implies breaking up the components of the structure building and then taking the components materials and rubbish as directed. The removal of overlaying or adjacent materials, if required for demolition of the structure shall be separately indicated.

Unless otherwise specified, the building/structure shall be dismantled/demolished upto 450mm below up or down. This shall consists of demolishing whole or part of work either manually using mechanical force or by implosion using explosion, including all relevant items as indicated

or as directed, clearing the site, sorting out useful materials and stacking them as directed and disposing of the unserviceable at ground level.

Serviceable and unserviceable materials

Inventory – Before dismantling/demolition operations are undertaken by the contractor, inventory of all materials, fittings and fixtures (except hidden materials) which are considered useful shall be made and signed by the engineer and the contractor, wherever the operations are entrusted to a contractor.

Serviceable materials – Any material which is in the opinion of the engineer could be reused or otherwise useful will be considered as serviceable

Unserviceable materials – Any material declared by the engineer are not serviceable shall be considered as unserviceable.

A register shall be opened at the work site to show day-to-day account of the turnout of salvaged materials. The register shall also indicate whether dismantled materials are properly stacked or wasted.

Unless otherwise specified, the lead for disposal of materials is to the nearest appropriate place. Separate or additional lead shall be given only for extra ordinary conditions.

The contractor shall be reasonable for the safe custody of serviceable materials until handed over to the engineer's representative or incorporated in the work and a written receipt for the same obtained.

Chapter 20 : Repairs to Buildings

This chapter contains items which are required for immediate action of Repair & items of preventive maintenance.

Chapter 21 : Conservation of Heritage Structures

This chapter is prepared with the intention of conservation of Heritage buildings of the state which are affiliated to Archaelogical survey of India. The items in this chapter are useful for Engineering departments involved in maintenance of Heritage structures.

PART - II

Chapter - 1

Earth Work

(To refer Common SR, Vol-1)

Chapter - 2

Concrete Works

(To refer Common SR, Vol-1)

Chapter - 3

Mortar

(To refer Common SR, Vol-1)

PART - III

Chapter - 4

ANTI-TERMITE TREATMENT

Sl. No.	Specification	Unit	Rate ₹
	4.0 ANTI-TERMITE TREATMENT		
4.1	Providing and injecting chemical emulsion for Pre-constructional Anti-Termite Treatment, creating continuous chemical barrier under and around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, expansion joints, over the top surface of consolidated earth on which apron is to be laid, surrounding of pipes and conduits with Chlorpyriphos 20% E.C. / Lindane 20% E.C. @ 3.19 l/m^2 including cost of chemical, diluting in water to one percent concentration, labour, usage charges of machinery, complete as per specifications.	**m^2**	**95.00**
4.2	Providing, diluting and injecting chemical emulsion for Post-constructional antitermite treatment with Chlorpyriphos/ Lindane E.C. 20% with 1% concentration		
4.2.1	Along external wall where the apron is not provided using chemical emulsion @ 7.5 l/m^2 of the vertical surface of the substructure to a depth of 300mm including excavation channel along the wall & rodding etc. complete:	**m**	**87.00**
4.2.2	Along the external wall below concrete or masonry apron using chemical emulsion @ 2.25 l/m including drilling and plugging holes etc.:	**m**	**44.00**
4.3	Treatment of soil with Chloropyriphos/Lindane E.C. 20% with 1% concentration 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:	**m^2**	**286.00**
4.4	Treatment of existing masonry using chemical emulsion with Chlorpyriphos/Lindane E.C. 20% with 1% concentration@ 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 :	**m**	**74.00**
4.5	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 and sealing the same.	**m**	**351.00**
4.6	Providing general disinfection services, spraying of insecticide and pesticide inside and outside the building (flies, bedbugs,lizards, cockroaches, spiders caterpillars etc., including cost of materials labour lead lift, usage charges of equipments etc., complete.	**m^2**	**38.00**

Chapter - 5

STONE MASONRY WORKS

Sl. No.	Specification	Unit	Rate ₹
	5.0 STONE MASONRY WORKS		
5.1	Providing 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 :		
5.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	**m^3**	**4,824.00**
5.2	Providing Coursed rubble masonry (first sort) with hard stone in foundation and plinth with Cement mortar 1:6 (1 cement : 6 coarse sand)	**m^3**	**5,611.00**
5.3	Providing Coursed rubble masonry (second sort) with hard stone in foundation & plinth with Cement mortar 1:6 (1 cement : 6 coarse sand)	**m^3**	**5,266.00**
5.4	Providing Size Stone masonry with hard stone in foundation & plinth with Cement mortar 1:6 (1 cement : 6 coarse sand)	**m^3**	**5,422.00**

Chapter - 6

MASONRY WORKS

Sl. No.	Specification	Unit	Rate ₹
	6.0 BRICK MASONRY WORK		
6.1	Providing Brick work with common burnt clay Non Modular bricks of class designation 3.5 in foundation and plinth in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**7,043.00**
6.2	Providing Brick work with common burnt clay Non Modular bricks of class designation 3.5 in foundation and plinth in Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**6,754.00**
6.3	Providing Brick work with common burnt clay modular bricks of class designation 3.5 in foundation and plinth in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**7,718.00**
6.4	Providing Brick work with common burnt clay modular bricks of class designation 3.5 in foundation and plinth in Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**7,464.00**
6.5	Providing Brick work with common burnt clay machine moulded perforated bricks of class designation 5.0 conforming to IS: 2222 in superstructure above plinth level in cement mortar 1:6 (1 cement : 6 coarse sand) With Non modular bricks including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**8,918.00**
6.6	Providing Brick work with common burnt clay machine moulded perforated bricks of class designation 5.0 conforming to IS: 2222 in superstructure above plinth level in cement mortar 1:6 (1 cement : 6 coarse sand) With Modular bricks including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**9,608.00**
6.7	Providing Brick work with common burnt clay Non Modular bricks of class designation 3.5 in superstructure above plinth level in all shapes and sizes in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**7,036.00**

Sl. No.	Specification	Unit	Rate ₹
6.8	Providing Brick work with common burnt clay Non Modular bricks of class designation 3.5 in superstructure above plinth level in all shapes and sizes in Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**6,748.00**
6.9	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 m^2 as per approved design.	**m^2**	**129.00**
6.10	Providing half brick masonry with common burnt clay Non Modular bricks of class designation 3.5 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 including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m**	**297.00**
6.11	Providing Brick work 7 cm thick with common burnt clay Non Modular brick of class designation 3.5 in cement mortar 1:3 (1 cement : 3 coarse sand) in superstructure above plinth level including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**657.00**
6.12	Providing Half brick masonry with common burnt clay Non Modular bricks of class designation 3.5 in foundations and plinth in Cement mortar 1:3 (1 cement : 3 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**864.00**
6.13	Providing Half brick masonry with common burnt clay Non Modular bricks of class designation 3.5 in foundations and plinth in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**832.00**
6.14	Providing Half brick masonry with common burnt clay Non Modular bricks of class designation 3.5 in superstructure above plinth level up to floor 1 level cement mortar 1:3 (1 cement :3 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**908.00**
6.15	Providing Half brick masonry with common burnt clay Non Modular bricks of class designation 3.5 in superstructure above plinth level up to floor 1 level cement mortar 1:4 (1 cement :4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**875.00**

Sl. No.	Specification	Unit	Rate ₹
6.16	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.	**m^2**	**81.00**
6.17	Providing Tile brick masonry with common burnt clay Non Modular tile bricks of class designation 5.0 conforming to IS 2690 (Part I) in foundation and plinth in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**11,801.00**
6.18	Providing Tile brick masonry with common burnt clay Non Modular tile bricks of class designation 5.0 conforming to IS 2690 (Part I) in foundation and plinth in Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**11,339.00**
6.19	Providing Tile brick masonry with common burnt clay machine moulded tile bricks of class designation 5.0 conforming to IS : 2690 (Part I) in foundation and plinth in cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**15,102.00**
6.20	Providing Tile brick masonry with common burnt clay Non Modular tile bricks of class designation 5.0 conforming to IS 2690 (Part I) in superstructure above plinth level up to floor I level in cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**11,723.00**
6.21	Providing Tile brick masonry work 5 cm thick with common burnt clay Non Modular tile bricks of class designation 5.0 conforming to IS 2690 (Part I) in cement mortar 1:3 (1 cement : 3 coarse sand) in superstructure above plinth and upto floor I level including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**711.00**
6.22	Providing Brick work with clay flyash Non Modular brick of class designation 3.5 in superstructure above plinth level up to floor I level in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**6,217.00**
6.23	Providing Brick work with clay flyash Non Modular brick of class designation 3.5 in superstructure above plinth level up to floor I level in Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**5,929.00**

Sl. No.	Specification	Unit	Rate ₹
6.24	Providing Brick work with Non Modular fly ash bricks conforming to IS:12894, class designation 5.0 average compressive strength in super structure above plinth level up to floor I level in Cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**5,990.00**
6.25	Providing Brick work with Non Modular fly ash bricks conforming to IS:12894, class designation 5.0 average compressive strength in super structure above plinth level up to floor I level in Cement mortar 1:6 (1 cement : 6 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**5,737.00**
6.26	Providing and laying Autoclaved Aerated Cement blocks masonry with 100 mm thick AAC blocks as per IS 2185 (Part III) in super structure above plinth level up to floor I level in cement mortar 1:4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**4,867.00**
6.27	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 I level. Gypsum blocks will have a minimum compressive strength of 9.3 kg/cm2 including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**703.00**
6.28	Providing Brick edging 7cm wide 11.4 cm deep to plinth protection with common burnt clay. Non Modular bricks of class designation 3.5 including grouting with cement mortar 1:4 (1 cement : 4 fine sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m**	**55.00**
6.29	Half brick masonry with Non Modular fly ash bricks of class designation 5.0, conforming to IS :12894, in super structure above plinth and upto floor I level cement mortar 1 : 3 (1 cement : 3 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**771.00**
6.30	Half brick masonry with Non Modular fly ash bricks of class designation 5.0, conforming to IS :12894, in super structure above plinth and upto floor I level cement mortar 1 : 4 (1 cement : 4 coarse sand) including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^2**	**738.00**

Sl. No.	Specification	Unit	Rate ₹
6.31	Providing and laying autoclaved aerated cement blocks masonry with 150mm/230mm/300 mm thick AAC blocks as per IS 2185 (Part III) in super structure above plinth level up to floor I level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar including cost of all materials, labour, scaffolding and usage charges of machinery & other incidental charges complete as per the direction of engineer incharge of work.	**m^3**	**4,488.00**
6.32	Providing and constructing load bearing wall with Solid Concrete blocks of size 400x200x200mm having block density more than 1800kg/m3 and minimum compressive strength of 4.00 N/mm2 conforming to IS 2185 (Part - I) - 2005 and constructed with CM 1:4 as per IS 2572:2005 including cost of all materials, labour, scaffolding and curing, usage charges of machinery etc complete as per specifications.	**m^2**	**1,202.00**
6.33	Providing and constructing load bearing wall with Solid Concrete blocks of size 400x150x200mm having block density more than 1800kg/m3 and minimum compressive strength of 4.00 N/mm2 conforming to IS 2185 (Part - I) - 2005 and constructed with CM 1:4 as per IS 2572:2005 including cost of all materials, labour, scaffolding and curing, usage charges of machinery etc complete as per specifications.	**m^2**	**1,067.00**
6.34	Providing and constructing load bearing wall with Solid Concrete blocks of size 400x100x200mm having block density more than 1800kg/m3 and minimum compressive strength of 4.00 N/mm2 conforming to IS 2185 (Part - I) - 2005 and constructed with CM 1:4 as per IS 2572:2005 including cost of all materials, labour, scaffolding and curing, usage charges of machinery etc complete as per specifications.	**m^2**	**946.00**

Chapter - 7

ROOFING

Sl. No.	Specification	Unit	Rate ₹
	7.0 ROOFING		
7.1	Providing & fixing 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 as per design drawings (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 as per the direction of Engineer in charge.		
7.1.1	0.63 mm thick with zinc coating not less than 275 g/ m²	**m²**	**795.00**
7.2	Extra for straight cutting in C.G.S. sheet roofing for making opening of area exceeding 40 sq. decimeter for sky light, chimney stacks etc.:		
7.2.1	0.63 mm thick	**m**	**45.00**
7.3	Extra for circular cutting in C.G.S. sheet roofing for making opening of area exceeding 40 sq. decimeter:		
7.3.1	0.63 mm thick	**m**	**268.00**
7.4	Providing & fixing 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 as per design drawings.		
7.4.1	0.63 mm thick with zinc coating not less than 275 g/m²	**m**	**546.00**
7.5	Providing & fixing 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 as per design drawings.		
7.5.1	1.60 mm thick with zinc coating not less than 350 g/m²	**m**	**1,895.00**
7.6	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. (0.63 mm thick with zinc coating not less than 275 g/m²)	**m**	**524.00**
7.7	Providing & fixing 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 as per design drawings.	**m²**	**360.00**
7.8	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 skylights, chimney stacks etc.	**m**	**45.00**

Sl. No.	Specification	Unit	Rate ₹
7.9	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.	**m**	**378.00**
7.10	Extra for providing and fixing wind ties of 40x 6 mm flat iron section.	**m**	**130.00**
7.11	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 as per design drawings.		
7.11.1	Corrugated serrated adjustable ridges	**m**	**376.00**
7.11.2	Plain wing adjustable ridges	**m**	**377.00**
7.11.3	Close fitting adjustable ridges	**m**	**422.00**
7.11.4	Unserrated adjustable hips	**m**	**376.00**
7.12	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 as per design drawings.		
7.12.1	Corrugated apron pieces	**m**	**320.00**
7.12.2	Eave's filler pieces	**m**	**34.00**
7.12.3	North light curves	**m**	**434.00**
7.12.4	Ventilator curves	**m**	**453.00**
7.12.5	Barge boards	**m**	**271.00**
7.12.6	Ridge finials	**pair**	**212.00**
7.12.7	Special north light curves	**Nos**	**789.00**
7.12.8	S type louvers	**m**	**354.00**
7.13	Providing & fixing flat iron brackets 50x3 mm size with necessary bolts, nuts and washers etc. for fixing G.S. sheets gutters with purlins.	**m**	**56.00**
7.14	Painting top of roofs with bitumen of approved quality @ 17kg per 10 m2 impregnated with a coat of coarse sand at 60 cudm per 10 m2, including cleaning the slab surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil complete :		
7.14.1	With residual type petroleum bitumen of grade VG -10	**m^2**	**160.00**
7.15	Providing & fixing 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: With common burnt clay Non Modular brick tiles of class designation 5.0	**m^2**	**585.00**

Sl. No.	Specification	Unit	Rate ₹
7.16	Providing & fixing 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.	**m^2**	**507.00**
7.17	Providing and laying to required line and slope roofing with corrugated asbestos cement sheet 6mm. thick fixed with galvanised iron J or L hooks, bolts and nuts 8mm. dia C.I plain and bitumen washers over the existing purlins, rafters and trusses including cost of materials, labour, complete as per specifications	**m^2**	**346.00**
7.18	Providing and laying cinder concrete in cement 1:15 (1 cement : 15 cinder of 12.5mm nominal gauge) on terraced roof or sunken slabs, laid to slope compacting, including cost of materials, labour, curing complete as per specifications.	**m^3**	**2,017.00**
7.19	Providing and laying to required line and slope roofing with semi-corrugated (Trafford) asbestos cement sheet 6mm. thick fixed with galvanised iron J or L hooks, bolts and nuts 8mm. dia C.I plain and bitumen washers, over the existing purlins, rafters and trusses including cost of materials, labour, complete as per specifications.	**m^2**	**374.00**
7.20	Extra for A.C. sheet corrugated / semi-corrugated sheet roofing with vertical sheeting to a pitch exceeding 60 degrees	**m^2**	**16.00**
7.21	Providing and fixing ridges, hips with asbestos cement sheet roofing with G.I. J or L hooks, bolts and nuts 8mm. dia G.I.plain and bitumen washers, serrated or plain wings, adjustable ridges, including cost of materials, labour, complete as per specifications.	**m**	**299.00**
7.22	Providing and fixing northlight adjustable ridges, hips with asbestos cement sheet roofing with G.I. J or L hooks, bolts and nuts 8mm. dia G.I.plain and bitumen washers, serrated or plain wings, adjustable ridges, including cost of materials, labour, complete as per specifications.	**m**	**211.00**
7.23	Providing and fixing insulating board ceiling of approved quality with necessary nails etc. complete (frame work to be paid separately) :		
7.23.1	Natural colour insulating board		
7.23.1.1	12 mm thick	**m^2**	**546.00**
7.23.2	White face insulating board		
7.23.2.1	12 mm thick	**m^2**	**581.00**
7.23.3	Flame retardant face insulating board		
7.23.3.1	12 mm thick	**m^2**	**693.00**
7.24	Providing and fixing 12 m thick flat pressed 3 layer medium density particle board or graded particle board (Grade I) IS: 3087 marked, in ceiling with necessary nails etc. complete.	**m^2**	**649.00**

Sl. No.	Specification	Unit	Rate ₹
7.25	Providing and fixing plain multipurpose cement board(Hight pressure steam cured) with suitable screws for cement particle board in ceiling etc. complete.		
7.25.1	6 mm thick Cement fiber board as per IS: 14862	**m^2**	**543.00**
7.25.2	6 mm thick Cement bonded wood particle board as per IS:14276	**m^2**	**523.00**
7.26	Extra for Circular cutting including wastages in ceiling with		
7.26.1	2nd class teak wood planks 20 mm thick	**m**	**475.00**
7.26.2	Natural colour insulating board		
7.26.2.1	12 mm thick	**m**	**250.00**
7.26.3	White face insulating board:		
7.26.3.1	12 mm thick	**m**	**254.00**
7.26.4	Flame retardant face insulating board:		
7.26.4.1	12 mm thick	**m**	**268.00**
7.26.5	Standard quality hard board sheet:		
7.26.5.1	3 mm thick	**m**	**237.00**
7.26.5.2	4.5 mm thick	**m**	**250.00**
7.27	Extra for providing and fixing ceiling to curved surfaces in narrow widths	**m^2**	**225.00**
7.28	Providing & fixing 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.		
7.28.1	Flat surfaces	**m^2**	**951.00**
7.28.2	Curved surfaces	**m^2**	**1,123.00**
7.29	Extra for sunk or raised mouldings in the plaster of Paris (Gypsum anhydrous) ceiling.	**m^2**	**311.00**
7.30	Extra for providing plaster of Paris (Gypsum anhydrous) ceiling above 5 m height from floor level.	**m^2**	**128.00**
7.31	Providing and fixing in position 12mm thick plaster of paris (Gypsum anhydrous) for ceiling reinforced with hessian cloth flat surface with ceiling tiles up to a height of 5 m above floor level over aluminium strips 25mm x 6mm and rendered smooth with plaster of paris including cost of materials, labour, curing complete as per specifications.	**m^2**	**1,171.00**

Sl. No.	Specification	Unit	Rate ₹
7.32	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/m2 (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 :		
7.32.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- (Part I) : 2011 (Board with BIS Certification marks only)	**m^2**	**852.00**
7.32.2	12.5 mm thick tapered edge Glass Reinforced Gypsum (GRG) board conforming to IS: 2095- (Part 3) : 1996 (Board with BIS Certification marks only)	**m^2**	**963.00**
7.32.3	12.5 mm thick tapered edge gypsum moisture resistant board	**m^2**	**1,008.00**
7.32.4	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	**m^2**	**1,175.00**

Sl. No.	Specification	Unit	Rate ₹
7.33	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.		
7.33.1	2 mm thick corrugated (2.5"" or 4.2"" or 6"") or step-down (2"" or 3"" or 6"") as specified	**m^2**	**972.00**
7.33.2	2 mm thick flat	**m^2**	**883.00**
7.34	Providing and fixing 6mm Clear/opal white/solar bronze/blue/green tinted Multi wall poly carbonate sheet for Tubular structure. The work including cost of all materials, labour charges, and hire charges of machinery for cutting, welding, grinding and erection equipments, with all lead and lifts, transportation, loading and unloading and all other incidental charges etc. complete as per specification and directions of the engineer in charge of the work.	**m^2**	**127.00**
7.35	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.	**m^2**	**262.00**
7.36	Providing & laying on roof pressed clay tile ridge (Mangalore tile) of 20mm thickness and of approved pattern on steel frame work complete.	**m**	**58.00**
7.37	Providing and fixing Mangalore tile roofing using first class tiles with necessary special tiles for ridges and hips, wood reepers and pointed with cement mortar 1:4 over the existing rafters including cost of materials, labour, curing complete as per specifications.		
7.37.1	Nandi wood reepers of size 50x25mm	**m^2**	**806.00**
7.37.2	Jungle wood reepers of size 50x25mm	**m^2**	**673.00**
7.38	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 m2 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 m 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.	**m^2**	**556.00**

Sl. No.	Specification	Unit	Rate ₹
7.39	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+0.05 %) total coated thickness, Zinc coating 120 grams per m2 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 :		
7.39.1	Ridges plain (500 - 600mm)	**m**	**361.00**
7.39.2	Flashings/ Aprons.(Upto 600 mm)	**m**	**329.00**
7.39.3	North light curves	**m**	**394.00**
7.39.4	Barge board (Upto 300 mm)	**m**	**314.00**
7.39.5	Crimp curve	**m^2**	**364.00**
7.39.6	Gutter (600 mm over all girth)	**m**	**855.00**
7.40	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/ m2, 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 GIadjustable 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.		
7.40.1	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 g/m2 (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.	**m^2**	**1,257.00**
7.40.2	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/m2 (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC (Noise	**m^2**	**1,391.00**

Sl. No.	Specification	Unit	Rate ₹
	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.		
7.40.3	12.5 mm thick square edge PVC Laminated Gypsum Tile of size 595x595 mm, madeof 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.	**m^2**	**1,605.00**
7.40.4	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.	**m^2**	**960.00**
7.41	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 m2 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 T sections shall be pre-painted with polyster baked paint, for all heights, as per specifications, drawings and as directed by Engineer-in-Charge.	**m^2**	**1,956.00**

Sl. No.	Specification	Unit	Rate ₹
7.42	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/ m2 (both side inclusive), fixing with clip in tiles into spring T with :		
7.42.1	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/ m2 (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.	**m^2**	**1,484.00**
7.42.2	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/ m2 (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.	**m^2**	**1,621.00**
7.43	Providing and fixing of prepigmented extruded orange cement roof tiles of size 420mmx330mm with necessary specials such as Ridges , barges and nails etc including cost of providing PVC (6.00 kg/cm2) gutters of min 6" radius and down water pipes of 4" dia as per the roof design on EXISTING MS/WOODEN ROOF or TRUSS. Including cost of materials, scaffoldings, labour etc., compelte as per specifications.	**m^2**	**731.00**
7.44	Providing and fixing of prepigmented extruded orange cement roof tiles of size 420mmx330mm with necessary specials such as Ridges , barges and nails etc including cost of providing PVC (6.00 kg/sq cm) gutters of min 6" radius and down water pipes of 4" dia as per roof design on EXISTING CONCRETE SLOPING ROOF SLAB. Including cost of mortar band, all materials labour as per specifications.	**m^2**	**699.00**
7.45	Providing and laying non-asbestos high impact polypropylene reinforced corrugated cement roofing sheet reinforced with a blend of strong factory made fibers as per IS:14871 and ISO:9933:1995(E) roofing upto any pitch and fixing with polymer coated J or L hooks,bolts and nuts 8mm dia,G.I plain and bitumen washers or with self drilling fastener and EPDM washers etc. complete but excluding the cost of purlins, rafters and trusses.		

Sl. No.	Specification	Unit	Rate ₹
	Including cutting to size and shape of corrugated sheets wherever required.and cost of materials, labour, complete as per specifications		
7.45.1	-do- with Natural Grey colour	**m^2**	**503.00**
7.45.2	With other colours	**m^2**	**537.00**
7.46	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 as per direction of incharge.	**m^2**	**1,095.00**
7.47	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/ m2, 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.		
7.47.1	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 /m3 backing.	**m^2**	**1,507.00**

Sl. No.	Specification	Unit	Rate ₹
7.48	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/ m2 (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:		
7.48.1	8 mm thick Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process.	**m^2**	**1,003.00**
7.49	Supply and Installation of Multicell Standing Seam polycarbonate panels having flux 7.0 as per EN 16153 & EN ISO 10077-2. For min joints, panel shall be 1000 - 1200 mm wide with standing seam on both sides. Panels shall have minimum six-seven layers with truss bridge design for higher flexibility and strength. The system shall be secured using suitable connectors with double tooth grip lock locking mechanism and fixed on purlin(to be paid separately) having a pull out load of min 7000N tested as per ISO 6892-1998 and IS 1608-2005. Panels must satisfy impact test as per IS 14443-97 shall show no sign of breakage which have been exposed to UV for 500 Hours (min) as per ASTM G 155. Panels shall have Yellowness Index of not more than 15 units as per ASTM D 1925 when tested on a sample exposed to UV for 500 Hours as per ASTM G 155. Panel shall be closed at the end with additional Aluminium U profile as required. All aluminium should be factory finished / mill finished. Panel shall be fixed over MS structural steel / MS purlin (to be paid separately) conforming to the details in the specifications as per direction of Engineer in charge of work.		

Sl. No.	Specification	Unit	Rate ₹
7.49.1	18mm Thick Multicell Polycarbonate Panels having U value of 1.9 W/m2 K (max)	**m^2**	**3,884.00**
7.49.2	16mm Thick Multicell Polycarbonate Panel having U value of 2.1 W/m2 K (max)	**m^2**	**3,575.00**
7.49.3	12mm Thick Multicell Polycarbonate Panel having U value of 2.5 W/m2 K (max)	**m^2**	**2,711.00**
7.50	Providing & Fixing of Mineral Fibre Suspended Ceiling System in the module size of 600x600x19mm with Exposed grid for Hospitals, Shopping malls, Commercial establishments and office complexes. The tiles should have Humidity Resistance (RH) of 99%, Light Reflectance 87%, Thermal Conductivity k = 0.052 - 0.057 w/m K, NRC -0.7,Colour White, Fire Performance UK A2 S1, dO, with Anti Microbial coating on the face of the tile, suitable for zone 4 area according to NF S 90-35:2003 with cleanroom class of ISO 5 (Class 100), Decontamination Class of CP1Oand Bacteriological Cleanliness Class B1 for specific strains and reduction in colony size. Washability properties of 500 wash cycles as per ASTM D-4828 and suitable for Green Building application with Recycled content of 37%. The tile shall be laid on 24mm wide T - section flanges colour white having rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm and a load carrying capacity of 15 kg/m^2 & pull out strength of minimum 100 kg The T Sections should have a Galvanizing of 90 grams per m^2 and need to be installed with suspension system of approved make.	**m^2**	**1,856.00**
7.51	Providing and supplying 'Acoustical Wall Paneling' with square edges made of fibre glass substrate 25mm thick and wrapped on the front side with an acoustically transparent and classified for Fire reaction Class A, as per ASTM E-84, fabric with option of colors - as per the choice of the Architect/Engineer incharge of the size 600x600mm, 600x1200mm & 600x1800mm providing a minimum sound absorption level of 0.85 NRC to be affixed to wall using Wall panel lmpaler sand construction adhesives as per the instructions laid down by the certified manufacturer.	**m^2**	**4,333.00**
7.52	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System in module size of 600 x 600 x 16mm with Exposed Grid for Hospitals, Shopping malls, Commercial establishments and office complexes. The tiles should have Humidity Resistance (RH) of 99%, NRC 0.5, Light Reflectance <o87%, Thermal Conductivity k = 0.052 - 0.057 w/m K, Colour White, Fire Performance UK Class 0 I Class 1 (BS 476 pt- 6 &7) and suitable for Green Building application with Recycled content of 30%. The tile shall be laid on 24 mm wide T - section flanges colour white having rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm and a load carrying capacity of 15 kg/m^2 &pull out strength of minimum 100 kg The T Sections should have a Galvanizing of 90 grams per m2 and need to be installed with Suspension system.	**m^2**	**1,583.00**

Sl. No.	Specification	Unit	Rate ₹
7.53	Providing & Fixing of Mineral Fibre Acoustical Suspended Ceiling System in module size of 600 x 600 x 20mm with Exposed Grid for Hospitals, Shopping malls, Commercial establishments and office complexes. The tiles should have Humidity Resistance (RH) of 99%, NRC 0.7, Light Reflectance 85%, Thermal Conductivity k = 0.052 - 0.057 w/m K, Colour White, Fire Performance UK Class 0 l Class 1 (BS 476 pt- 6 & 7)with sand texture finish andsuitable for Green Building application with Recycled content of 47%. The tile shall be laid on 24 mm wide T- section flanges colour white having rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm and a load carrying capacity of 15 kg/m2 &pull out strength of minimum 100 kg The T Sections should have a Galvanizing of 90 grams per m2 and need to be installed with Suspension system.	**m^2**	**1,708.00**
7.54	Providing & Fixing of Integral Densified Tegular/Butt edged Eco Friendly Lightweight Calcium Silicate Suspended Ceiling System in Module Size of 600x600x15mm with Exposed GI Plain T24 Grid for Offices, Hospitals, Institutions, Airports, Banking Sector, Auditoriums, Community halls, laboratories, Factories and All buildings in high humidity or coastal Areas. The Eco Friendly Lightweight Calcium Silicate Ceiling tiles shall be made from Non Cementitious Hydrated Calcium Silicate Slurry/ Mixture, Reinforced recycled material with fibers and natural fillers. Free from Formaldehyde and other harmful materials. Doesn't contain any toxic ingredients.The Tiles should have Humidity Resistance (RH) of 100%, Water Resistance, Non Combustible: as per BS:476 Part-4, Fire Performance: as per BS:476 Part-6 for Fire Propagation, as per BS:476 Part-7 for Surface Spread of Flame, As per UK standards Fire Performace A1-S1-d0, Thermal Conductivity K= 0.048 to 0.050 w/m K as per ECBC code 2007, NRC (Noise Reductions Coefficient) 0.5 to 0.75 (Semi Perforated & Fully Perforated Tiles) as per IS 8225:1987, Sound Attenuation (STA) 30-32dB,Thickness of tile should be 15mm thick with 450 kg/m3 density all around on edge resting portion with Integral Densified edge and 10mm thick with 350 kg/m3 density in the center of the body, Light Reflectance > 85%, Weight of material is 5-5.5 kg/m2 and Suitable for Green Building application with InOrganic Recycled content of 46- 50% out of which 18-20% should be FLYASH and meets the GRIHA & SVAGRIHA norms under the categories: GRIHA V.2015 criterion:11&12, GRIHA V.3 criterion: 17&29 and SVAGRIHA criterion:12 The tiles Shall be laid on 24mm Wide T-Sections Flanges colour white having rotary stitching on all T sections i.e. the Main runner with a web height of 38mm and 1200mm & 600mm Cross Tees with a web height of 32mm having thickness of 0.33mm and Wall angle of 24*24mm with 0.4 mm thickness , having load carrying capacity of 15 kg/m2. The T sections should have Galvanizing of 120 grams per m2 and need to be installed with Suspension system.	**m^2**	**1,800.00**

Sl. No.	Specification	Unit	Rate ₹
7.55	Providing & Fixing of Anti Microbial Bio-Safe Coated Intergral Densified Tegular/Butt edged Eco Friendly Lightweight Calcium Silicate Suspended Ceiling System without perforation Plain/Designer ceiling Tiles in Module Size of 600x600x15mm with Exposed T24 mm Grid for Hospitals, Institutions, Laboratories, Health Care Units, Offices. The Anti Microbial Bio-Safe lightweight calcium Silicate ceiling tiles shall be made from Non Cementitious Hydrated Calcium Silicate Slurry/Mixture, Reinforced recycled material with fibers and natural fillers. Free from Formaldehyde and other harmful materials. Doesn't contain any toxic ingrediants. The Tiles should have Anti Microbial Bio-Safe Coating on front and back sides of tiles confirming to JIS-Z2801 and ASTM G-21 standard by NABL accredited Labs and found to be completely protected from Bacteria, Fungi, Yeast and Mould when exposed to these organisms both room temperature and AC temperature. Tiles should be protected and is free from colony-forming units. The Tiles should have Humidity Resistance (RH) of 100%, Water Resistance, Non Combustible: as per BS:476 Part-4, Fire Performance: as per BS:476 Part-6 for Fire Propagation, as per BS:476 Part-7 for Surface Spread of Flame, As per UK standards Fire Performace A1-S1-d0, Thermal Conductivity K= 0.048 to 0.050 w/m K as per ECBC code 2007, NRC(Noise Reduction Coefficient) 0.1 to 0.15 (Plain and Designer tiles) as per IS 8225:1987, Sound Attenuation (STA) 30-32dB, Thickness of tile should be 15mm thick with 450 kg/m3 density all around on edge resting portion with Integral Densified edge and 10mm thick with 350 kg/m3 density in the center portion of the body, Light Reflectance > 85%, Weight of material is 5-5.5 kg/m2 and Suitable for Green Building application with InOrganic Recycled content of 46- 50% out of which 18-20% should be FLYASH and meets the GRIHA & SVAGRIHA norms under the categories: GRIHA V.2015 criterion:11&12, GRIHA V.3 criterion: 17&29 and SVAGRIHA criterion:12. The tiles Shall be laid on 24mm Wide T-Sections Flanges colour white having rotary stitching on all T sections i.e. the Main runner with a web height of 38mm and 1200mm & 600mm Cross Tees with a web height of 32mm having thickness of 0.33mm and Wall angle of 24*24mm with 0.4 mm thickness , having load carrying capacity of 15 kg/m2. The T sections should have Galvanizing of 120 grams per m2 and need to be installed with Suspension system.	**m^2**	**1,972.00**
7.56	Providing & Fixing of Intergral Densified Micro Look edged Eco Friendly Lightweight Calcium Silicate Suspended Ceiling System in Module Size of 600x600x15mm Suitable with Exposed GI Plain T 15 Grid for Offices, Hospitals, Institutions, Airports, Banking Sector, Auditoriums, Community halls, laboratories, Factories and All buildings in high humidity or coastal Areas.The Lightweight Calcium Silicate Ceiling tiles shall be made from Non Cementitious Hydrated Calcium Silicate Slurry/Mixture, Reinforced recycled material with fibers and natural fillers.	**m^2**	**1,900.00**

Sl. No.	Specification	Unit	Rate ₹
	Free from Formaldehyde and other harmful materials. Doesn't contain any toxic ingredients. The Tiles should have Humidity Resistance (RH) of 100%, Water Resistance, Non Combustible: as per BS:476 Part-4, Fire Performance: as per BS:476 Part-6 for Fire Propagation, as per BS:476 Part-7 for Surface Spread of Flame, As per UK standards Fire Performace A1-S1-d0, Thermal Conductivity K= 0.048 to 0.050 w/m K as per ECBC code 2007, NRC (Noise Reduction Coefficient) 0.5 to 0.75 (Semi Perforated and Fully Perforated tiles) as per IS 8225:1987, Sound Attenuation (STA) 30-32dB, Thickness of tile should be 15mm thick with 450 kg/m3 density all around on edge resting portion with Integral Densified edge and 10mm thick with 350 kg/m3 density in the center of the body, Light Reflectance > 85%, Weight of material is 5-5.5 kg/m2 and Suitable for Green Building application with InOrganic Recycled content of 46- 50% out of which 18-20% should be FLYASH and meets the GRIHA & SVAGRIHA norms under the categories: GRIHA V.2015 criterion:11&12, GRIHA V.3 criterion: 17&29 and SVAGRIHA criterion:12 The tiles Shall be laid on 15mm Wide T-Sections Flanges colour white having rotary stitching webbed on all T sections i.e. the Main runner with a web height of 42mm and 1200mm & 600mm Cross Tees with a web height of 42mm having thickness of 0.3mm and Wall angle of 15*20mm with 0.4 mm thickness , having load carrying capacity of 15 kg/m2. The T sections should have Galvanizing of 120 grams per m2 and need to be installed with Suspension system.		
7.57	Providing & Fixing of Intergral Densified Micro Look edged Eco Friendly Lightweight Calcium Silicate Suspended Ceiling System in Module Size of 600x600x15mm Suitable with Exposed GI Silhouette Profile Black Reveal T 15 Grid for Offices, Hospitals, Institutions, Airports, Banking Sector, Auditoriums, Community halls, laboratories, Factories and All buildings in high humidity or coastal Areas.The Lightweight Calcium Silicate Ceiling tiles shall be made from Non Cementitious Hydrated Calcium Silicate Slurry/Mixture, Reinforced recycled material with fibers and natural fillers. Free from Formaldehyde and other harmful materials. Doesn't contain any toxic ingrediants. The Tiles should have Humidity Resistance (RH) of 100%, Water Resistance, Non Combustible: as per BS:476 Part-4, Fire Performance: as per BS:476 Part-6 for Fire Propagation, as per BS:476 Part-7 for Surface Spread of Flame, As per UK standards Fire Performace A1-S1-d0, Thermal Conductivity K= 0.048 to 0.050 w/m K as per ECBC code 2007, NRC (Noise Reduction Coefficient) 0.5 to 0.75 (Semi Perforated and Fully Perforated tiles) as per IS 8225:1987, Sound Attenuation (STA) 30-32dB,Thickness of tile should be 15mm thick with 450 kg/m3 density all around on edge resting portion with Integral Densified edge and 10mm thick with 350kg/m3 density in the center of the body,Light Reflectance > 85%, Weight of material is 5-5.5 kg/m2 and Suitable for Green Building application with InOrganic Recycled content of 46- 50% out of which 18-20% should be FLYASH and meets the GRIHA & SVAGRIHA norms under the categories: GRIHA V.2015 criterion:11&12, GRIHA V.3 criterion: 17&29 and SVAGRIHA criterion:12.	**m^2**	**2,086.00**

Sl. No.	Specification	Unit	Rate ₹
	The tiles Shall be laid on 15mm Wide Silhouette Profile Black reveal T-Sections Flanges colour white having rotary stitching double webbed on all T sections i.e. the Main runner with a web height of 42mm and 1200mm & 600mm Cross Tees with a web height of 42mm having thickness of 0.4mm and Wall angle of 15*20mm with 0.4 mm thickness , having load carrying capacity of 22 to 25 kg/m2. The T sections should have Galvanizing of 120 grams per m2 and need to be installed with Suspension system.		
7.58	Providing & Fixing in position Acoustical wall panelling with Integral Densified Square/Butt edged Fully Perforated Eco Friendly Lightweight Calcium Silicate panels/tiles with fabricated galvanised mild steel frame work for Auditoriums, Community halls, Offices, Institutions, Airports, Meeting halls, Indoor Stadiums and Studios. The Eco Friendly Lightweight Calcium Silicate wall panels/tiles shall be made from Non Cementitious Hydrated Calcium Silicate Slurry/Mixture, Reinforced recycled material with fibers and natural fillers. Free from Formaldehyde and other harmful materials. Doesn't contain any toxic ingrediants. The wall panels/tiles size of 595x595mm and 15mm thick should have Humidity Resistance (RH) of 100%, Water Resistance, Non Combustible: as per BS:476 Part-4, Fire Performance: as per BS:476 Part-6 for Fire Propagation, as per BS:476 Part-7 for Surface Spread of Flame, As per UK standards Fire Performace A1-S1-d0, Thermal Conductivity K= 0.048 to 0.050 w/m K as per ECBC code 2007, NRC (Noise Reductions Coefficient) 0.65 to 0.85 (Fully Perforated wall panels/Tiles) as per IS 8225:1987, Sound Attenuation (STA) 30-32dB,Thickness of tile should be 15mm thick with 450 kg/m3 density all around on edge resting portion with Integral Densified edge and 10mm thick with 350 kg/m3 density in the center of the body, Light Reflectance > 85%, Weight of material is 5-5.5 kg/m2 and Suitable for Green Building application with InOrganic Recycled content of 46- 50% out of which 18-20% should be FLYASH and meets the GRIHA & SVAGRIHA norms under the categories: GRIHA V.2015 criterion:11&12, GRIHA V.3 criterion: 17&29 and SVAGRIHA criterion:12. The frame work comprising of a frame made especially fabricated galvanised mild steel sheet of 0.50 mm thick pressed section (galvanizing @ 120 grams per m2 including both sides) i.e. vertical studs of size 48x34x36mm are placed at 600mm centre to centre in a floor and ceiling channel section of size 50x32mm fixed to the floor and soffit at 600mm centres using 12mm dia, 40mm long wedge type expanded zinc alloy dash fastner with 10mm bolt. This same channel is then to be fixed in horizontal direction at 600mm centre to centre so as to form a grid of 600x600mm. Glass wool of 50mm thickness with density of 16 kg/m3 is then to be inserted in the slots and finally Lightweight calcium silicate wall panels/tiles are to be screw fixed with self-tapping pan head nickle coated mild steel screws of size 13x3.2mm 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 fibre joint tape roll 50mm wide (90metre) roll and two coats of premier suitable for panelling as per manfacturer's specification as per direction of engineer-in-charge all complete.	**m^2**	**2,659.00**

Sl. No.	Specification	Unit	Rate ₹
7.59	Providing and fixing in position copper plate as per design for expansion joints.	**kg**	**664.00**
7.60	Providing and filling in position, blown bitumen in expansion joints.	**m^3**	**83,715.00**
7.61	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.	**m^3**	**25,712.00**
7.62	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.	**m^2**	**494.00**
7.63	Providing and fixing sheet covering over expansion joints with iron screws as per design.		
7.63.1	Non-asbestos fibre cement board 6 mm thick as per IS: 14862.		
7.63.1.1	150 mm wide	**m**	**152.00**
7.63.1.2	200 mm wide	**m**	**203.00**
7.64	Providing and fixing sheet covering over expansion joints with iron screws as per design.		
7.64.1	Aluminium fluted strips 3.15 mm thick.		
7.64.1.1	150 mm wide	**m**	**431.00**
7.64.1.2	200 mm wide	**m**	**559.00**
7.65	Providing and fixing sheet covering over expansion joints with iron screws as per design.		
7.65.1	Cement bonded wood particle board 6mm thick as per IS : 14276		
7.65.1.1	150 mm wide	**m**	**153.00**
7.65.1.2	200 mm wide	**m**	**192.00**

Chapter - 8

FINISHING

Sl. No.	Specification	Unit	Rate ₹
	8.0 FINISHING		
8.1.1	Providing 12 mm cement plaster with cement mortar 1:4 (1 cement: 4 fine sand) to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**218.00**
8.1.2	Providing 12 mm cement plaster with cement mortar 1:6 (1 cement: 6 fine sand) including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**202.00**
8.2.1	Providing 15 mm cement plaster on the rough side of single or half brick wall of mix 1:4 (1 cement: 4 fine sand) including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**253.00**
8.2.2	Providing 15 mm cement plaster on the rough side of single or half brick wall of mix :1:6 (1 cement: 6 fine sand) including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**234.00**
8.3.1	Providing 20 mm cement plaster of mix :1:4 (1 cement: 4 fine sand) to brick/stone masonary including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**307.00**
8.3.2	Providing 20 mm cement plaster of mix :1:6 (1 cement: 6 fine sand) to brick/stone masonary including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**281.00**
8.4.1	Providing 12 mm cement plaster finished with a floating coat of neat cement of mix :1:3 (1 cement: 3 fine sand) to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**282.00**
8.4.2	Providing 12 mm cement plaster finished with a floating coat of neat cement of mix :1:4 (1 cement: 4 fine sand) to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**268.00**

Sl. No.	Specification	Unit	Rate ₹
8.5.1	Providing 15 mm cement plaster on rough side of single or half brick wall finished with a floating coat of neat cement of mix 1:3 (1 cement: 3 fine sand) including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**321.00**
8.5.2	Providing 15 mm cement plaster on rough side of single or half brick wall finished with a floating coat of neat cement of mix: 1:4 (1 cement: 4 fine sand) to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**301.00**
8.6.1	Providing 12 mm cement plaster with Cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**282.00**
8.6.2	Providing 20 mm cement plaster with cement mortar 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement to brick/stone masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**380.00**
8.7	Providing 15 mm cement plaster with cement mortar 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 including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**321.00**
8.8	Providing 18 mm cement plaster in two coats under layer 12 mm thick cement plaster with cement mortar 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster with cement mortar 1:6 (1 cement : 6 fine sand) to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**313.00**
8.9	Providing 18 mm cement plaster in two coats under layer 12 mm thick cement plaster with cement mortar 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster with cement mortar 1:3 (1 cement : 3 coarse sand) finished rough with sponge to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**329.00**

Sl. No.	Specification	Unit	Rate ₹
8.10	Providing 6 mm cement plaster with cement mortar 1:3 (1 cement : 3 fine sand) including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**176.00**
8.11	Providing Neat cement punning to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**51.00**
8.12	Extra for providing and mixing water proofing material in cement plaster work in proportion recommended by the manufacturers including cost of material etc as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**51.00**
8.13	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof including cost of material, labour, scaffolding etc as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**44.00**
8.14.1	Extra for plastering on circular work not exceeding 6 m in radius: In one coat including cost of material, labour, scaffolding etc as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**23.00**
8.14.2	Extra for plastering on circular work not exceeding 6 m in radius: In two coats including cost of material, labour, scaffolding etc as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**36.00**
8.15	Extra for plastering: Spherical ceiling including cost of material, labour, scaffolding etc as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**88.00**
8.16.1	Providing 12 mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand):Flush Band including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m**	**4.00**
8.16.2	Providing 12 mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand):Sunk Band including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m**	**4.50**
8.16.3	Providing 12 mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand):Raised Band including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m**	**5.00**

Sl. No.	Specification	Unit	Rate ₹
8.16.4	Providing 12 mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand): Moulded Band including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	**m**	**8.00**
8.17.1	Providing Flush / Ruled/ Struck or weathered pointing Pointing on brick work or brick flooring with cement mortar 1:3 (1 cement : 3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	**m^2**	**138.00**
8.17.2	Providing Raised and cut pointing: Pointing on brick work or brick flooring with cement mortar 1:3 (1 cement : 3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	**m^2**	**224.00**
8.18	Providing Flush/ Ruled/ Struck or weathered pointing: Pointing on tile brickwork with cement mortar 1:3(1 cement:3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	**m^2**	**190.00**
8.19.1	Providing Flush/ Ruled pointing: Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	**m^2**	**200.00**
8.19.2	Providing Raised and cut pointing: Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	**m^2**	**363.00**
8.20	Providing Flush/ Ruled pointing on stone slab ceiling with cement mortar 1:2 (1 cement : 2 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	**m^2**	**113.00**
8.21	Providing White washing with lime to give an even shade :New work (three coats) with lime of approved quality, including cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**19.00**
8.22	Providing lime wash on walls with one coat with lime of approved quality to give an even shade, including cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**8.00**
8.23.1	Providing Colour washing such as green, blue or buff to give an even shade :New work (two coats) with a base coat of white washing with lime with colour of approved quality, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**26.00**

Sl. No.	Specification	Unit	Rate ₹
8.23.2	Providing Colour washing such as green, blue or buff to give an even shade :New work (two coats) with a base coat of whiting with colour of approved quality, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**25.00**
8.24	Distempering with dry distemper of approved brand and manufacture (two coats) of required shade on new work, over and including water thinnable priming coat to give an even shade after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**83.00**
8.25	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade :New work (two coats) over and including water thinnable priming coat with cement primer after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**105.00**
8.26	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. Two coats on new work to give an even shade after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**62.00**
8.27	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface :Water thinnable cement primer to give an even shade after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**40.00**
8.28	Finishing walls with water proofing cement paint of required shade :New work (Two coats applied @ 4.84 kg/10 m^2) to give an even shade after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**66.00**
8.29	Finishing walls with textured exterior paint of required shade :New work (Two coats applied @ 3.28 ltr/10 m^2) over and including priming coat of exterior primer applied @ 2.20kg/10 m^2 to give an even shade after thoroughly brooming the surface to remove all dirt, dust, mortar drops	**m^2**	**208.00**

Sl. No.	Specification	Unit	Rate ₹
	and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.		
8.30	Finishing walls with Acrylic Smooth exterior paint of required shade :New work (Two coat applied @ 1.67 ltr/10 m² over and including priming coat of exterior primer applied @ 2.20 kg/10 m²) with paint of approved quality to give an even shade, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**136.00**
8.31	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade: New work (Two coats applied @ 1.43 ltr/10 m² over and including priming coat of exterior primer applied @ 2.20 kg/10 m²) with paint of approved quality to give an even shade, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**132.00**
8.32	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, New work (Two coats applied @ 1.43 litre/ 10 m². Over and including priming coat of exterior primer applied @ 0.90 litre/10 m² with paint of approved quality to give an even shade, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**112.00**
8.33.1	Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers specifications: Two coats applied on walls @ 1.25 ltr/10 m² over and including one coat of Special primer applied @ 0.75 ltr /10 m² with paint of approved quality to give an even shade, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**118.00**
8.33.2	Painting wood work with Deluxe Multi Surface Paint of required shade. Two coat applied @ 0.90 ltr/10 m² over an under coat of primer applied @0.75 ltr/10 m² of approved brand and manufacture to give an even shade including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, sand papering and knotting , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**105.00**

Sl. No.	Specification	Unit	Rate ₹
8.33.3	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two coat applied @ 0.90 ltr/10 m² over an under coat of primer applied @ 0.80 ltr/10 m² of approved brand and manufacture including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**106.00**
8.34.1	Applying priming coat: With ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood) including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**41.00**
8.34.2	Applying priming coat: With ready mixed aluminium primer of approved brand and manufacture on resinous wood and plywood including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**43.00**
8.34.3	Applying priming coat: With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**37.00**
8.35.1	Painting with silicon & acrylic emulsion based water thinnable sealer of approved brand and manufacture on wet or patchy portion of plastered surfaces :One coat with paint of approved quality to give an even shade, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**61.00**
8.35.2	Painting with silicon & acrylic emulsion based water thinnable sealer of approved brand and manufacture on wet or patchy portion of plastered surfaces :Two coats with paint of approved quality to give an even shade, after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**96.00**
8.36.1	Finishing with Epoxy paint (two coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On steel work including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Enginer-in-charge.	**m²**	**138.00**

Sl. No.	Specification	Unit	Rate ₹
8.36.2	Finishing with Epoxy paint (two coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**138.00**
8.37	Painting on G.S. sheet with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :New work (two coats) including a coat of approved steel primer but excluding a coat of mordant solution including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**100.00**
8.38	Painting with oil type wood preservative of approved brand and manufacture :New work (two coats) to give an even shade including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, sand papering and knotting, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**34.00**
8.39	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade :Two coats on new work after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**95.00**
8.40	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :Two coats on new work after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**90.00**
8.41	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :Two coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**130.00**
8.42	Painting with aluminium paint of approved brand and manufacture to give an even shade. Two coats on new work including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**80.00**

Sl. No.	Specification	Unit	Rate ₹
8.43	Painting with black anti-corrosive bitumastic paint of approved brand and manufacture to give an even shade :Two coats on new work including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**75.00**
8.44	Floor painting with floor enamel paint of approved brand and manufacture of required colour to give an even shade :Two coats on new work after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter including preparing the surface even and sand paper smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**115.00**
8.45.1	Varnishing with varnish of approved brand and manufacture :Two coats of glue sizing with copal varnish over an under coat of flatting varnish to give an even shade and produce a smooth dry and mat surface including preparing the surface after thorougly cleaning oil, grease, dirt and foreign mattersand papering and knotting , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**131.00**
8.45.2	Varnishing with varnish of approved brand and manufacture :Two coats glue sizing with spar varnish or an under coat of flatting varnish to give an even shade and produce a smooth dry and mat surface including preparing the surface after thorougly cleaning oil, grease, dirt and foreign mattersand papering and knotting , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**132.00**
8.46	French spirit polishing :Two coats on new works including a coat of wood filler to give an even surface including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, sand papering smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**231.00**
8.47	Polishing on wood work with ready mixed wax polish of approved brand and manufacture : New work to give an even surface including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, sand papering smooth, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**107.00**
8.48	Floor polishing on masonry or concrete floors with wax polish of approved brand and manufacture to give an even surface including preparing the surface after thoroughly brooming the surface to remove all dirt, dust, mortar drops and foreign matter , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**49.00**
8.49	Lettering with black Japan paint of approved brand and manufacture to give an even shade including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**cm**	**3.00**

Sl. No.	Specification	Unit	Rate ₹
8.50	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 kg cement used in cement mortar as per directions of Engineer-in-Charge.	**kg**	**63.00**
8.51	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 as per specifications and as per directions of Engineer in charge.	**m^2**	**83.00**
8.52.1	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. One coat as per specifications and as per directions of Engineer in charge.	**m^2**	**46.00**
8.52.2	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. Two coats as per specifications and as per directions of Engineer in charge.	**m^2**	**57.00**
8.53.1	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. One coat as per specifications and as per directions of Engineer in charge.	**m^2**	**50.00**
8.53.2	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. Two coats as per specifications and as per directions of Engineer in charge.	**m^2**	**74.00**
8.54.1	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. One coat as per specifications and as per directions of Engineer in charge.	**m^2**	**53.00**
8.54.2	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. Two coats as per specifications and as per directions of Engineer in charge.	**m^2**	**79.00**

Sl. No.	Specification	Unit	Rate ₹
8.55.1	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content. With ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ litre as per specifications and as per directions of Engineer in charge.	**m^2**	**41.00**
8.55.2	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content. With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre as per specifications and as per directions of Engineer in charge.	**m^2**	**40.00**
8.56.1	White washing with lime to give an even shade :Old work (two coats) as per specifications and as per directions of Engineer in charge.	**m^2**	**12.00**
8.56.2	White washing with lime to give an even shade :Old work (one coats) as per specifications and as per directions of Engineer in charge.	**m^2**	**7.00**
8.57	Removing white or colour wash by scrapping and sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete as per specifications and as per directions of Engineer in charge.	**m^2**	**10.00**
8.58	Distempering with dry distemper of approved brand and manufacture (one coats) and of required shade on old work to give an even shade. as per specifications and as per directions of Engineer in charge.	**m^2**	**35.00**
8.59	Distempering with 1st quality acrylic distemper (Ready mix) having VOC content less than 50 grams/ litre of approved brand and manufacture to give an even shade :Old work (one coats) as per specifications and as per directions of Engineer in charge.	**m^2**	**36.00**
8.60	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. as per specifications and as per directions of Engineer in charge.	**m^2**	**13.00**
8.61	Painting on G.S. sheet with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :Old work (one coats) as per specifications and as per directions of Engineer in charge.	**m^2**	**50.00**
8.62	Painting with oil type wood preservative of approved brand and manufacture: Old work (one coats) as per specifications and as per directions of Engineer in charge.	**m^2**	**27.00**
8.63	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: One coats on old work as per specifications and as per directions of Engineer in charge.	**m^2**	**62.00**

Sl. No.	Specification	Unit	Rate ₹
8.64	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade :One coats on old work as per specifications and as per directions of Engineer in charge.	**m^2**	**59.00**
8.65	Painting with aluminium paint of approved brand and manufacture to give an even shade: One coats on old work as per specifications and as per directions of Engineer in charge.	**m^2**	**52.00**
8.66	Painting with black anti-corrosive bitumastic paint of approved brand and manufacture to give an even shade :One coats on old work as per specifications and as per directions of Engineer in charge.	**m^2**	**50.00**
8.67	French spirit polishing :One coats on old work to give an even surface including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, sand papering smooth , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**117.00**
8.68	Polishing on wood work with readymade wax polish of approved brand and manufacture : Old work to give an even surface including preparing the surface after thorougly cleaning oil, grease, dirt and foreign matter, sand papering smooth , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**54.00**
8.69	Re-lettering with black Japan paint of approved brand and manufacture. to give an even shade including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**cm**	**2.00**
8.70	Painting (one coats) with black Japan paint of approved brand and manufacture to give an even shade. including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**51.00**
8.71	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. One coats on old work including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**33.00**
8.72.1	Finishing walls with water proofing cement paint of required shade :Old work (one coats applied @ 2.20 kg/10 m^2) over priming coat of primer applied @ 0.80 litrs/10 m^2 complete including cost of Priming coat including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**64.00**

Sl. No.	Specification	Unit	Rate ₹
8.72.2	Finishing walls with water proofing cement paint of required shade : Old work (one coats @ 2.20 kg/10 m²) complete. including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**42.00**
8.73.1	Finishing walls with textured exterior paint of required shade :Old work (Two coats on existing cement paint surface applied @ 3.28 ltr/10 m² including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**155.00**
8.73.2	Finishing walls with textured exterior paint of required shade :Old work (One coats) applied @ 1.82 ltr/10 m² including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**94.00**
8.74.1	Finishing walls with Acrylic Smooth exterior paint of required shade : Old work (Two coat applied @ 1.67 ltr/ 10 m²) on existing cement paint surface including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**82.00**
8.74.2	Finishing walls with Acrylic Smooth exterior paint of required shade :Old work (One coat applied @ 0.90 ltr/10 m²) including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**54.00**
8.75.1	Finishing walls with Premium Acrylic Smooth exterior paint of required shade : Old work (Two coats applied @ 1.43 ltr/ 10 m²) over existing cement paint surface including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**79.00**
8.75.2	Finishing walls with Premium Acrylic Smooth exterior paint of required shade : Old work (one coats applied @ 0.83 ltr/10 m²) including preparing the surface after thoroughly cleaning the surface to remove all dirt,dust and foreign matter , cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**53.00**
8.76.1	Varnishing with varnish of approved brand and manufacture: One coats with copal varnish including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m²**	**52.00**

Sl. No.	Specification	Unit	Rate ₹
8.76.2	Varnishing with varnish of approved brand and manufacture: One coats with spar varnish including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**53.00**
8.77	Melamine polishing on wood work (one coat) including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**88.00**
8.78	Varnishing with flatting varnish of approved brand and manufacture one coats on old work including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge.	**m^2**	**54.00**
8.79	Forming groove of uniform size in the top layer of plaster as per approved pattern including repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge: 10mm to 15 mm wide and 8 mm deep groove.	**m**	**40.00**
8.80	Forming groove of uniform size in the top layer of plaster as per approved pattern including repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge: 20 mm to 25 mm wide to required depth.	**m**	**51.00**
8.81	Providing and applying two coats of High Albedo paint having minimum Solar Reflective Index (SRI) 108 (with solar reflectance & thermal remittance 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 strictly 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 performance of SRI and also the durability of coating, all complete as per direction of Engineer-in-Charge.	**m^2**	**323.00**
8.82	Polishing in high gloss/matt finish melamine clear polish on wood work in required color/wooden shade texture with following process in the sequence as detailed below: 1. The surface to be polished is rubbed with sand paper 80/120 no. and then with sand paper of 160/180 nos. 2. Applying two coats of sealer with spray gun and allowing sufficient drying time for 1st coat and 2nd coat is allowed to dry for 8 to 12 hrs.	**m^2**	**593.00**

Sl. No.	Specification	Unit	Rate ₹
	3. On drying of sealer coat, wet rubbing with emery cloth of finer grading with ample water to remove excess sealer layer and make the surface further smooth after this wet rubbing, then surface is applied with special grade melamine fillers to fill all the small and big holes/grooves etc. Filler coat to be allowed to dry for 4 to 6 hrs on which again a light wet rubbing is done this surface is further allowed to dry for 12 hrs. 4. On this, 1st coat of melamine polish is applied with spray gun using melamine clear polish and melamine thinner in required proportion. This 1st coat is allowed to dry for 24 hrs then this dry surface is again fine wet rubbed smooth, which is further allowed to dry for 12 hrs. The final melamine polish is applied with compressor pressure spray gun using melamine clear polish and melamine thinner mixed in required proportion complete as per direction of Engineer-in-Charge. (Final coat to be done in 1 or 2 layers without gap of time.)		

Chapter - 9

FLOORING

Sl. No.	Specification	Unit	Rate ₹
	9.0 FLOORING		
9.1	Providing and laying Cement concrete flooring 40 mm thick with 20 mm nominal size stone aggregate using 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry complete.	**m^2**	**415.00**
9.2	Providing and laying 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 direction of Engineer incharge.	**m^2**	**724.00**
9.3	Providing 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.		
9.3.1	18mm thick	**m^2**	**422.00**
9.3.2	15 mm thick	**m^2**	**422.00**
9.4	Providing and laying Cement concrete pavement with 1:2:4 for commercial & residential building floors, hardpaths, footpaths using 1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size, including finishing complete as per Engineer incharge.	**m^3**	**6,200.00**
9.5	Extra for making chequers of approved pattern on 1:2:4 cement concrete floors, steps, landing, pavements etc.	**m^2**	**42.00**
9.6	Providing and laying 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)		
9.6.1	Light shade pigment using white cement	**m^2**	**757.00**
9.6.2	Medium shade pigment using 50% white cement 50% Grey cement	**m^2**	**662.00**
9.6.3	Dark shade pigment using ordinary cement	**m^2**	**585.00**
9.6.4	Ordinary cement without any pigment	**m^2**	**696.00**
9.7	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 for Bathrooms: Toilet: Chemically exposed areas and joints filled with acid and/or alkali resisting cement as per IS : 4457, complete as per the direction of Engineer-in- Charge.		
9.7.1	In flooring on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand) with Acid and alkali resistant tile	**m^2**	**1,060.00**

Sl. No.	Specification	Unit	Rate ₹
9.7.2	In dado/skirting on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand) with Acid and alkali resistant tile	**m^2**	**1,100.00**
9.8	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**	**112.00**
9.9	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/m2 including pointing the joints with white cement and matching pigment etc., complete.	**m^2**	**616.00**
9.10	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 m2 including pointing in white cement mixed with pigment of matching shade complete.	**m^2**	**629.00**
9.11	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/ m2 including pointing the joints with white cement and matching pigments etc., complete.	**m^2**	**773.00**
9.12	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/ m2 including grouting the joints with white cement and matching pigments etc., complete.		
9.12.1	Size of Tile 500x500 mm	**m^2**	**1,023.00**
9.12.2	Size of Tile 600x600 mm	**m^2**	**1,098.00**
9.12.3	Size of Tile 800x800 mm	**m^2**	**1,399.00**
9.12.4	Size of Tile 1000x1000 mm	**m^2**	**1,775.00**
9.12.5	Size of Tile 600x1200 mm	**m^2**	**1,837.00**

Sl. No.	Specification	Unit	Rate ₹
9.13	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/ m2.	**m^2**	**397.00**
9.14	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.	**m^2**	**284.00**
9.15	Crazy ceramic tile flooring, with under layer 12 mm thick cement mortar 1:4 (1cement: 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 g 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.	**m^2**	**577.00**
9.16	Providing and laying 500x500x40 mm thick Turf paver 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 fine sand, including spreading, well ramming, consolidating and finishing smooth etc. all complete as per direction of Engineer-in-charge.	**m^2**	**673.00**
9.17	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, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ m2 including grouting the joint with white cement & matching pigments etc. complete.		
9.17.1	Size of Tile 500x500 mm	**m^2**	**1,036.00**
9.17.2	Size of Tile 600x600 mm	**m^2**	**1,111.00**
9.17.3	Size of Tile 800x800 mm	**m^2**	**1,412.00**
9.17.4	Size of Tile 1000x1000 mm	**m^2**	**1,788.00**
9.17.5	Size of Tile 600x1200 mm	**m^2**	**1,850.00**
9.18	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/m2 including pointing with white cement mixed with pigment of matching shade, all complete as approved by Engineer - in - Charge	**m**	**130.00**

Sl. No.	Specification	Unit	Rate ₹
9.19	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, treads 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 as per direction of Engineer in charge.	**m^2**	**1,233.00**
9.20	Grouting the joints of flooring 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.		
9.20.1	Size of Tile 500x500 mm	**m^2**	**211.00**
9.20.2	Size of Tile 600x600 mm	**m^2**	**174.00**
9.20.3	Size of Tile 800x800 mm	**m^2**	**138.00**
9.20.4	Size of Tile 1000x1000 mm	**m^2**	**96.00**
9.20.5	Size of Tile 600x1200 mm	**m^2**	**90.00**
9.21	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).		
9.21.1	Size of Tile 500x500 mm	**m^2**	**1,073.00**
9.21.2	Size of Tile 600x600 mm	**m^2**	**1,148.00**
9.21.3	Size of Tile 800x800 mm	**m^2**	**1,449.00**
9.21.4	Size of Tile 1000x1000 mm	**m^2**	**1,825.00**
9.21.5	Size of Tile 600x1200mm	**m^2**	**1,888.00**
9.22	Providing and laying Polished Glazed 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).		
9.22.1	Size of Tile 500x500 mm	**m^2**	**1,148.00**
9.22.2	Size of Tile 600x600 mm	**m^2**	**1,261.00**

Sl. No.	Specification	Unit	Rate ₹
9.22.3	Size of Tile 800x800 mm	**m^2**	**1,512.00**
9.22.4	Size of Tile 1000x1000 mm	**m^2**	**1,950.00**
9.22.5	Size of Tile 600x1200 mm	**m^2**	**2,050.00**
9.23	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 : ** Flamed finish granite stone slab Black, Cherry Red, Brown, Cat Eye, River Pink or equivalent.	**m^2**	**1,899.00**
9.24	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. ** Polished Granite stone slab Black, Cherry Red, Brown, Cat Eye, River Pink or equivalent.	**m^2**	**2,881.00**
9.25	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.	**m^2**	**823.00**
9.26	Providing and laying flooring with burnt stone slabs 10 cms thick, rough chistle dressed on sand bed 7.5 cms to 8 cms thick and pointed with cement mortar 1:3, , including cost of materials, sand, labour, curing complete as per specifications.	**m^2**	**928.00**
9.27	Providing and laying flooring with burnt stone slabs 10 cms thick rough chistle dressed on cement mortar bed 1:6, 25 mm thick, and pointed with cement mortar 1:3, , including cost of materials, mortar, labour, curing complete as per specifications.	**m^2**	**969.00**
9.28	Providing and laying flooring and steps machine cut granite slabs 40 mm thick on cement mortar bed 1:6, 25 mm thick, and pointed with cement mortar 1:3 over existing cement concrete bed , including cost of materials, mortar labour, curing complete as per specifications.	**m^2**	**2,372.00**

Sl. No.	Specification	Unit	Rate ₹
9.29	Providing and laying flooring and steps fine dressed granite stone slabs 40 mm thick on cement mortar bed 1:6, 25 mm thick, and pointed with cement mortar 1:3 over existing cement concrete bed , including cost of materials, mortar, labour, curing complete as per specifications.	**m^2**	**2,391.00**
9.30	Providing and laying flooring and steps fine machine polished granite stone slabs 20 mm thick on cement mortar bed 1:6, 20 mm thick, and joints finished with cement mortar 1:3 over existing cement concrete bed , including cost of materials, mortar, labour, curing complete as per specifications.	**m^2**	**2,401.00**
9.31	Providing and laying heavy duty cobble stones 60mm thick interlock pavers, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per m2 over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level , including cost of materials, labour and Usage charges of machinery complete as per specifications.	**m^2**	**1,087.00**
9.32	Providing and laying heavy duty cobble stones 75mm thick interlock pavers, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per m2 over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and Usage charges of machinery complete as per specifications.	**m^2**	**1,145.00**
9.33	Providing and laying linoleum plain flooring or coloured 3.2mm thick sheet / tiles laid with an approved adhesive on sub floor stretching, cutting and fixing complete , including cost of materials, labour, complete as per specifications.	**m^2**	**693.00**
9.34	Flooring with 25mm thick polished tandur blue stone slabs using cement mortar 1:6, 25mm thick over existing cement concrete bed or top of roof laid to line and level and jointed with cement slurry mixed with pigment to match the shade of the slab, , including cost of materials, labour, curing, polishing complete as per specifications.	**m^2**	**1,204.00**
9.35	Flooring with 25mm thick polished shahabad slabs using cement mortar 1:6, 25mm thick over existing cement concrete bed or top of roof laid to line and level and jointed with cement slurry mixed with pigment to match the shade of the slab, , including cost of materials, labour, curing, polishing complete as per specifications.	**m^2**	**1,324.00**

Sl. No.	Specification	Unit	Rate ₹
9.36	Providing flooring with 25mm thick polished Cuddapah slabs using cement mortar 1:6, 25mm thick over existing cement concrete bed or top of roof laid to line and level and jointed with cement slurry mixed with pigment to match the shade of the slab , including cost of materials, labour, curing, polishing complete as per specifications.	**m^2**	**1,246.00**
9.37	Providing and laying red oxide flooring 40 mm thick, with an under layer of 30mm thick M-15 cement concrete and top layer of 10mm thick plaster with 1:3 cement mortar mixed with red oxide finished with floating coat of neat cement mixed with red oxide (mix of same proportion) , including cost of materials, labour, curing, complete as per specifications.	**m^2**	**639.00**
9.38	Providing skirting, dadooing, rises of steps with white glazed tiles 6mm thick on 10mm thick cement plaster 1:3 and jointed with white cement slurry over existing rough plaster surface using glazed tiles of approved make and size including cost of materials, labour, complete as per specifications.	**m^2**	**1,963.00**
9.39	Providing skirting, dadooing, rises of steps with colour glazed tiles 6mm thick on 10mm thick cement plaster 1:3 and jointed with white cement slurry over existing rough plaster surface using glazed tiles of approved make and size including cost of materials, labour, complete as per specifications.	**m^2**	**2,075.00**
9.40	Providing, laying & fixing cement base, precast, pre polished cement concrete, designer tiles 25mm thick conforming to IS 1237 heavy duty tiles for flooring, treads of steps and landing, laid on a bed of 12mm thick cement mortar 1:3 mis finished with flush pointing using white cement, including cost of materials, mortar, including cutting, griding the edge to half/full round wherever required, labour, curing complete as per specification.	**m^2**	**1,139.00**
9.41	Providing and laying Polished Marble 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 over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.		
9.41.1	Indian Marble flooring	**m^2**	**2,887.00**
9.41.2	Italian Marble flooring	**m^2**	**5,169.00**

Note : The items of Marbal shall be operated only on the prior approval of Chief Engineer.

Chapter - 10

CLADDING WORKS

Sl. No.	Specification	Unit	Rate ₹
	10.0 CLADDING WORKS		
10.1	Providing and fixing 18 mm thick gang saw cut granite of any color and shade, 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 up, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.		
10.1.1	Area of the slab = 0.50 m2	**m^2**	**3,452.00**
10.1.2	Area of slab over 0.50 m2	**m^2**	**3,458.00**
10.2	Providing edge moulding to 18mm thick Granite stone counters, vanities etc including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-charge.	**m**	**269.00**
10.3	Extra for fixing 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.	**m**	**246.00**
10.4	Extra for providing opening of required size & shape for wash basin/ kitchen sink in kitchen platform, vanity counter and similar location in Granite, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete.	**m**	**453.00**
10.5	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).		
10.5.1	Gunmetal cramps	**kg**	**938.00**
10.5.2	Stainless steel cramps	**kg**	**962.00**
10.6	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.		
10.6.1	Wedge expansion type		
10.6.1	Fastener with threaded dia 6 mm	**each**	**23.00**
10.6.2	Fastener with threaded dia 10 mm	**each**	**25.00**
10.6.3	Fastener with threaded dia 12 mm	**each**	**30.00**
10.7	Stone tile (polished) of 8mm thickness granite stone of any color and shade 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/m2 including pointing in white cement complete.	**m^2**	**1,886.00**

Sl. No.	Specification	Unit	Rate ₹
10.8	Providing and fixing granite 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.	**m^2**	**1,666.00**
10.9	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.		
10.9.1	25 mm long	**Nos.**	**23.00**
10.9.2	32 mm long	**Nos.**	**24.00**
10.9.3	40 mm long	**Nos.**	**27.00**
10.9.4	50 mm long	**Nos.**	**28.00**
10.10	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 :		
10.10.1	12 mm thick	**m^2**	**1,964.00**
10.10.2	18 mm thick	**m^2**	**2,124.00**
10.10.3	25 mm thick	**m^2**	**2,896.00**
10.11	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 Decorative veneer facings of approved manufacture	**m^2**	**1,010.00**
10.12	Providing and fixing 4mm thick coir veneer board, ISI marked IS : 14842, plain lining with necessary screws, priming coat on unexposed surface etc., complete.	**m^2**	**930.00**
10.13	Providing and fixing skirting with teak shade 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 :		
10.13.1	18 mm thick	**m^2**	**1,402.00**
10.13.2	25 mm thick	**m^2**	**1,792.00**

Sl. No.	Specification	Unit	Rate ₹
10.14	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 m2, including pointing in white cement mixed with pigment of matching shade complete.	**m^2**	**974.00**
10.15	Providing and fixing of Aluminium composite panel of approved make and colour for wall cladding for Brick/Rcc/stone walls & coloumns/ beams with necessary aluminium frame works at required level made out of 50x25x4mm C section or equivalent. The panel should consist of 3mm thick non-halogenated FR grade mineral based polymer (2 hrs fire resistance as per ASTM E119-12 and clause B, S1, do as per ENT 13501-1sandwiched between 0.50 skins thick aluminium sheet making a total panel thickness of 4mm. The surfaces will be finished with PVDF based coating on topsides and service coating on reverse sides would be in polyester paint. The system shall be fixed using GI brackets, aluminium L cleats and stainless steel bolts and nuts complete with spring washer and cap nuts and all other necessary accessories, sealing shall be done with necessary rods etc., complete		
10.15.1	For Straight Portion	**m^2**	**3,939.00**
10.15.2	For Curved Portion	**m^2**	**4,694.00**
10.16	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/m^3 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-incharge.	**m**	**336.00**
10.17	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/m^3 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.	**m^2**	**4,031.00**

Sl. No.	Specification	Unit	Rate ₹
10.18	Providing and fixing of wall cladding using 20mm thick gang saw water cut Shiva gold granite, grey granite in CM 1:3 (1 cement : 3 coarse sand) proportion cut to required shape, pattern with paper joints, finished with cement mortal using white cement and colour pigments to match the colour of slab making through jointing with sealant, making holes 25mmx12mm grooves in joints including cost of all materials, mortar, labour, curing etc., complete.	**m^2**	**3,073.00**
10.19	Providing and fixing 20mm thick gang saw water cut Lakared granite for cladding in CM 1:3 (1 cement : 3 coarse sand) proportion with a coat of rough plastering using CM 1:4 (1 cement : 4 fine sand), cut to required shape, pattern with paper joints, finished with cement mortar using white cement and colour pigments to match the colour of slab making through jointing with sealant, grooves in joints including cost of curing etc., complete including cost and conveyance of all materials, mortar, labour for all items of work, usage charges of machinery etc., complete as per specification.	**m^2**	**3,512.00**
10.20	Providing and fixing of clay tiles for cladding tiles of size 230x75x10mm thick on 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) & jointed with Adhesive/cement slurry over rough plaster surface excluding cost of rough plastered surface and the surface is painted with red apex paint and black apex paint into the groves. The work includes cost of all materials, labour charges for all items of work, usage charges for equipment, etc., complete as per specification.	**m^2**	**1,854.00**
10.21	Providing and fixing of Laterite cladding tiles of size 230x75x10mm thick on 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) & jointed with Adhesive over rough plaster surface excluding cost of rough plastered surface. The work includes cost of all materials, labour charges for all items of work, usage charges for equipment, etc., complete as per specification.	**m^2**	**1,982.00**
10.22	Providing and fixing of premium quality terracota clay tiles for cladding of size 12x2x2 inches with single hole on 12mm thick cement mortar 1:3 (1 cement : 3 coarse sand) & jointed with Adhesive/cement slurry over rough plaster surface excluding cost of rough plastered surface. The work includes cost of all materials, labour charges for all items of work, usage charges for equipment, etc., complete as per specification.	**m^2**	**1,836.00**
10.23	Providing and fixing of premium quality terracota clay tiles for cladding of size 12x4x2 inches with twin holes on 12mm thick cement mortar 1:3 & jointed with Adhesive/cement slurry over rough plaster surface excluding cost of rough plastered surface. The work includes cost of all materials, labour charges for all items of work, usage charges for equipment, etc., complete as per specification.	**m^2**	**1,487.00**

Chapter - 11

STEEL AND ALUMINIUM WORK

Sl. No.	Specification	Unit	Rate ₹
	11.0 STEEL AND ALUMINIUM WORK		
11.1	Providing and fixing 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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**91.00**
11.2	Providing and fixing 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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**95.00**
11.3	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 including cost of materials ,labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**6,563.00**
11.4	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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**4,330.00**
11.5.1	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. Using M.S. angels 40x40x6 mm for diagonal braces including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**3,660.00**
11.5.2	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. Using flats 30x6mm for diagonal braces and central cross piece including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**3,449.00**

Sl. No.	Specification	Unit	Rate ₹
11.6.1	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. 80x1.25 mm M.S. laths with 1.25 mm thick top cover including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**2,510.00**
11.6.2	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. 80x1.20 mm M.S. laths with 1.20 mm thick top cover including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**2,381.00**
11.6.3	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. 80x0.90 mm M.S. laths with 0.90 mm thick top cover including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**2,244.00**
11.7	Providing and fixing ball bearing for rolling shutters including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**365.00**
11.8.1	Extra for providing mechanical device chain and crank operation for operating rolling shutters: Exceeding 10.00 m^2 and upto 16.80 m^2 in the area including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**987.00**

Sl. No.	Specification	Unit	Rate ₹
11.8.2	Extra for providing mechanical device chain and crank operation for operating rolling shutters: Exceeding 16.80 m² in area including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**987.00**
11.8.3	Extra for providing Manually operated Bevel Gear Box for operating rolling shutters including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**each**	**3,086.00**
11.8.4	Extra for providing 2 HP Mild Steel Auto Reverse Shutter Gearbox for operating rolling shutters including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**each**	**24,686.00**
11.9	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) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**617.00**
11.10.1	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: 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) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**35.00**
11.10.2	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: Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**13.00**
11.11.1	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).	**kg**	**120.00**

Sl. No.	Specification	Unit	Rate ₹
	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) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.		
11.11.2	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). Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**87.00**
11.12	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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**39.00**
11.13.1	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: 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) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**105.00**
11.13.2	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: Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**101.00**
11.14.1.1	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 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 1.60 mm, pressed mild steel welded or rigidly fixed together by mechanical	**m**	**376.00**

Sl. No.	Specification	Unit	Rate ₹
	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: Profile B Fixing with adjustable lugs with split end tail to each jamb including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.		
11.14.1.2	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 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 1.60 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: Profile B Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**368.00**
11.14.2.1	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 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 1.60 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: Profile C Fixing with adjustable lugs with split end tail to each jamb including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**400.00**
11.14.2.2	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 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 1.60 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: Profile C Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**393.00**

Sl. No.	Specification	Unit	Rate ₹
11.14.3.1	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 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 1.60 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: Profile E Fixing with adjustable lugs with split end tail to each jamb including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**437.00**
11.14.3.2	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 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 1.60 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: Profile E Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**430.00**
11.15.1	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: 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) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**115.00**
11.15.2	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: Fixing with carbon steel galvanised dash fastener of required dia and size (to be paid for separately) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**106.00**

Sl. No.	Specification	Unit	Rate ₹
11.16.1	Providing and fixing 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. Hot finished welded type tubes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**109.00**
11.16.2	Providing and fixing 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. Hot finished seamless type tubes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**136.00**
11.16.3	Providing and fixing 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. Electric resistance or induction butt welded tubes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**110.00**
11.17	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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**144.00**
11.18	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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**149.00**
11.19	Providing and fixing mild steel round holding down bolts with nuts and washer plates complete including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**75.00**
11.20	Providing and fixing bolts including nuts and washers complete including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**107.00**

Sl. No.	Specification	Unit	Rate ₹
11.21	Providing and fixing M.S. rivets of sizes in position including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**159.00**
11.22	Welding by gas or electric plant including transportation of plant at site etc. complete including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**cm**	**2.20**
11.25.1	Providing and fixing 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. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**97.00**
11.25.2	Providing and fixing 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. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**108.00**
11.26.1	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. M.S. tube including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**111.00**
11.26.2	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. E.R.W. tubes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**117.00**
11.26.3	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. G.I. pipes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**147.00**
11.27.1	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 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in- charge. 10 x	**Nos.**	**78.00**

Sl. No.	Specification	Unit	Rate ₹
	60 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.		
11.27.2	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 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in- charge. 10 x 80 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**83.00**
11.27.3	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 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in- charge. 10 x 120 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**103.00**
11.27.4	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 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in- charge. 10 x 140 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**114.00**
11.27.5	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 m dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per direction of Engineer-in- charge. 10 x 160 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**141.00**
11.28	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,	**kg**	**500.00**

Sl. No.	Specification	Unit	Rate ₹
	bolts, fasteners etc.) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.		
11.29.1	Providing & fixing fly proof wire gauze to windows, clerestory windows & doors with M.S. Flat 15x3 mm and nuts & bolts complete. Galvanised M.S. Wire gauze with 0.63 mm dia wire and 1.4 mm aperture on both sides including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**578.00**
11.29.2	Providing & fixing fly proof wire gauze to windows, clerestory windows & doors with M.S. Flat 15x3 mm and nuts & bolts complete. Stainless steel (grade 304) wire gauze of 0.5 mm dia wire and 1.4 mm aperture on both sides including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**795.00**
11.30.1	Providing & fixing glass panes with putty and glazing clips in steel doors, windows, clerestory windows, all complete with : 4.0 mm thick glass panes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**713.00**
11.30.2	Providing & fixing glass panes with putty and glazing clips in steel doors, windows, clerestory windows, all complete with : 5.5 mm thick glass panes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**993.00**
11.31	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 including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**98.00**
11.32	Providing Thermo-Mechanically Treated bars of grade Fe-500D or more Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position, binding and anchoring to adjacent members whereever necessary complete as per Design including cost of material, labour, usage charges complete as per specifications. (The laps and wastages shall not be measured separately)	**kg**	**88.00**
11.33	Providing Thermo-Mechanically Treated bars of grade Fe-500D or more 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, binding and anchoring to adjacent members whereever necessary complete as per Design including cost of material, labour, usage charges complete as per specifications.	**kg**	**83.00**

Sl. No.	Specification	Unit	Rate ₹
11.34A	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. Fixed to steel windows by welding	**kg**	**131.00**
11.34B	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. Fixed to openings / wooden frames with rawl plugs screws etc.	**kg**	**143.00**
11.34.1	Providing and fixing parallel threaded couplers conforming to IS 16172 “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 barsand related operations as required to complete the works per direction of Engineer-in-Charge.- Coupler 16 mm dia.	**each**	**77.00**
11.34.2	Providing and fixing parallel threaded couplers conforming to IS 16172 “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 barsand related operations as required to complete the works per direction of Engineer-in-Charge.- Coupler 20 mm dia.	**each**	**95.00**
11.34.3	Providing and fixing parallel threaded couplers conforming to IS 16172 “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 barsand related operations as required to complete the works per direction of Engineer-in-Charge.- Coupler 25 mm dia.	**each**	**148.00**
11.34.4	Providing and fixing parallel threaded couplers conforming to IS 16172 “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 barsand related operations as required to complete the works per direction of Engineer-in-Charge.- Coupler 28 mm dia.	**each**	**167.00**
11.34.5	Providing and fixing parallel threaded couplers conforming to IS 16172 “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 barsand related operations as required to complete the works per direction of Engineer-in-Charge.- Coupler 32 mm dia.	**each**	**219.00**

Sl. No.	Specification	Unit	Rate ₹
11.35.1.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate 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) :For Fixed Portion : Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**359.00**
11.35.1.2	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate 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) :For Fixed Portion: Powder coated aluminium (minimum thickness of powder coating 50 micron) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**388.00**
11.35.1.3	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate 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) :For Fixed Portion :Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**396.00**

Sl. No.	Specification	Unit	Rate ₹
11.35.2.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate 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) :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) Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15) including cost of materials,labour,usage charges of machinery complete as per specifications.	**kg**	**424.00**
11.35.2.2	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate 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) :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) Powder coated aluminium (minimum thickness of powder coating 50 micron) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**455.00**
11.35.2.3	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate 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	**kg**	**463.00**

Sl. No.	Specification	Unit	Rate ₹
	/ 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) :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) Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron) including cost of materials, labour, usage charges of machinery complete as per specifications.		
11.36.1	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: Pre-laminated particle board with decorative lamination on one side and balancing lamination on other side including cost of materials, labour, usage charges of machinery complete as per specifications.	**m^2**	**801.00**
11.36.2	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: Pre-laminated particle board with decorative lamination on both sides including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**788.00**
11.37.1	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):With float glass panes of 4.0 mm thickness (weight not less than 10kg/ m^2) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**798.00**
11.37.2	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):With float glass panes of 5 mm thickness (weight not less than 12.50 kg/m^2) including cost of materials, labour, usage charges of machinery complete as per specifications.	**m^2**	**916.00**
11.37.3	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	**m^2**	**1,226.00**

Sl. No.	Specification	Unit	Rate ₹
	basic item):With float glass panes of 8 mm thickness (weight not less than 20 kg/ m²) including cost of materials, labour, usage charges of machinery complete as per specifications.		
11.38.1	Providing and fixing double action hydraulic floor spring of approved brand 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: With stainless steel cover plate minimum 1.25 mm thickness including cost of materials, labour, usage charges of machinery complete as per specifications.	**each**	**2,087.00**
11.38.2	Providing and fixing double action hydraulic floor spring of approved brand 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: With brass cover plate minimum 1.25 mm thickness including cost of materials, labour, usage charges of machinery complete as per specifications.	**each**	**2,236.00**
11.39	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) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**547.00**
11.40	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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**56.00**

Sl. No.	Specification	Unit	Rate ₹
11.41.1	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: Anodised aluminium sheet 2.5mm thick (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**517.00**
11.41.2	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: Powder coated aluminium sheet 2.5mm thick (minimum thickness of powder coating 50 micron) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**544.00**
11.42.1	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: Upto 5mm depth and 5 mm width including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m**	**52.00**
11.43.1	Extra for applying additional anodic coating AC 25 instead of AC 15 to aluminium extruded sections: For fixed portion including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**12.00**
11.43.2	Extra for applying additional anodic coating AC 25 instead of AC 15 to aluminium extruded sections: For Shuttes of Doors, Windows & ventilators including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**kg**	**12.00**

Sl. No.	Specification	Unit	Rate ₹
11.44	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 including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**3,481.00**
11.45.1	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.205 X 19 mm including cost of materials, labour, usage charges of machinery complete as per specifications.	**Nos.**	**262.00**
11.45.2	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.:255 X 19 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**295.00**
11.45.3	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.:355 X 19 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**258.00**
11.45.4	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.:510 X 19 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**678.00**
11.45.5	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.:710 X 19 mm including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**1,159.00**
11.46.1	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.: Anodized (AC 15) aluminium tubular handle bar including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**467.00**

Sl. No.	Specification	Unit	Rate ₹
11.46.2	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.: Powder coated minimum thickness 50 micron aluminium tubular handle bar including cost of materials, labour, usage charges of machinery complete as per specifications.	**Nos.**	**514.00**
11.46.3	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.: Polyester powder coated minimum thickness 50 micron aluminium tubular handle bar including cost of materials, labour, usage charges of machinery complete as per specifications.	**Nos.**	**526.00**
11.47	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 including cost of materials, labour, usage charges of machinery complete as per specifications.	**Nos.**	**345.00**
11.48	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) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**315.00**
11.49.1	Providing and fixing aluminium casement windows fastener of required length for aluminium windows with necessary screws etc. complete. Anodized (AC 15) aluminium including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**65.00**
11.49.2	Providing and fixing aluminium casement windows fastener of required length for aluminium windows with necessary screws etc. complete. Powder coated minimum thickness 50 micron aluminium including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**71.00**
11.49.3	Providing and fixing aluminium casement windows fastener of required length for aluminium windows with necessary screws etc. complete: Polyester powder coated minimum thickness 50 micron aluminium including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**69.00**
11.50.1	Providing and fixing aluminium round shape handle of outer dia 100 mm with SS screws etc. complete as per direction of Engineer-in- charge: Anodized (AC 15) aluminium including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**79.00**

Sl. No.	Specification	Unit	Rate ₹
11.50.2	Providing and fixing aluminium round shape handle of outer dia 100 mm with SS screws etc. complete as per direction of Engineer-in- charge: Powder coated minimum thickness 50 micron aluminium including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**80.00**
11.50.3	Providing and fixing aluminium round shape handle of outer dia 100 mm with SS screws etc. complete as per direction of Engineer-in- charge: Polyester powder coated minimum thickness 50 micron aluminium including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**Nos.**	**82.00**
11.51	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) including cost of materials, labour, usage charges of machinery complete as per specifications.	**kg**	**474.00**
11.52	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) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	**m^2**	**3,848.00**
11.53.1	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 Upto 5 mm depth and 5 mm width including cost of materials, labour, usage charges of machinery complete as per specifications.	**m**	**100.00**
11.53.2	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-	**m**	**139.00**

Sl. No.	Specification	Unit	Rate ₹
	F & ISO 11600 Upto 10 mm depth and 10 mm width including cost of materials, labour, usage charges of machinery complete as per specifications.		
11.53.3	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 Upto 20 mm depth and 20 mm width including cost of materials, labour, usage charges of machinery complete as per specifications.	**m**	**261.00**
11.54	Providing and fixing of customized 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)	**m^2**	**166.00**
11.55	Supplying and fixing turn buckles and straining bolts for barbed wire fencing.	**1 set**	**1,412.00**
11.56	Fencing with G.I. barbed wire R.C.C. post placed at required distance, embedded in cement concrete blocks, every 15th post, last but one end post and corner post shall be strutted on both sides and end post one side only, provided with horizontal lines and two diagonals of barbed wire weighing 9.38 kg per 100 m (minimum), between the two posts fitted and fixed with G.I. staples on wooden plugs or G.I. binding wire tied to 6 mm bar nibs fixed while casting the post (cost of R.C.C. posts, struts, earth work and concrete to be paid for separately) :- Payment to be made per metre cost of total length of barbed wire used.	**m**	**10.00**
11.57	Fencing with G.I. barbed wire Angle iron post placed at required distance embedded in cement concrete blocks, 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 horizontal lines and two diagonals interwoven with horizontal wires, of barbed wire weighing 9.38 kg per 100 m (minimum), between the two posts fitted and fixed with G.I. staples, turn buckles etc. complete. (Cost of posts, struts, earth work and concrete work to be paid for separately). Payment to be made per metre cost of total length of barbed wire used.		

Sl. No.	Specification	Unit	Rate ₹
11.57.1	With G.I. barbed wire	**m**	**52.00**
11.57.2	Supplying at site Angle iron post & strut of required size including bottom to be split and bent at right angle in opposite direction for 10 cm length and drilling holes upto 10 mm dia. etc. complete.	**kg**	**96.00**
11.58	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 50x50 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge. (Made of G.I. wire of dia 4 mm)	**m^2**	**676.00**
11.59	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 50x50 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge. (Made of G.I. wire of dia. 4 mm, PVC coated to achieve outer dia not less than 5 mm in required colour and shade)	**m^2**	**715.00**
11.60	Providing and fixing G.I. chain link fabric fencing of required width in mesh size 25x25 mm made of G.I. wire of dia 3 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-in-charge.	**m^2**	**780.00**
11.61	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/mm^2 with tape (0.52 mm thick) and weight 43.478 g/m (cost of M.S. angle, C.C. blocks shall be paid separately)	**m**	**260.00**

Chapter - 12

WOOD & PVC WORKS

Sl. No.	Specification	Unit	Rate ₹
	12.0 WOOD WORK & PVC WORKS		
12.1	Labour for providing Teak wood wrought and putup for purlins, common rafters and similar work including cost of labour, usage charges complete as per specifications.	**m^3**	**5,415.00**
12.2	Providing Honne wood wrought and putup for purlins, common rafters and similar work including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**89,010.00**
12.3	Providing Mathi / Nandi wood wrought and putup for purlins, common rafters and similar work including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**73,960.00**
12.4	Providing Sal wood wrought and putup for purlins, common rafters and similar work including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**60,547.00**
12.5	Providing Jungle wood such as Nerale, Neem wrought and putup for purlins, common rafters and similar work including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**43,339.00**
12.6	Providing Teak wood frames for false ceiling, partitions etc., main battens of size 50x12.5mm at 600mm. c/c and cross battons 38mmx50mm at 600mm c/c sawn and putup including cost of materials, labour complete as per specifications.	**m^3**	**38,223.00**
12.7	Providing Honne wood frames for false ceiling, partitions etc., main battens of size 50x12.5mm at 600mm c/c and cross battons 38mmx50mm at 600 mm c/c sawn and putup including cost of materials, labour complete as per specifications.	**m^3**	**14,705.00**
12.8	Providing Mathi or Nandi wood frames for false ceiling, partitions etc., main battens of size 50x12.5mm at 600 mm c/c and cross battons 38mmx50mm at 600mm c/c sawn and putup including cost of materials, labour complete as per specifications.	**m^3**	**12,268.00**
12.9	Providing Sal wood frames for false ceiling, partitions etc., main battens of size 50x12.5mm at 600 mm c/c and cross battons 38mmx50mm at 600mm c/c sawn and putup including cost of materials, labour complete as per specifications.	**m^3**	**10,097.00**
12.10	Providing Teak wood frames of doors, windows, clerestory windows, ventilators and other frames, wrought, framed or assembled including making plaster groves (excluding cost of cement concrete and side clamps), but including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**2,35,649.00**
12.11	Providing Honne wood frames of doors, windows, clerestory windows, ventilators and other frames, wrought, framed or assembled including making plaster groves (excluding cost of cement concrete and side clamps), but including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**90,393.00**

Sl. No.	Specification	Unit	Rate ₹
12.12	Providing Mathi/Nandi wood frames of doors, windows, clerestory windows, ventilators and other frames, wrought, framed or assembled including making plaster groves (excluding cost of cement concrete and side clamps), but including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**75,344.00**
12.13.1	Providing Salwood frames of doors, windows, clerestory windows, ventilators and other frames, wrought, framed or assembled including making plaster groves (excluding cost of cement concrete and side clamps), but including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**61,603.00**
12.13.2	Providing Red Salwood frames of doors, windows, clerestory windows, ventilators and other frames, wrought, framed or assembled including making plaster groves (excluding cost of cement concrete and side clamps), but including cost of materials, labour, usage charges complete as per specifications.	**m^3**	**61,603.00**
12.14	Providing and fixing in position fully panelled Teak wood shutters for doors with stiles and rails of 40mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**9,334.00**
12.15	Providing and fixing in position fully panelled Honne wood shutters for doors with stiles and rails of 40mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**5,074.00**
12.15	Providing and fixing in position fully panelled Mathi/Nandi wood shutters for doors with stiles and rails of 40mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4556.00**
12.16	Providing and fixing in position fully panelled Teak wood shutters for doors with , stiles and rails of 35mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**9,479.00**
12.17	Providing and fixing in position fully panelled Honne wood shutters for doors with , stiles and rails of 35mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,866.00**

Sl. No.	Specification	Unit	Rate ₹
12.18	Providing and fixing in position fully panelled Matti/Nandi wood shutters for doors with, stiles and rails of 35mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,026.00**
12.19	Providing and fixing in position fully panelled Teak wood shutters for doors with , stiles and rails of 30mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**7,953.00**
12.20	Providing and fixing in position fully panelled Honne wood shutters for doors with , stiles and rails of 30mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,261.00**
12.21	Providing and fixing in position fully panelled Matti/Nandi wood shutters for doors with , stiles and rails of 30mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide as per drawing and panels of 25mm thick including cost of materials, labour, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,860.00**
12.22	Providing and fixing in position Teak wood fully panelled shutters for windows with stiles and rails of 35mm. thick, 75mm wide in two halves with panels of 25mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**9,531.00**
12.23	Providing and fixing in position Honnewood fully panelled shutters for windows with stiles and rails of 35mm. thick, 75mm wide in two halves with panels of 25mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**5,182.00**
12.24	Providing and fixing in position Mathi/Nandi wood fully panelled shutters for windows with stiles and rails of 35mm. thick, 75mm wide in two halves with panels of 25mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,625.00**
12.25	Providing and fixing in position fully panelled shutters for windows with Honne wood stiles and rails of 35mm. thick, 75mm wide in two halves with panels provided with MDF of 25mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,169.00**

Sl. No.	Specification	Unit	Rate ₹
12.26	Providing and fixing in position fully panelled shutters of Teak wood for windows with stiles and rails of 30mm thick, 75mm wide in two halves with panels of 20mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**8,415.00**
12.27	Providing and fixing in position fully panelled shutters of Honne wood for windows with stiles and rails of 30mm thick, 75mm wide in two halves with panels of 20mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,617.00**
12.28	Providing and fixing in position fully panelled shutters of Mathi/Nandi wood for windows with stiles and rails of 30mm thick, 75mm wide in two halves with panels of 20mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,098.00**
12.29	Providing and fixing in position fully panelled shutters for windows with Honne wood stiles and rails of 30mm. thick, 75mm wide in two halves with panels provided with MDF of 18mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,886.00**
12.30	Providing and fixing in position Teak wood fully panelled shutters for windows with stiles and rails of 25mm. thick, 75mm wide in two halves with panels of 20mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**7,753.00**
12.31	Providing and fixing in position Honne wood fully panelled shutters for windows with stiles and rails of 25mm. thick, 75mm wide in two halves with panels of 20mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,334.00**
12.32	Providing and fixing in position Mathi / Nandi wood fully panelled shutters for windows with stiles and rails of 25mm. thick, 75mm wide in two halves with panels of 20mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,867.00**
12.33	Providing and fixing in position fully panelled shutters for windows with Honne wood stiles and rails of 25mm. thick, 75mm wide in two halves with panels provided with MDF of 18mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,323.00**

Sl. No.	Specification	Unit	Rate ₹
12.34	Providing and fixing in position fully panelled shutters for windows with Honne wood stiles and rails of 25mm. thick, 75mm wide in two halves with panels provided with MDF of 12mm thick including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,302.00**
12.35	Providing and fixing in position Teak wood half panelled shutters at bottom and half glazed at top for window shutters with stiles and rails of 35mm. thick, 75mm wide in two halves with panels of 25mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**8,303.00**
12.36	Providing and fixing in position Honne wood half panelled shutters at bottom and half glazed at top for window shutters with stiles and rails of 35mm. thick, 75mm wide in two halves with panels of 25mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,794.00**
12.37	Providing and fixing in position Mathi/Nandi wood half panelled shutters at bottom and half glazed at top for window shutters with stiles and rails of 35mm thick, 75mm wide in two halves with panels of 25mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,336.00**
12.38	Providing and fixing in position windows half paneled shutters at bottom and half glazed at top for window shutters with Honne wood stiles and rails of 35mm. thick, 75mm wide in two halves with panels filled with MDF of 18mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,023.00**
12.39	Providing and fixing in position Teak wood half panelled shutters at bottom and half glazed at top for window shutters with stiles and rails of 30mm. thick, 75mm wide in two halves with panels of 20mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**7,592.00**
12.40	Providing and fixing in position Honne wood half panelled shutters at bottom and half glazed at top for window shutters with stiles and rails of 30mm. thick, 75mm wide in two halves with panels of 20mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,458.00**

Sl. No.	Specification	Unit	Rate ₹
12.41	Providing and fixing in position Mathi/Nandi wood half panelled shutters at bottom and half glazed at top for window shutters with stiles and rails of 30mm. thick, 75mm wide in two halves with panels of 20mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,030.00**
12.42	Providing and fixing in position windows half paneled shutters at bottom and half glazed at top for window shutters with Honne wood stiles and rails of 30mm. thick, 75mm wide in two halves with panels filled with MDF of 18mm thick, 3mm thick reeded glass for top panels fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,595.00**
12.43	Providing and fixing in position fully glazed for windows shutters with Teak wood stiles and rails of 35mm. thick 75mm wide in single shutters with 4mm thick plain glass fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**6,088.00**
12.44	Providing and fixing in position fully glazed for windows shutters with Honne wood stiles and rails of 35mm. thick 75mm wide in single shutters with 4mm thick plain glass fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,780.00**
12.45	Providing and fixing in position fully glazed for windows shutters with Teak wood stiles and rails of 30mm. thick, 75mm wide in single shutters with 4mm thick plain glass fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**5,591.00**
12.46	Providing and fixing in position fully glazed for windows shutters with Honne wood stiles and rails of 30mm. thick, 75mm wide in single shutters with 4mm thick plain glass fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**5,372.00**
12.47	Providing and fixing in position fully glazed for windows shutters with Teak wood stiles and rails of 25mm. thick, 75mm wide in single shutters with 4mm thick plain glass fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**5,094.00**
12.48	Providing and fixing in position fully glazed for windows shutters with Honne wood stiles and rails of 25mm. thick, 75mm wide in single shutters with 4mm thick plain glass fixed with wooden beading including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,356.00**

Sl. No.	Specification	Unit	Rate ₹
12.49	Providing and fixing in position fully glazed shutters for ventilators side hung or central pivoted with Honne wood stiles and rails of 30mm thick 50mm wide and central divider of 30mm. wide, 3mm thick reeded glass fixed with wooden beading of size 10mm wide flushed to the thickness of the frame including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**4,358.00**
12.50	Providing and fixing in position fully glazed shutters for ventilators side hung or central pivoted with Mathi/Nandi wood stiles and rails of 30mm thick 50mm wide and central divider of 30mm. wide, 3mm thick reeded glass fixed with wooden beading of size 10mm wide flushed to the thickness of the frame including cost of materials, labour charges, usage charges complete as per specifications. (excluding cost of fixtures)	**m^2**	**3,982.00**
12.51	Fixing of door frame in an existing opening including embedding frame in floor and walls after cutting masonry for holdfasts for embedding holdfast in cement concrete 1:3:6 of 20mm and down size granite metal painting two coats of coal tar to sides of frame, making good the damages to walls and floor as required and disposal of the debris with lead upto 50 m. including cost of materials, labour charges, complete as per specifications.	**Nos.**	**1,485.00**
12.52	Fixing of window frame in an existing opening including embedding frame in floor and walls after cutting masonry for holdfasts for embedding holdfast in cement concrete 1:3:6 of 20mm and down size granite metal painting two coats of coal tar to sides of frame, making good the damages to walls and floor as required and disposal of the debries with lead upto 50 m. including cost of materials, labour charges, complete as per specifications.	**Nos.**	**1,010.00**
12.53	Providing & fixing 30mm thick factory made rigid foam Panelled Door Shutters made from M.S. tube of 19 gauge thickness, size 19x19mm for stiles and 15x15mm for top & bottom rails, covered with heat moulded PVC C channel of 5mm thick sheet & 30 x 50mm wide to form stiles & 5mm thick & 75mm wide PVC Sheets for top rail, lock rail & bottom rail on either side & 5mm thick 20mm wide PVC sheet as gap insert for top rail & bottom rail, Panelling of 5mm thick PVC sheet fitted in the M.S. Frame, Sealed to the stiles & rails with 5x30mm PVC sheet beading on either side & joined together with solvent cement adhesive etc., Complete as per manufacturers specification & direction of Engineer-in-charge fixed to frames with 3 nos of 75 mm Aluminium hinges.	**m^2**	**287.00**
12.54	Providing & fixing factory made PVC Door frame of size 50x47mm with a wall thickness of 5mm, made out of extruded 5mm rigid PVC foam sheet metered cut at corners & jointed 2 No.s of 150mm long brackets of 15x15mm M.S Square tube, the entire door frame to be reinforced with 19x19mm M.S Square tube of 19 gauge. The door frame to be fixed to the wall using M.S. Screws of 65/80mm size complete as per manufacturers specification & direction of Engineer-in-charge.	**m^2**	**475.00**

Sl. No.	Specification	Unit	Rate ₹
12.55	Providing & fixing 30mm thick factory made rigid foam Prelam Panelled Door Shutters made from M.S. tube of 19x19mm, 19 gauge for stiles and 15x15mm for top & bottom rails, covered with heat moulded Prelaminated PVC C Channel of 5mm thick sheet & 30x50mm wide to form stiles & 5mm thick & 75mm wide Prelaminated PVC Sheets for top rail, lock rail & bottom rail on either side & 5mm thick, 20mm wide cross PVC sheet as gap insert for top rail & bottom rail, Panelling of 5mm thick PVC sheet Prelaminated on either side fitted in the M.S. frame, Sealed to the stiles & rails with PVC Designer beading on either side & joined together with solvent cement adhesive etc., Complete as per manufacturers specification & direction of Engineer-in-charge fixed to frames with 3 nos of 75mm Aluminium hinges.		
12.55.1	-do- with both side prelam	**m^2**	**3,803.00**
12.55.2	-do- with one side prelam	**m^2**	**2,856.00**
12.56	Providng and fixing Teak Wood Hand railing to stair case using balusters of sections 40mm x 25mm as per desig and fixing it to the steps using anchor bolts and necessary adhesive materials and fixing T.W.handrail of section 75 x 75 mm to bulusters and finishing the same by using colourless polish etc., complete. The work includes cost of all materials, labour charges for all items of work, hire charges for welding, cutting and grinding equipment, and electricity charges, with lead and lift, loading and unloading charges, etc., complete as per drawing and specification.	**m^2**	**9,887.00**
12.57	Providing and fixing flush door shutter made out of solid core block board type, well seasoned , chemicaly treated hard wood battens and internal frame with minimum 45 mm wide wooden frame alround door shutters covered with cross bonded wooden sheets (core veneer) hot pressed and fastened on both sides of the door useing liquid phenol formaldehyde resin as per IS specifications 2202 (part-I) 1991. from manufacturer complete as per spcification.		
12.57.1	-do- 30 mm thick Both side teak	**m^2**	**3,799.00**
12.57.2	-do- 30 mm thick one side teak and one side commercial	**m^2**	**3,249.00**
12.57.3	-do- 30 mm thick both side commercial	**m^2**	**2,638.00**
12.57.4	-do- 35 mm thick both side Teak	**m^2**	**2,333.00**
12.57.5	-do- 35 mm thick one side teak and one side commercial	**m^2**	**3,445.00**
12.57.6	-do- 35 mm thick both side commercial	**m^2**	**2,944.00**
12.57.7	-do- 40 mm thick both side Teak	**m^2**	**3,860.00**
12.57.8	-do- 40 mm thick one side teak and one side commercial	**m^2**	**3,249.00**
12.57.9	-do- 40 mm thick both side commercial	**m^2**	**2,883.00**

Sl. No.	Specification	Unit	Rate ₹
12.58	Providing and fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete.	**Nos.**	**109.00**
12.59	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.	**Nos.**	**880.00**
12.60	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.	**Nos.**	**832.00**
12.61	Providing and fixing chromium plated brass night latch of approved quality including necessary screws etc. complete.	**Nos.**	**621.00**
12.62	Providing and fixing chromium plated brass handles of 100/125 mm with necessary screws etc. complete	**Nos.**	**175.00**
12.63	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	**Nos.**	**111.00**
12.64	Providing and fixing PTMT door catcher of length 72 mm and dia. of 42 mm with suitable washers weighing not less than 33 gms	**Nos.**	**47.00**
12.65	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.	**Nos.**	**47.00**
12.66	Providing and fixing chromium plated brass curtain rod with ISI mark 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		
12.66.1	12mm dia	**m**	**265.00**
12.66.2	20mm dia	**m**	**356.00**
12.66.3	25mm dia	**m**	**454.00**
12.67	Providing and fixing nickel plated M.S. pipe curtain rods with nickel plated brackets		
12.67.1	20mm dia heavy pipe	**m**	**152.00**
12.67.2	25mm dia heavy pipe	**m**	**158.00**
12.68	Providing and fixing ISI marked M.S. pressed butt hinges bright finished with necessary screws etc.		
12.68.1	125x65x2.12mm	**Nos.**	**38.00**
12.68.2	100x58x1.9mm	**Nos.**	**30.00**
12.68.3	75x47x1.7mm	**Nos.**	**25.00**

Sl. No.	Specification	Unit	Rate ₹
12.68.4	50x37x1.50mm	**Nos.**	**23.00**
12.69	Providing and fixing ISI marked oxidised M.S. single acting spring hinges with necessary screws etc.		
12.69.1	150mm	**Nos.**	**213.00**
12.69.2	125mm	**Nos.**	**189.00**
12.69.3	100mm	**Nos.**	**163.00**
12.70	Providing and fixing oxidised M.S. double acting spring hinges with necessary screws etc. complete.		
12.70.1	150mm	**each**	**238.00**
12.70.2	125mm	**each**	**213.00**
12.70.3	100mm	**each**	**189.00**
12.71	Providing M.S. Piano hinges ISI marked IS : 3818 finished with nickel plating and fixing with necessary screws etc., complete.		
12.71.1	Nickel plated mild steel piano hinges 1 mm thick 35 mm wide	**m**	**205.00**
12.71.2	Nickel plated mild steel piano hinges 1 mm thick 50 mm wide	**m**	**211.00**
12.71.3	Nickel plated mild steel piano hinges 1 mm thick 65 mm wide	**m**	**219.00**
12.72	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Barrel type) with necessary screws etc. complete :	**each**	**36.00**
12.73	Providing and fixing ISI marked oxidised M.S. handles conforming to IS:4992 with necessary screws etc. complete :		
12.73.1	125mm	**each**	**30.00**
12.73.2	100mm	**each**	**24.00**
12.73.3	75mm	**each**	**20.00**
12.74	Providing and fixing IS : 12817 marked stainless steel butt hinges with stainless steel screws etc. complete :		
12.74.1	125x64x1.90mm	**Nos.**	**82.00**
12.74.2	100x58x1.90mm	**Nos.**	**73.00**
12.74.3	75x47x1.80mm	**Nos.**	**59.00**
12.74.4	50x37x1.50mm	**Nos.**	**38.00**
12.75	Providing and fixing bright finished brass butt hinges with necessary screws etc. complete :		
12.75.1	125x85x5.5 mm (heavy type)	**Nos.**	**201.00**
12.75.2	125x70x4 mm (ordinary type)	**Nos.**	**136.00**

Sl. No.	Specification	Unit	Rate ₹
12.75.3	100x85x5.5 mm (heavy type)	**Nos.**	**153.00**
12.75.4	100x70x4 mm (ordinary type)	**Nos.**	**107.00**
12.75.5	75x65x4 mm (heavy type)	**Nos.**	**127.00**
12.75.6	75x40x2.5 mm (ordinary type)	**Nos.**	**71.00**
12.75.7	50x40x2.5 mm (ordinary type)	**Nos.**	**28.00**
12.76	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete :		
12.76.1	250x10mm	**each**	**337.00**
12.76.2	200x10mm	**each**	**273.00**
12.76.3	150x10mm	**each**	**211.00**
12.76.4	100x10mm	**each**	**149.00**
12.77	Providing and fixing special quality bright finished brass cupboard or ward robe locks with four levers of approved quality including necessary screws etc. complete.		
12.77.1	40mm	**each**	**214.00**
12.77.2	50mm	**each**	**252.00**
12.77.3	65mm	**each**	**258.00**
12.77.4	75mm	**each**	**276.00**
12.78	Providing and fixing 50 mm bright finished brass cup board or wardrobe knob of approved quality with necessary screws.	**each**	**56.00**
12.79	Providing and fixing bright finished brass handles with screws etc. complete:		
12.79.1	Brass handles 125 mm with plate 175x32 mm	**each**	**184.00**
12.79.2	Brass handles 100 mm with plate 150x32 mm	**each**	**171.00**
12.79.3	Brass handles75 mm with plate 125x32 mm	**each**	**134.00**
12.80	Providing and fixing magnetic catcher of approved quality in cupboard / ward robe shutters, including fixing with necessary screws etc. complete.		
12.80.1	Triple strip vertical type	**each**	**43.00**
12.80.2	Double strip (horizontal type)	**each**	**33.00**
12.81	Providing and fixing powder coated telescopic drawer channels 300 mm long with necessary screws etc complete as per directions of Engineer-in-charge	**Nos.**	**311.00**
12.82	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)	**Nos.**	**15.00**

Sl. No.	Specification	Unit	Rate ₹
12.83	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		
12.83.1	48x40 mm PVC Extruded section	**m**	**187.00**
12.83.2	42x50 mm PVC Extruded section	**m**	**229.00**
12.84	PProviding & fixing of 2-track x 2-panel sliding windows made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6 PHR with TPE (Thermo Plastic Elastomer) and lead free, gaskets -grey color having isolated drainage and reinforced with Galvanized Iron profile through-out the window frame. The outer frame having an overall size of 44mm width x 40mmheight with reinforcement of 1mm thickness and Sash with overall size of 27mm X 53mm with UPVC honeycomb structure inside in lieu of GI reinforcement. Coextruded Glazing bead for fixing of glass shall be of size 9.5mm x 21.5mm. Windows shall be provided with 5mm plain float glass, standard hardware& single point locking system with Crescent Locks. Wall thickness of frame & sash shall be of 2 mm.Maximum possible size – 1219mm x 1219mm. (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**4,114.00**
12.85	Providing & fixing of louvered ventilator made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPE(Thermo Plastic Elastomer) and lead free with gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the ventilator frame. The frame having overall size of 39mm x 39mm with GI reinforcement of 1mm thickness. Louver clip in Aluminium (powder coated in white) will be used on the frame along with plastic parts for fixing the 4 mm pin head glass. Wall thickness of frame shall be 2mm.Maximum possible size – 1000mm x 1000mm.(The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**4,870.00**
12.86	Providing & fixing of 2-track x 2-panel sliding windows made out of multi chambered UPVC (Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPE(Thermo Plastic Elastomer) and lead free, gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the window frame. The outer frame having an overall size of 50mm width x 42mmheight with reinforcement of 1mm thickness and Sash with overall size of 31mm X 57mm with Gi reinforcement of 1mm for the frame and 1.5 mm for the sash. Coextruded Glazing bead for fixing of glass shall be of size 21.5mm x 9.5 mm. Windows shall be provided with 5mm plain float glass, standard hardware& single point locking system with touch lock.	**m^2**	**5,842.00**

Sl. No.	Specification	Unit	Rate ₹
	Wall thickness of frame & sash shall be of 1.8+-0.2 mm. Maximum possible size – 1519mm x 1519mm. (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)		
12.87	Providing & fixing of 2.5 track x 2-panel sliding windows made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPE(Thermo Plastic Elastomer) and lead free, gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the window frame. The outer frame having an overall size of 81mm width x 42mmheight with reinforcement of 1mm thickness and Sash with overall size of 31mm x 57mm and mesh sash of size with GI reinforcement of 1.5mm thickness. Coextruded Glazing bead for fixing of glass shall be of size 21.5mm x 9.5mm. Windows shall be provided with 5mm plain float glass, standard hardware& single point locking system with touch lock. Wall thickness of frame & sash shall be of 1.8-2.0mm. Maximum possible size – 1519mm x 1519mm (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**6,722.00**
12.88	Providing & fixing of 2-track x 2-panel sliding windows made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPE(Thermo Plastic Elastomer) and lead free, gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the window frame. The outer frame having a overall size of 60mm width x 45mmheight with reinforcement of 1mm thickness and Sash with overall size of 39mm X 58mm with GI reinforcement of 1mm for the frame and 1.5 mm for the sash. Coextruded Glazing bead for fixing of glass shall be of size 20mm x 24mm. Windows shall be provided with 5mm plain float glass, standard hardware& single point locking system with touch lock. Wall thickness of frame & sash shall be of 2-2.5 mm. Maximum possible size – 1819mm x 1819mm (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**6,411.00**
12.89	Providing & fixing of 2.5 track x 2-panel sliding windows made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPE(Thermo Plastic Elastomer) and lead free, gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the window frame. The outer frame having an overall size of 94mm width x 45mm height with reinforcement of 1mm thickness and Sash with overall size of 39mm x 58mm with GI reinforcement of 1.5mm and mesh sash of size 25mm x 42mm. Coextruded Glazing bead for fixing of glass shall be of size 20mm x 24 mm. Windows shall be provided with 5mm plain float glass, standard hardware& single point locking system with touch lock. Wall thickness of frame & sash shall be of 2mm-2.5mm. Maximum possible size – 1819mm x 1819mm. (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**6,722.00**

Sl. No.	Specification	Unit	Rate ₹
12.90	Providing & fixing of 3-track x 2-panel sliding windows made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPE(Thermo Plastic Elastomer) and lead free, gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the window frame. The outer frame having an overall size of 108mm width x 45mmheight with reinforcement of 1mm thickness and Sash with overall size of 39mm x 75mm with GI reinforcement of 2mm and mesh sash of size 37mm x 58mm. Coextruded Glazing bead for fixing of glass shall be of size 20mm x 24 mm. Windows shall be provided with 6mm plain float glass, standard hardware& Multi point locking system with touch lock. Wall thickness of frame & sash shall be of 2mm-2.5mm. Maximum possible size – 2419mm x 2200mm. (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**7,240.00**
12.91	Providing& fixing of Openable window made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPV(Thermo Plastic Vulcanized) and lead free with gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the openable frame. The frame having overall size of 60mm x 55mm with GI reinforcement of 1mm thickness and openable sash with overall size of 60mm x 75mm and GI reinforcement of 1.5mm thickness. Coextruded Glazing bead for fixing of glass shall be of size 20mm x 34 mm. Windows shall be provided with 5mm plain float glass, Standard hardware with friction hinge & Multi point locking system with Handle. Wall thickness of frame & sash shall be of 2mm-2.5mm. Maximum possible size – 900mm x 1819mm. (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**7,095.00**
12.92	Providing& fixing of Openable door made out of multi chambered UPVC(Matching to RAL-9016) sections and with minimum TiO2(Titanium Dioxide) at 6PHR with TPV(Thermo Plastic Vulcanized) and lead free with gaskets -grey colour having isolated drainage and reinforced with Galvanized Iron profile through-out the openable frame. The frame having overall size of 60mm x 55mm with GI reinforcement of 1mm thickness and openable sash with overall size of 60mm x 102mm and GI reinforcement of 2mm thickness. Coextruded Glazing bead for fixing of glass shall be of size 20mm x 34 mm. Windows shall be provided with 6mm plain float glass, Standard hardware with 2D/3D hinge & Multi point locking system with Handle. Wall thickness of frame & sash shall be of 2mm-2.5mm. Maximum possible size – 900mm x 2400mm. (The cost is inclusive of all fixtures and separate charges for minor T&P's shall not be made)	**m^2**	**7,095.00**

Note : The items of Teak wood shall be operated only on the prior approval of Chief Engineer.

Chapter - 13

WATER SUPPLY & DRAINAGE WORKS

Sl. No.	Specification	Unit	Rate ₹
	13.0 WATER SUPPLY & DRAINAGE WORKS		
13.1	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 :		
13.1.1	25 to 40 mm nominal bore	**Nos.**	**471.00**
13.1.2	50 to 80 mm nominal bore	**Nos.**	**1,082.00**
13.2	Providing and fixing brass bib cock of approved quality :		
13.2.1	15 mm nominal bore	**Nos.**	**326.00**
13.2.2	20 mm nominal bore	**Nos.**	**345.00**
13.3	Providing and fixing brass stop cock of approved quality :		
13.3.1	15 mm nominal bore	**Nos.**	**326.00**
13.3.2	20 mm nominal bore	**Nos.**	**345.00**
13.4	Providing and fixing Brass full way valve gate with C.I. wheel of approved quality (screwed end) :		
13.4.1	25 mm nominal bore	**Nos.**	**528.00**
13.4.2	32 mm nominal bore	**Nos.**	**577.00**
13.4.3	40 mm nominal bore	**Nos.**	**681.00**
13.4.4	50 mm nominal bore	**Nos.**	**834.00**
13.4.5	65 mm nominal bore	**Nos.**	**1,390.00**
13.4.6	80 mm nominal bore	**Nos.**	**2,056.00**
13.5	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :		
13.5.1	15 mm nominal bore	**Nos.**	**329.00**
13.5.2	20 mm nominal bore	**Nos.**	**360.00**
13.5.3	25 mm nominal bore	**Nos.**	**384.00**
13.6	Providing and fixing gun metal non- return valve of approved quality (screwed end) :		
13.6.1	25 mm nominal bore		
13.6.1.1	Horizontal	**Nos.**	**493.00**
13.6.1.2	Vertical	**Nos.**	**553.00**
13.6.2	32 mm nominal bore		

Sl. No.	Specification	Unit	Rate ₹
13.6.2.1	Horizontal	**Nos.**	**644.00**
13.6.2.2	Vertical	**Nos.**	**735.00**
13.6.3	40 mm nominal bore		
13.6.3.1	Horizontal	**Nos.**	**765.00**
13.6.3.2	Vertical	**Nos.**	**977.00**
13.6.4	50 mm nominal bore		
13.6.4.1	Horizontal	**Nos.**	**1,086.00**
13.6.4.2	Vertical	**Nos.**	**1,219.00**
13.6.5	65 mm nominal bore		
13.6.5.1	Horizontal	**Nos.**	**1,914.00**
13.6.5.2	Vertical	**Nos.**	**1,945.00**
13.6.6	80 mm nominal bore		
13.6.6.1	Horizontal	**Nos.**	**2,852.00**
13.6.6.2	Vertical	**Nos.**	**3,215.00**
13.7	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main :		
13.7.1	15 mm nominal bore	**Nos.**	**239.00**
13.7.2	20 mm nominal bore	**Nos.**	**263.00**
13.7.3	25 mm nominal bore	**Nos.**	**335.00**
13.8	Providing and fixing unplasticised PVC connection pipe with brass unions :		
13.8.1	30 cm length		
13.8.1.1	15 mm nominal bore	**Nos.**	**105.00**
13.8.1.2	20 mm nominal bore	**Nos.**	**111.00**
13.8.2	45 cm length		
13.8.2.1	15 mm nominal bore	**Nos.**	**111.00**
13.8.2.2	20 mm nominal bore	**Nos.**	**127.00**
13.9	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet :		
13.9.1	100 mm diameter	**Nos.**	**202.00**
13.9.2	150 mm diameter	**Nos.**	**220.00**

Sl. No.	Specification	Unit	Rate ₹
13.10	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) :		
13.10.1	15 mm nominal bore	**Nos.**	**166.00**
13.10.2	20mm nominal bore	**Nos.**	**190.00**
13.10.3	25 mm nominal bore	**Nos.**	**263.00**
13.10.4	32 mm nominal bore	**Nos.**	**299.00**
13.10.5	40 mm nominal bore	**Nos.**	**402.00**
13.10.6	50 mm nominal bore	**Nos.**	**543.00**
13.10.7	65 mm nominal bore	**Nos.**	**804.00**
13.10.8	80 mm nominal bore	**Nos.**	**864.00**
13.11	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 :		
13.11.1	15 mm nominal bore	**Nos.**	**413.00**
13.11.2	20 mm nominal bore	**Nos.**	**437.00**
13.11.3	25 mm nominal bore	**Nos.**	**509.00**
13.11.4	32 mm nominal bore	**Nos.**	**546.00**
13.11.5	40mm nominal bore	**Nos.**	**649.00**
13.11.6	50 mm nominal bore	**Nos.**	**880.00**
13.11.7	65 mm nominal bore	**Nos.**	**1,140.00**
13.11.8	80 mm nominal bore	**Nos.**	**1,201.00**
13.12	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931	**Nos.**	**432.00**
13.13	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 g.	**Nos.**	**674.00**
13.14	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 g.	**Nos.**	**674.00**
13.15	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.	**Nos.**	**577.00**
13.16	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931	**Nos.**	**493.00**
13.17	Providing and fixing PTMT bib cock of approved quality and colour.		

Sl. No.	Specification	Unit	Rate ₹
13.17.1	15mm nominal bore, 86 mm long, weighing not less than 88 g	**Nos.**	**148.00**
13.17.2	15 mm nominal bore, 122mm long, weighing not less than 99 g	**Nos.**	**178.00**
13.17.3	15 mm nominal bore, 165 mm long, weighing not less than 110 g	**Nos.**	**190.00**
13.17.4	15 mm nominal bore, 90 mm long, weighing not less than 93 g	**Nos.**	**202.00**
13.18	Providing and fixing PTMT stop cock of approved quality and colour		
13.18.1	15 mm nominal bore, 86 mm long, weighing not less than 88 g	**Nos.**	**142.00**
13.18.2	20 mm nominal bore, 89 mm long, weighing not less than 88 g	**Nos.**	**151.00**
13.19	Concealed stop cock, 15 mm nominal bore, 108 mm long, weighing not less than 108 gms	**Nos.**	**214.00**
13.20	Providing and fixing PTMT pillar cock of approved quality and colour.		
13.20.1	15 mm nominal bore, 107 mm long, weighing not less than 110 gms	**Nos.**	**208.00**
13.20.2	15 mm nominal bore, 125 mm long foam flow, weighing not less than 120 gms	**Nos.**	**220.00**
13.21	Providing and fixing PTMT, push cock of approved quality and colour.		
13.21.1	15 mm nominal bore, 98 mm long, weighing not less than 75 gms	**Nos.**	**136.00**
13.21.2	15 mm nominal bore, 80 mm long, weighing not less than 46 gms	**Nos.**	**125.00**
13.22	Providing and fixing PTMT grating of approved quality and colour.		
13.22.1	Circular type		
13.22.1.1	100 mm nominal dia	**Nos.**	**89.00**
13.22.1.2	125 mm nominal dia	**Nos.**	**99.00**
13.22.2	Rectangular type with openable circular lid	**Nos.**	**212.00**
13.23	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.		
13.23.1	15 mm nominal bore, 105 mm long, weighing not less than 138 g	**Nos.**	**160.00**
13.23.2	20 mm nominal bore, 120 mm long, weighing not less than 198 g	**Nos.**	**202.00**
13.23.3	25 mm nominal bore, 152mm long, weighing not less than 440 g	**Nos.**	**402.00**
13.23.4	40 mm nominal bore, 206mm long, weighing not less than 690 g	**Nos.**	**577.00**
13.23.5	50 mm nominal bore, 242mm long, weighing not less than 1240 g	**Nos.**	**1,072.00**
13.24	Providing and fixing PTMT angle stop cock 15 mm nominal bore, weighing not less than 85 g	**Nos.**	**218.00**

Sl. No.	Specification	Unit	Rate ₹
13.25	Providing and fixing PTMT swivelling shower, 15 mm nominal bore, weighing not less than 40 gms	**Nos.**	**194.00**
13.26	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 g.	**Nos.**	**82.00**
13.27	Providing and fixing unplasticised P.V.C. connection pipe with PTMT Nuts, collar and bush of approved quality and colour.		
13.27.1	15 mm nominal bore with 30cm length	**Nos.**	**75.00**
13.27.2	15 mm nominal bore with 45 cm length	**Nos.**	**92.00**
13.28	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.		
13.28.1	15 mm nominal bore, weighing not less than 32 g	**Nos.**	**59.00**
13.28.2	20 mm nominal bore, weighing not less than 40 g	**Nos.**	**90.00**
13.28.3	25mm nominal bore, weighing not less than 62 g	**Nos.**	**112.00**
13.29	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:		
13.30	Providing & fixing chrome plated brass battery based infrared sensor operated pillar cock, having foam flow technology.	**Nos.**	**7,375.00**

Chapter - 14

SANITARY INSTALLATIONS

Sl. No.	Specification	Unit	Rate ₹
	14.0 SANITARY INSTALLATIONS		
14.1	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:		
14.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests	**each**	**4,246.00**
14.1.2	Stainless Steel AISI-304(18/8) Orissa pattern W.C. pan of size 585x480 mm with flush pipe and integrated type foot rests	**each**	**8,169.00**
14.2	Providing and fixing white vitreous china 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 :		
14.2.1	W.C. pan with ISI marked white solid plastic seat and lid	**each**	**4,026.00**
14.2.2	W.C. pan with ISI marked black solid plastic seat and lid	**each**	**3,922.00**
14.3	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china 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 :		
14.3.1	W.C. pan with ISI marked white solid plastic seat and lid	**each**	**5,005.00**
14.3.2	W.C. pan with ISI marked black solid plastic seat and lid	**each**	**4,900.00**
14.4	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic 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 :		
14.4.1	One urinal basin with 5 litre white P.V.C. automatic flushing cistern	**each**	**3,536.00**
14.4.2	Range of two urinal basins with 5 litre white P.V.C. automatic flushing cistern	**each**	**5,509.00**
14.4.3	Range of three urinal basins with 10litre white P.V.C. automatic flushing cistern	**each**	**7,636.00**

Sl. No.	Specification	Unit	Rate ₹
14.4.4	Range of four urinal basins with 10 litre white P.V.C. automatic flushing cistern	**each**	**10,400.00**
14.5	Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350 mm with white PVC automatic 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 :		
14.5.1	Single half stall urinal with 5 litre P.V.C. automatic flushing cistern	**each**	**6,628.00**
14.5.2	Range of two half stall urinals with 5 litre P.V.C. automatic flushing cistern	**each**	**8,892.00**
14.5.3	Range of three half stall urinals with 10 litre P.V.C. automatic flushing cistern	**each**	**10,254.00**
14.5.4	Range of four half stall urinals with 10 litre P.V.C. automatic flushing cistern	**each**	**11,492.00**
14.6	Providing and fixing one piece construction white vitreous china squatting plate with an integral longitudinal flushing pipe, white P.V.C. automatic 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 :		
14.6.1	Single squatting plate with 5 litre P.V.C. automatic flushing cistern	**each**	**5,199.00**
14.6.2	Range of two squatting plates with 5 litre P.V.C. automatic flushing cistern	**each**	**7,737.00**
14.6.3	Range of three squatting plates with 10 litre P.V.C. automatic flushing cistern	**each**	**10,275.00**
14.6.4	Range of four squatting plates with 10 litre P.V.C. automatic flushing cistern	**each**	**12,460.00**
14.7	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:		
14.7.1	White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps	**each**	**2,529.00**
14.7.2	White Vitreous China Wash basin size 630x450 mm with a single 15 mm C.P. brass pillar tap	**each**	**2,156.00**

Sl. No.	Specification	Unit	Rate ₹
14.7.3	White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps	**each**	**2,529.00**
14.7.4	White Vitreous China Flat back wash basin size 550x 400 mm with single 15 mm C.P. brass pillar tap	**each**	**1,940.00**
14.7.5	White Vitreous China Angle back wash basin size 600 x 480 mm with single 15mm C.P. brass pillar tap	**each**	**2,156.00**
14.7.6	White Vitreous China Angle back wash basin size 400 x 400 mm with single 15 mm C.P. brass pillar tap	**each**	**1,785.00**
14.7.7	White Vitreous China Flat back wash basin size 450x 300 mm with single 15mm C.P. brass pillar tap	**each**	**1,606.00**
14.7.8	White Vitreous China 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**	**3,386.00**
14.7.9	White Vitreous China Surgeon type wash basin of size 660x460 mm with single 15 mm C.P. brass pillar taps with elbow operated levers ISI Marked	**each**	**2,816.00**
14.7.10	Stainless Steel AISI-304(18/8) Round basin 405x355 mm with single 15 mm C.P. brass pillar tap	**each**	**3,112.00**
14.7.11	Stainless Steel AISI-304(18/8) Wash basin 530x345 mm with single 15 mm C.P. brass pillar tap	**each**	**3,730.00**
14.7A	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: using White Vitreous China Wash basin size 550x400 mm with a 15 mm CP Brass single hole basin mixer	**each**	**3,599.00**
14.7B	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 China Flat back wash basin size 550x400 mm with single 15 mm PTMT pillar cock.	**each**	**1,725.00**
14.8	Providing and fixing white vitreous china pedestal for wash basin completely recessed at the back for the reception of pipes and fittings.	**each**	**1,365.00**
14.9	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:		
14.9.1	White glazed fire clay kitchen sink of size 600x450x 250 mm	**each**	**2,515.00**

Sl. No.	Specification	Unit	Rate ₹
14.10	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 :		
14.10.1	Kitchen sink with drain board		
14.10.1.1	510x1040 mm bowl depth 250 mm	**each**	**4,970.00**
14.10.1.2	510x1040 mm bowl depth 225 mm	**each**	**4,633.00**
14.10.1.3	510x1040 mm bowl depth 200 mm	**each**	**4,409.00**
14.10.1.4	510x1040 mm bowl depth 178 mm	**each**	**4,409.00**
14.10.2	Kitchen sink without drain board		
14.10.2.1	610x510 mm bowl depth 200 mm	**each**	**3,139.00**
14.10.2.2	610x460 mm bowl depth 200 mm	**each**	**2,354.00**
14.10.2.3	470x420 mm bowl depth 178 mm	**each**	**2,017.00**
14.11	Providing and fixing white vitreous china 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 :		
14.11.1	Size 450x300x150 mm	**each**	**3,410.00**
14.11.2	Size 600x450x200 mm	**each**	**4,644.00**
14.12	Providing and fixing draining board with C.I. brackets including painting of brackets, cutting and making good the walls wherever required with White glazed fire clay draining board of size 600x450x 25 mm	**each**	**892.00**
14.13	Providing and fixing white vitreous china water closet squatting pan (Indian type) :		
14.13.1	Long pattern W.C. pan of size 580 mm	**each**	**1,153.00**
14.13.2	Orissa pattern W.C. pan of size 580x440 mm	**each**	**2,159.00**
14.14	Extra for using coloured W.C. pan instead of white W.C. pan with Orissa pattern W.C. pan 580x440 mm	**each**	**379.00**
14.15	Providing and fixing white vitreous china pedestal type (European type/ wash down type) water closet pan.	**each**	**1,832.00**
14.16	Extra for using coloured pedestal type W.C pan (European type) with low level cistern of same colour instead of white vitreous china W.C pan and cistern.	**each**	**153.00**

Sl. No.	Specification	Unit	Rate ₹
14.16A	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**	**247.00**
14.17	Providing and fixing a pair of white vitreous china foot rests of standard pattern for squatting pan water closet :		
14.17.1	250x130x30 mm	**each**	**158.00**
14.17.2	250x125x25 mm	**each**	**162.00**
14.18	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.		
14.18.2	10 litre capacity - coloured	**each**	**844.00**
14.18.1	10 litre capacity - White	**each**	**814.00**
14.19	Providing and fixing controlled flush, low level cistern made of vitreous china with all fittings complete.		
14.19.1	10 litre (full flush) capacity-white	**each**	**1,422.00**
14.19.2	10 litre (full flush) capacity-coloured	**each**	**1,972.00**
14.20	Providing and fixing solid plastic seat with lid for pedestal type W.C. pan complete :		
14.20.1	White solid plastic seat with lid	**each**	**698.00**
14.20.2	Black solid plastic seat with lid	**each**	**593.00**
14.20.3	Coloured (other than black & white) solid plastic seat with lid	**each**	**624.00**
14.22	Providing and fixing G.I. inlet connection for flush pipe connecting with W.C. pan.	**each**	**278.00**
14.22A	Providing and fixing CP Brass 32mm size Bottle Trap of approved quality & make and as per the direction of Engineer-in-charge.	**each**	**957.00**
14.22B	Providing and fixing CP Brass 15 mm nominal dia Single lever telephonic wall mixer of quality & make as approved by Engineer in charge.	**each**	**5,747.00**
14.23	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm or 340x410x265 mm sizes respectively.	**each**	**1,005.00**
14.24	Providing and fixing white vitreous china squatting plate urinal with integral rim longitudinal flush pipe.	**each**	**2,433.00**
14.25	Providing and fixing white vitreous china wash basin including making all connections but including the cost of fittings :		

Sl. No.	Specification	Unit	Rate ₹
14.25.1	Flat back wash basin of size 630x450 mm	**each**	**1,069.00**
14.25.2	Flat back wash basin of size 550x400 mm	**each**	**853.00**
14.25.3	Angle back wash basin of size 600x480 mm	**each**	**1,069.00**
14.25.4	Angle back wash basin of size 400x400 mm	**each**	**699.00**
14.25.5	Flat back wash basin of size 450x300 mm	**each**	**520.00**
14.25.6	Surgeon type wash basin of size 660x460 mm	**each**	**1,532.00**
14.26	Providing and fixing kitchen sink including making all connections including cost of fittings with White glazed fire clay sink of size 600x450x250 mm	**each**	**1,779.00**
14.27	Providing and fixing white vitreous china laboratory sink including making all connections including cost of fittings :		
14.27.1	Size 450x300x150 mm	**each**	**2,026.00**
14.27.2	Size 600x450x200 mm	**each**	**3,260.00**
14.28	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.		
14.28.1	Semi rigid pipe		
14.28.1.1	32 mm dia	**each**	**205.00**
14.28.1.2	40 mm dia	**each**	**215.00**
14.28.2	Flexible pipe		
14.28.2.1	32 mm dia	**each**	**218.00**
14.28.2.2	40 mm dia	**each**	**218.00**
14.29	Providing and fixing 100 mm sand cast Iron grating for gully trap.	**each**	**205.00**
14.30	Providing and fixing in position 25 mm diameter mosquito proof coupling of approved municipal design.	**each**	**212.00**
14.31	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**	**971.00**
14.32	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 :		
14.32.1	Circular shape 450 mm dia	**each**	**952.00**
14.32.2	Rectangular shape 453x357 mm	**each**	**869.00**
14.32.3	Oval shape 450x350 mm (outer dimensions)	**each**	**868.00**

Sl. No.	Specification	Unit	Rate ₹
14.32.4	Rectangular shape 1500x450 mm	**each**	**1,476.00**
14.33	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**	**708.00**
14.34	Providing and fixing toilet paper holder :		
14.34.1	C.P. brass	**each**	**480.00**
14.34.2	Vitreous china	**each**	**281.00**
14.35	Providing and fixing vitreous china 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:		
14.35.1	White vitreous china dual purpose WC pan with white solid plastic seat and lid with white vitreous china flushing cistern and C.P. flush bend.	**each**	**6,775.00**
14.36	Providing and fixing PTMT Waste Coupling for wash basin and sink, of approved quality and colour.		
14.36.1	Waste coupling 31 mm dia of 79 mm length and 62mm breadth weighing not less than 45 gms	**each**	**42.00**
14.36.2	Waste coupling 38 mm dia of 83 mm length and 77mm breadth, weighing not less than 60 gms	**each**	**48.00**
14. 37	Providing and fixing PTMT Bottle Trap for Wash basin and sink.		
14.37.1	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**	**244.00**
14.37.2	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**	**244.00**
14.38	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**	**116.00**

Sl. No.	Specification	Unit	Rate ₹
14.39	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 g.	**each**	**134.00**
14.40	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.		
14.40.1	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 g.	**each**	**356.00**
14.40.2	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 g.	**each**	**380.00**
14.41	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 g.	**each**	**386.00**
14.42	Providing and fixing PTMT 15 mm Urinal spreader size 95x69x100 mm with 1/2" BSP thread and shapes, weighing not less than 60 g.	**each**	**242.00**
14.43	Providing and fixing PTMT urinal cock of approved quality and colour using 15 mm nominal bore, 80 mm long, 42 mm high and 30mm wide with BSP female threads weighing not less than 48 g.	**each**	**291.00**
14.44	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern 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**	**10,893.00**
14.45	Providing & fixing white vitreous china 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**	**14,254.00**
14.46	Providing and fixing white vitreous china 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**	**6,066.00**
14.47	Providing and fixing floor mounted, white vitreous china single piece, double traps syphonic water closet of approved brand/make, shape, size and pattern including integrated white vitreous china 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**	**13,692.00**

Note : The cost of Minor Tools & Tackles and Mortar for fixing the assembly is covered under Sundries & Overheads.

Chapter - 15

WATER PROOFING

Sl. No.	Specification	Unit	Rate ₹
	15.0 WATER PROOFING		
15.1	Providing and laying water proofing treatment to the Roof with PU based single component elastomeric pure polyurethane based coating on New terrace/Chajjas/Sunken portion of WC:Bathroom, cold applied PU waterproofing membrane that is highly elastic with elongation greater than 400% and tensile strength greater than 2MPa as per ASTM D412. The waterproofing membrane to be applied in 2coats @ 1.6kg per m2 to achieve final DFT (dry film thickness) of 1mm including prime coat of epoxy primer @150 g per m2 and protection with 120gsm Geo-textile over the waterproofing membrane. The finished cost to include surface preparation, making coving at Junction, Bore Packing, treatment of construction joints completely as per specification & with a 10 years warranty on product & work from certified manufacturers as per the direction of the Engineer In charge.	**m^2**	**745.00**
15.2	Providing and Applying PU based Elastomeric Liquid Applied PU Waterproofing Membrane single component, cold applied, water based acrylic PU dispersion with highly elastic and UV resistant water proofing treatment to the Existing Roof surface/Chajjas/Sunken portion of WC:Bathroom applied @ 1.2L/per m2,having tensile strength greater than 1.5N/mm2, elongation greater than 300% with solid content not less than 60% in 2 coats including surface preparation, priming the surface with water based acrylic primer @0.1 L/m2, and spreading 60 gsm geotextile between two top coats completely as per specification. The finished cost to include surface preparation, making coving at Junction, Bore Packing, treatment of construction joints completely as per specification & with a 10 years warranty on product & work from certified manufacturers as per the direction of the Engineer In charge.	**m^2**	**575.00**
15.3	Providing and laying of 1.5 mm thick SBS modified self adhesive single stick waterproofing membrane, with minimum elongation of 300% and puncture resistance of >200 N (as per ASTM E154), with an overlap of 100mm on the side and 100mm in vertical lapping over a coat bituminuos primer @ 0.25 l/m2,complete including surface preparation as per the methodology and site condition & placing the dimple board over the SBS membrane. The cost is inclusive of surface preparation, crack filling, repair of loose mortar etc. completely as per specification & with a 10 years warranty on product & work from certified manufacturers as per the direction of the Engineer In charge.	**m^2**	**592.00**

Sl. No.	Specification	Unit	Rate ₹
15.4	Providing and laying water proofing treatment to the Retaining wall area with PU Elastomeric Single component liquid applied, cold applied, moisture cured high tensile elastomeric PU waterproofing membrane having elongation of more than 400% and having solid content of above 90% @ 1.6kg per m2 in 2 coats to achieve final DFT (dry film thickness) of 1mm including prime coat of epoxy primer @150 g/ m2. The cost is inclusive of surface preparation, crack filling, repair of loose mortar etc. completely as per specification & with a 10 years warranty on product & work from certified manufacturers as per the direction of the Engineer In charge.	**m^2**	**797.00**
15.5	Providing and laying water proofing treatment to the Rafts, Below grade slab, Lift pits, water retaining structures with fully bonded High Density Polyethlene Membrane (HDPE) of 1.2mm composite thickness and having tensile strength of >25 MPa (as per ASTM D 412), elongation of >500% (as per ASTM D 412), puncture resistance of >1000N (as per ASTM E 154), peel adhesion to concrete >1200N/m (as per ASTM D 903), hydrostatic head resistance >70m (as per ASTM D 5385). The system should be fully bonded to the RCC thereby conforming to IS 16471:2017 requirements of UG waterproofing structures. The membrane should be minimum 2.4m wide to reduce the number of joints with minimum 75mm factory made selvedge's and comprising of an HDPE layer and a pressure sensitive adhesive layer which is covered by a weather proof protective and trafficable granular layer to protect self-adhesive polymer layer, etc, including surface preparation completely as per specification & with a 10 years warranty on product & work from certified manufacturers as per the direction of the Engineer In charge.	**m^2**	**554.00**
15.6	Providing and laying water proofing treatment to the Water tanks & Liquid Retaining structures with two component acrylic polymer modified cementitious waterproofing membrane with minimum elongation of 50% applied @ 1.5 kg/m2 for internal side waterproofing in two layers with waiting period of 4-6 hrs per layer and food grade epoxy coating in two coats certified by CFTRI Mysuru, including surface preparation completely as per specification & with a 10 years warranty on product & work from certified manufacturers as per the direction of the Engineer In charge.	**m^2**	**455.00**
15.7	Providing and supplying crystalline integral concrete waterproofing admixture that waterproofs concrete by forming crystals deep in the pores, capillaries and microcracks of the concrete, self-seal waterproofing compound to bridge shrinkage cracks upto 0.5mm in width & resist hydro-static pressure upto 16bar for both positive & negative pressure confirming to DIN 1048 part 5 for 56% reduction in depth of penetration against control, resistance to chloride penetration confirming to ASTM C 1202 with 64% improvement against control & protecting steel re-inforcement against corrosion mixed @ 1% by weight of cementitious content in concrete. ie., integral crystaline waterproofing admix @ 0.5 kg/bag of cement. (For calculation purpose 320 kg of Cement for M-20 grade of Concrete is considered in the analysis)	**m^3**	**563.00**

Chapter - 16

ENERGY CONSERVATION BUILDING CODE

Sl. No.	Specification	Unit	Rate ₹
	16.0 ENERGY CONSERVATION BUILDING CODE		
16.1	*External wall insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing polyurethane foam (PUF) slab 40mm thick average with PU slab density 36+/-2 kg/m³ for external wall insulation including necessary polymerized plaster reinforced with glass fibre mesh, epoxy based bonding adhesive etc., complete.	**m²**	**1,181.00**
16.2	*External wall insulation with Polyurethane Foam (PUF) Spray*		
	Providing and fixing cast in situ polyurethane foam (PUF) spray 40mm thick average with PU foam spray density 35+/-5 kg/m³ for external wall insulation including necessary adhesive etc., complete.	**m²**	**1,189.00**
16.3	*External wall insulation with Polyurethane Foam (PUF) Spray*		
	Providing and fixing cast in situ polyurethane foam (PUF) spray 50mm thick average with PU foam spray density 35+/-5 kg/m³ for external wall insulation including necessary adhesive etc., complete.	**m²**	**1,220.00**
16.4	*External wall insulation with Extruded Polystyrene (XPS) thermal insulating boards*		
	Providing and fixing Extruded Polystyrene (XPS) thermal insulating boards 25mm thick average for external wall insulation including necessary fasteners etc., complete.	**m²**	**476.00**
16.5	*External wall insulation with Extruded Polystyrene (XPS) thermal insulating boards*		
	Providing and fixing Extruded Polystyrene (XPS) thermal insulating boards 50mm thick average for external wall insulation including necessary fasteners etc., complete.	**m²**	**756.00**
16.6	*External wall insulation with Extruded Polystyrene (XPS) thermal insulating boards*		
	Providing and fixing Extruded Polystyrene (XPS) thermal insulating boards 75mm thick average for external wall insulation including necessary fasteners etc., complete.	**m²**	**1,073.00**
16.7	*External wall insulation with Extruded Polystyrene (xps) thermal insulating boards*		
	Providing and fixing Extruded Polystyrene (XPS) thermal insulating boards 100mm thick average for external wall insulation including necessary fasteners etc., complete.	**m²**	**1,389.00**
16.8	*Cavity wall insulation with Polyurethane Foam (PUF) (40mm)*		
	Providing and fixing polyurethane foam (PUF) spray 40mm thick average PU foam spray having density 35+/-5 kg/m³ density for insulatiom of cavity wall with including necessary fasteners etc., complete.	**m²**	**596.00**

Sl. No.	Specification	Unit	Rate ₹
16.9	*Cavity wall insulation with Polyurethane Foam (PUF) (50mm)*		
	Providing and fixing polyurethane foam (PUF) spray 50mm thick average PU foam spray having density 35+/-5 kg/m3 density for insulatiom of cavity wall with including necessary fasteners etc.,	**m^2**	**875.00**
16.10	*Cavity wall insulation with Glass Wool Slab*		
	Providing and fixing glass wool slab 12mm thick resin bonded slab with density 48kg/m3 for insulation of cavity wall, fixed using GI wire 200 SWG, GI chicken mesh 12.50mm x 24 SWG including necessary criss-cross GI wire mesh,raw plugs, adhesive etc., complete.	**m^2**	**493.00**
16.11	*Thermal insulation with Resin Bonded Fiber Glass Wool*		
	Providing and fixing glass wool slab 25mm thick resin bonded slab with density 48kg/m3 for insulation of cavity wall, fixed using GI wire 200 SWG, GI chicken mesh 12.50mm x 24 SWG including necessary criss-cross GI wire mesh,raw plugs, adhesive etc., complete.	**m^2**	**625.00**
16.12	*Thermal insulation with Resin Bonded Fiber Glass Wool*		
	Providing and fixing glass wool slab 50mm thick resin bonded slab with density 48kg/m3 for insulation of cavity wall, fixed using GI wire 200 SWG, GI chicken mesh 12.50mm x 24 SWG including necessary criss-cross GI wire mesh,raw plugs, adhesive etc., complete.	**m^2**	**739.00**
16.13	*Cavity wall insulation with Rock Wool Slab (25mm)*		
	Providing and fixing rock wool slab 25mm thick resin bonded rock wool slab having density 36+/-5 kg/m3 for insulation of cavity wall with including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**412.00**
16.14	*Cavity wall insulation with Rock Wool Slab (40mm)*		
	Providing and fixing rock wool slab 40mm thick resin bonded rock wool slab having density 36+/-5 kg/m3, for insulation of cavity wall with including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**441.00**
16.15	*Cavity wall insulation with Rock Wool Slab (50mm)*		
	Providing and fixing rock wool slab 50mm thick resin bonded rock wool slab having density 36+/-5 kg/m3 for insulation of cavity wall with including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**459.00**
16.16	*Cavity wall insulation with Rock Wool Slab (65mm)*		
	Providing and fixing rock wool slab 65mm thick resin bonded rock wool slab having density 36+/-5 kg/m3 for insulation of cavity wall with including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**491.00**

Sl. No.	Specification	Unit	Rate ₹
16.17	*Cavity wall insulation with Rock Wool Slab (75mm)*		
	Providing and fixing rock wool slab 75mm thick resin bonded rock wool slab having density 36+/-5 kg/m3 for insulation of cavity wall with including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**511.00**
16.18	*Cavity wall insulation with Rock Wool Slab (100mm)*		
	Providing and fixing rock wool slab 100mm thick resin bonded rock wool slab having density 36+/-5 kg/m3 for insulation of cavity wall with including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**729.00**
16.19	*Cavity wall insulation with Extruded Polystyrene (XPS) (50mm)*		
	Providing and fixing extruded polystyrene (XPS) 50mm thick thermal insulating boards having density 36+/-5 kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**965.00**
16.20	*Cavity wall insulation with Extruded Polystyrene (XPS) (60mm)*		
	Providing and fixing extruded polystyrene (XPS) 60mm thick thermal insulating boards having density 36+/-5 kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**984.00**
16.21	*Cavity wall insulation with Extruded Polystyrene (XPS) (70mm)*		
	Providing and fixing extruded polystyrene (XPS) 70mm thick thermal insulating boards having density 36+/-5 kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**1,284.00**
16.22	*Cavity wall insulation with Extruded Polystyrene (XPS) (25mm)*		
	Providing and fixing extruded polystyrene (XPS) 25mm thick thermal insulating boards having density 32kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**663.00**
16.23	*Cavity wall insulation with Extruded Polystyrene (XPS) (50mm)*		
	Providing and fixing extruded polystyrene (XPS) 50mm thick thermal insulating boards having density 32kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**965.00**
16.24	*Cavity wall insulation with Extruded Polystyrene (XPS) (75mm)*		
	Providing and fixing extruded polystyrene (XPS) 75mm thick thermal insulating boards having density 32kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**1,307.00**

Sl. No.	Specification	Unit	Rate ₹
16.25	*Cavity wall insulation with Extruded Polystyrene (XPS) (100mm)*		
	Providing and fixing extruded polystyrene (XPS) 100mm thick thermal insulating boards having density 32kg/m3 for insulation of cavity wall including necessary criss-cross GI wire, mesh,raw plugs, adhesive etc., complete.	**m^2**	**1,648.00**
16.26	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing polyurethane foam (PUF) slab 40mm thick average with PU slab density 36+/-2 kg/m^3 insulation for over deck covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**1,199.00**
16.27	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing polyurethane foam (PUF) slab 50mm thick average with PU slab density 36+/-2 kg/m^3 insulation for over deck covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**1,501.00**
16.28	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing polyurethane foam (PUF) slab 60mm thick average with PU slab density 36+/-2 kg/m^3 insulation for over deck covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**1,794.00**
16.29	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing polyurethane foam (PUF) slab 70mm thick average with PU slab density 36+/-2 kg/m^3 insulation for over deck covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**2,082.00**
16.30	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing Over deck insulation with cast insitu polyurethane foam (PUF) spray 40mm thick average with PU foam spray including necessary fasteners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**1,172.00**

Sl. No.	Specification	Unit	Rate ₹
16.31	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing Over deck insulation with cast insitu polyurethane foam (PUF) spray 50mm thick average with PU foam spray including necessary fasteners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**1,351.00**
16.32	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing Over deck insulation with cast insitu polyurethane foam (PUF) spray 60mm thick average with PU foam spray including necessary fasteners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete	**m^2**	**2,013.00**
16.33	*Over deck insulation with Polyurethane Foam (PUF) slab*		
	Providing and fixing Over deck insulation with cast insitu polyurethane foam (PUF) spray 70mm thick average with PU foam spray including necessary fasteners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy bases bonding adhesive etc., complete (The cost of concrete to be paid separately)	**m^2**	**2,402.00**
16.34	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 50mm thick average for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**779.00**
16.35	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 70mm thick average for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**856.00**
16.36	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 90mm thick average for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**931.00**

Sl. No.	Specification	Unit	Rate ₹
16.37	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 110mm thick average for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**1,006.00**
16.38	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 120mm thick average for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**1,043.00**
16.39	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 30mm thick with density 20kg/m3 for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**766.00**
16.40	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 40mm thick with density 20kg/m3 for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**776.00**
16.41	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 50mm thick with density 20kg/m3 for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**781.00**
16.42	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 75mm thick with density 20kg/m3 for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**856.00**
16.43	*Under deck insulation with Expanded Polystyrene (EPS)*		
	Providing and fixing expanded polystyrene (EPS) 100mm thick with density 20kg/m3 for under deck thermal insulation including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**953.00**

Sl. No.	Specification	Unit	Rate ₹
16.44	*Thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (50mm thick) with aluminium strips at every 600mm c/c over existing false ceiling for thermal insulation of roofing including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**548.00**
16.45	*Thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (70mm thick) with aluminium strips at every 600mm c/c over existing false ceiling for thermal insulation of roofing including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**645.00**
16.46	*Thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (90mm thick) with aluminium strips at every 600mm c/c over existing false ceiling for thermal insulation of roofing including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**713.00**
16.47	*Thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (110mm thick) with aluminium strips at every 600mm c/c over existing false ceiling for thermal insulation of roofing including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**810.00**
16.48	*Thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (120mm thick) with aluminium strips at every 600mm c/c over existing false ceiling for thermal insulation of roofing including necessary fasteners etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**860.00**
16.49	*Over deck thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (50mm thick) for over deck thermal insulation of roofing including necessary fasterners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy based bonding adhesive etc., complete.	**m^2**	**635.00**

Sl. No.	Specification	Unit	Rate ₹
16.50	*Over deck thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (70mm thick) for over deck thermal insulation of roofing including necessary fasterners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy based bonding adhesive etc., complete.	**m^2**	**731.00**
16.51	*Over deck thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (90mm thick) for over deck thermal insulation of roofing including necessary fasterners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy based bonding adhesive etc., complete.	**m^2**	**797.00**
16.52	*Over deck thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (110mm thick) for over deck thermal insulation of roofing including necessary fasterners etc., complete covered with two layers of 40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy based bonding adhesive etc., complete.	**m^2**	**894.00**
16.53	*Over deck thermal insulation of roof with Expanded Polystyrene*		
	Providing and fixing expanded polystyrene (120mm thick) for over deck thermal insulation of roofing including necessary fasterners etc., complete covered with two layers of40mm thick cement concrete screed with mix proportion 1:1.5:3 (M20grade) smooth finished with floating coat of neat cement, including necessary polymerized plaster reinforced with glass fibre mesh for PUF slab, epoxy based bonding adhesive etc., complete.	**m^2**	**944.00**
16.54	*Over deck with Glass Wool*		
	Providing and fixing 12mm resin bonded glass wool slab having density 48 kg/m3 for over deck insulation of roofing with glass wool including necessary fasteners,GI wire & mesh etc., complete.	**m^2**	**909.00**
16.55	*Over deck with Glass Wool*		
	Providing and fixing 25mm resin bonded glass wool slab having density 48 kg/m3 for over deck insulation of roofing with glass wool including necessary fasteners,GI wire & mesh etc., complete.	**m^2**	**1,041.00**

Sl. No.	Specification	Unit	Rate ₹
16.56	*Over deck with Glass Wool*		
	Providing and fixing 50mm resin bonded glass wool slab having density 48 kg/m3 for over deck insulation of roofing with glass wool including necessary fasteners,GI wire & mesh etc., complete.	**m^2**	**1,155.00**
16.57	*Over deck with Rock Wool*		
	Providing and fixing Rock wool 25mm resin bonded rock wool slab having density 48 kg/m3 for over deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**587.00**
16.58	*Over deck with Rock Wool*		
	Providing and fixing Rock wool 40mm resin bonded rock wool slab having density 48 kg/m3 for over deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**616.00**
16.59	*Over deck with Rock Wool*		
	Providing and fixing Rock wool 50mm resin bonded rock wool slab having density 48 kg/m3 for over deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**632.00**
16.60	*Over deck with Rock Wool*		
	Providing and fixing Rock wool 60mm resin bonded rock wool slab having density 48 kg/m^3 for over deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**659.00**
16.61	*Over deck with Rock Wool*		
	Providing and fixing Rock wool 75mm resin bonded rock wool slab having density 48 kg/m^3 for over deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**682.00**
16.62	*Over deck with Rock Wool*		
	Providing and fixing Rock wool 100mm resin bonded rock wool slab having density 48 kg/m^3 for over deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**734.00**
16.63	*Under deck insulation with Glass Wool*		
	Providing and fixing glass wool 25mm resin bonded glass wool slab having density 48 kg/m^3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**1,097.00**

Sl. No.	Specification	Unit	Rate ₹
16.64	*Under deck insulation with Glass Wool*		
	Providing and fixing glass wool 50mm resin bonded glass wool slab having density 48 kg/m^3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete (excluding cost of screed concrete which is to be measured and paid seperately)	**m^2**	**1,208.00**
16.65	*Under deck with Rock Wool*		
	Providing and fixing Rock wool 25mm resin bonded rock wool slab having density 48 kg/m3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete.	**m^2**	**586.00**
16.66	*Under deck with Rock Wool*		
	Providing and fixing Rock wool 40mm resin bonded rock wool slab having density 48 kg/m3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete.	**m^2**	**614.00**
16.67	*Under deck with Rock Wool*		
	Providing and fixing Rock wool 50mm resin bonded rock wool slab having density 48 kg/m3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete.	**m^2**	**630.00**
16.68	*Under deck with Rock Wool*		
	Providing and fixing Rock wool 65mm resin bonded rock wool slab having density 48 kg/m3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete with all lead and lift, transportation charges, loading unloading charges ,all taxes, cost of all materials, labour, Usage Charges of machinery, scaffolding etc., complete.	**m^2**	**660.00**
16.69	*Under deck with Rock Wool*		
	Providing and fixing Rock wool 75mm resin bonded rock wool slab having density 48 kg/m3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete with all lead and lift, transportation charges, loading unloading charges ,all taxes, cost of all materials, labour, Usage Charges of machinery, scaffolding etc., complete.	**m^2**	**679.00**
16.70	*Under deck with Rock Wool*		
	Providing and fixing Rock wool 100mm resin bonded rock wool slab having density 48 kg/m3 for under deck insulation of roofing including necessary fasteners,GI wire & mesh etc., complete with all lead and lift, transportation charges, loading unloading charges ,all taxes, cost of all materials, labour, Usage Charges of machinery, scaffolding etc., complete.	**m^2**	**729.00**

Sl. No.	Specification	Unit	Rate ₹
16.71	*Ceramic Cool Tiles*		
	Providing and fixing Ceramic Cool tiles of size 254x254x15mm thickness thermal insulation properties as per GRIHA guidelines with satisfactory SRI > 70% & R value laid on 12mm insulated Mortar mix using heat proof sand complete.	**m^2**	**1,096.00**
16.72	*Horizontal perforated light weight clay bricks*		
	Providing and supplying Non load bearing bricks of size 200/150/100 mm thickness for infill masonry with excellent thermal and sound insulation with density 700-800kg/m3 and compressive strength > 3.5 N/mm2 & water absorption not greater than 15% & U value 1.00 W/m2K laid with Cement Mortar 1:6 conforming to Building envelope as per GRIHA certification etc complete.	**m^2**	**1,061.00**
16.73	*Vertical perforated light weight clay bricks*		
	Providing and supplying Non load bearing bricks of size 200/150/100 mm thickness for infill masonry with excellent thermal and sound insulation with density 750-850kg/m3 and compressive strength > 7.0 N/mm2 & water absorption not greater than 15% & U value 1.30 W/m2 K laid with Cement Mortar 1:6 conforming to Building envelope as per GRIHA certification etc complete.	**m^2**	**1,127.00**

Chapter - 17

RAIN WATER HARVESTING

Sl. No.	Specification	Unit	Rate ₹
	17.0 RAIN WATER HARVESTING		
17.1	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.	**m^3**	**960.00**
17.2	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.	**m^3**	**372.00**
17.3	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.	**m^3**	**397.00**
17.4	Gravel packing in tube well 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.	**m^3**	**400.00**
17.5	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**	**1,189.00**
17.6	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.		
17.6.1	100 mm nominal size dia having minimum wall thickness 5.00 mm	**m**	**918.00**
17.6.2	150 mm nominal size dia having minimum wall thickness 5.00 mm	**m**	**1,288.00**
17.6.3	200 mm nominal size dia having minimum wall thickness 5.40 mm	**m**	**1,596.00**
17.7	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 41O plain slotted (having slot of size 1.613.2 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 antlcorroslve bltumastlc paint of approved brand and manufacture, lncluding usage & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge.		

Sl. No.	Specification	Unit	Rate ₹
17.7.1	100 mm nominal size dia	**m**	**918.00**
17.7.2	150 mm nominal size dia	**m**	**1,288.00**
17.7.3	200 mm nominal size dia	**m**	**1,597.00**
17.8	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.	**hr**	**785.00**
17.9	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:		
17.9.1	100 mm dia	**each**	**188.00**
17.9.2	150 mm dia	**each**	**237.00**
17.9.3	200 mm dia	**each**	**293.00**
17.10	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.		
17.10.1	100 mm clamp	**kg**	**1,602.00**
17.10.2	150 mm clamp	**kg**	**1,702.00**
17.10.3	200 mm clamp	**kg**	**1,945.00**
17.11	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).		
17.11.1	100 mm dia	**each**	**253.00**
17.11.2	150 mm dia	**each**	**265.00**
17.11.3	200 mm dia	**each**	**283.00**
17.12	Providing and laying 100mm thick pre-cast cover slabs over drains & Rain pit of width not exceeding 800 mm using M20 concrete reinforced with Micro Alloyed High carbon steel with 3mm - 3ply wired steel @ 2.00 kg/m2, slabs jointed in CM 1:3 proportion and nicely finished Including providing holes in the Cover slabs wherever necessary for easy drainage of surface water including of labour, materials, scaffolding, usage of machinery, curing, lead and lift charges etc, Complete.	**m^2**	**833.00**

Sl. No.	Specification	Unit	Rate ₹
17.13	Providing and laying 100mm thick side wall & bottom slab and of 600mm width for drain with opening using M20 concrete reinforced with Micro Alloyed High carbon steel with 3mm - 3ply wired steel @ 150mm spacing jointed in CM 1:3 proportion and nicely finished Including providing holes in the walls wherever necessary including of labour, materials, scaffolding, usage of machinery, curing, lead and lift charges etc, Complete.	**m**	**4,622.00**
17.14	Providing and laying 100mm thick pre-cast cover slabs over Rain water harvesting pit of width not exceeding 1000 mm using M20 concrete reinforced with TMT bars Fe 500 @ 6kg/m2, slabs jointed in CM 1:3 proportion and nicely finished Including providing holes in the Cover slabs wherever necessary for easy drainage of surface water including of labour, materials, scaffolding, usage of machinery, curing, lead and lift charges etc, Complete.	**m^2**	**1,114.00**

Chapter - 18

STRUCTURAL GLAZING

Sl. No.	Specification	Unit	Rate ₹
	18.0 STRUCTURAL GLAZING		
18.1	Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved drawings of Chief Architect, GoK.The aluminium quality shall be 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**	**272.00**
18.2	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:(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.	**m^2**	**1,835.00**

Sl. No.	Specification	Unit	Rate ₹
	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 m^2 . 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 m^2 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.		
	The NIT approving 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 by 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 1500p) 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		

Sl. No.	Specification	Unit	Rate ₹
	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		
18.3	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.18.2)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 m2.(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.	**m^2**	**2,701.00**
18.4	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.	**m^2**	**3,753.00**
18.5	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 g/m2,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.	**m^2**	**1,562.00**

Sl. No.	Specification	Unit	Rate ₹
18.6	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 m2. (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.	**m^2**	**1,731.00**
18.7	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.	**m^2**	**7,202.00**

Chapter - 19

DISMANTLING & DEMOLITION

Sl. No.	Specification	Unit	Rate ₹
	19.0 DISMANTLING & DEMOLITION		
19.1	Demolishing lime concrete manually/ by mechanical means and disposal of material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**447.00**
19.2.1	Demolishing cement concrete manually/ by mechanical means including disposal of material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**1,274.00**
19.2.2	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	**m^3**	**789.00**
19.3	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**1,858.00**
19.4	Demolishing R.B. work manually/by mechanical means including stacking of steel bars and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**1,665.00**
19.5	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.	**m^3**	**558.00**
19.6	Extra for scrapping, cleaning and straightening reinforcement from R.C.C. or R.B. work.	**m^3**	**558.00**
19.7.1	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**369.00**
19.7.2	In lime mortar	**m^3**	**447.00**
19.7.3	In cement mortar	**m^3**	**789.00**
19.8	Removing mortar from bricks and cleaning bricks including stacking to the appropriate disposal area as per direction of Engineer-in-charge. (stacks of cleaned bricks shall be measured):		
19.8.1	From brick work in mud mortar	**Nos**	**2,206.00**
19.8.2	From brick work in lime mortar	**Nos**	**2,767.00**
19.8.3	From brick work in cement mortar	**Nos**	**3,456.00**
19.9	Demolishing stone rubble masonry manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.		
19.9.1	In lime mortar	**m^3**	**607.00**
19.9.2	In cement mortar	**m^3**	**1,290.00**

Sl. No.	Specification	Unit	Rate ₹
19.10.1	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 to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**766.00**
19.10.2	In cement mortar	**m^3**	**766.00**
19.11	Removing mortar from and cleaning stones and concrete articles (net quantity of stacks of cleaned materials will be measured):		
19.11.1	In lime mortar	**m^3**	**249.00**
19.11.2	In cement mortar	**m^3**	**359.00**
19.12	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking to the appropriate disposal area as per direction of Engineer-in-charge.		
19.12.1	Of area 3 m^2 and below	**m^3**	**184.00**
19.12.2	Of area beyond 3 m^2	**m^2**	**201.00**
19.13	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking to the appropriate disposal area as per direction of Engineer-in-charge.		
19.13.1	Of area 3 m^2 and below	**m^2**	**72.00**
19.13.2	Of area beyond 3 m^2	**m^2**	**95.00**
19.14	Dismantling wood work in frames, trusses, purlins and rafters upto 10 metres span and 5 metres height including stacking to the appropriate disposal area as per direction of Engineer-in-charge.		
19.14.1	Of sectional area 40 square centimeters and above	**m^3**	**2,230.00**
19.14.2	Of sectional area below 40 cm^2	**m^3**	**89.00**
19.15	Extra for dismantling trusses, rafters, purlins etc. of wood work for every additional span of one metre or part thereof beyond 10 m :		
19.15.1	Of sectional area 40 cm^2 and above	**m^3**	**278.00**
19.15.2	Of sectional area below 40 cm^2	**m**	**8.00**
19.16	Extra for dismantling trusses, rafters, purlins etc. of wood work for every additional height of one metre or part thereof beyond 5 m		
19.16.1	Of sectional area 40 cm^2 and above	**m^2**	**417.00**
19.16.2	Of sectional area below 40 cm^2	**m**	**17.00**

Sl. No.	Specification	Unit	Rate ₹
19.17	Dismantling steel work in single sections including dismembering and stacking within to the appropriate disposal area as per direction of Engineer-in-charge.		
19.17.1	R.S. Joists	**kg**	**2.00**
19.17.2	Channels, angles, tees and flats	**kg**	**1.00**
19.18	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 to the appropriate disposal area as per direction of Engineer-in-charge.	**kg**	**3.00**
19.19	Dismantling steel work manually/ by mechanical means in built up sections without dismembering and stacking to the appropriate disposal area as per direction of Engineer-in-charge.	**kg**	**2.00**
19.20	Extra for dismantling trusses, rafters, purlins etc. of steel work for every additional span of 1m or part thereof beyond 10 m	**100 kg**	**45.00**
19.21	Extra for dismantling trusses, rafters, purlins etc. of steel work for every additional height of one metre or part thereof beyond 5 metres.	**100 kg**	**45.00**
19.22	Dismantling tile work in floors and roofs laid in cement mortar including stacking material to the appropriate disposal area as per direction of Engineer-in-charge.		
19.22.1	For thickness of tiles 10 mm to 25 mm	**m^2**	**37.00**
19.22.2	For thickness of tiles above 25 mm and up to 40 mm	**m^2**	**56.00**
19.23	Demolishing dry brick pitching in floors, drains etc. including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**232.00**
19.24	Dismantling stone slab flooring laid in cement mortar including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**1,390.00**
19.25	Demolishing brick tile covering in terracing including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**52.00**
19.26	Demolishing mud phaska in terracing and disposal of material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**480.00**
19.27	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material to the appropriate disposal area as per direction of Engineer-in-charge.		
19.27.1	G.S. Sheet	**m^2**	**833.00**
19.27.2	Asbestos cement sheet	**m^2**	**388.00**

Sl. No.	Specification	Unit	Rate ₹
19.28	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 to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**1,390.00**
19.29	Dismantling jack arch roofing and floors including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**132.00**
19.30	Dismantling tiled roofing with battens, boarding etc. complete including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**109.00**
19.31	Demolishing thatch roofing including mats, bamboo, jaffari etc. complete including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**57.00**
19.32	Dismantling wooden ballies in posts and struts including stacking to the appropriate disposal area as per direction of Engineer-in-charge	**m**	**11.00**
19.33	Dismantling and stacking to the appropriate disposal area as per direction of Engineer-in-charge, fencing posts or struts including all earth work and dismantling of concrete etc. in base of:		
19.33.1	T' or 'L' iron or pipe	**each**	**124.00**
19.33.2	R.C.C.	**each**	**131.00**
19.34	Cutting ballies or wooden posts of fencing at the point of projection above the concrete or ground and stacking the same to the appropriate disposal area as per direction of Engineer-in-charge.	**each**	**8.00**
19.35	Dismantling barbed wire or flexible wire rope in fencing including making rolls and stacking to the appropriate disposal area as per direction of Engineer-in-charge.	**kg**	**19.00**
19.36	Dismantling wooden trellis work excluding frames but including stacking the serviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**332.00**
19.37	Dismantling expanded metal or I.R.C. fabrics with necessary battens and beading including stacking the serviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**39.00**
19.38	Dismantling wooden boardings in lining of walls and partitions, excluding supporting members but including stacking to the appropriate disposal area as per direction of Engineer-in-charge.		
19.38.1	Up to 10 mm thick	**m^2**	**31.00**
19.38.2	Thickness above 10 mm up to 25 mm	**m^2**	**39.00**

Sl. No.	Specification	Unit	Rate ₹
19.38.3	Thickness above 25 mm up to 40 mm	**m^3**	**44.00**
19.39	Dismantling precast concrete or stone slabs in walls, partition walls etc. including stacking to the appropriate disposal area as per direction of Engineer-in-charge.		
19.39.1	Thickness up to 40 mm	**m^2**	**149.00**
19.39.2	Thickness above 40 mm up to 75 mm	**m^2**	**224.00**
19.40	Dismantling cement asbestos or other hard board ceiling or partition walls including stacking of serviceable materials and disposal of unserviceable materials to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**28.00**
19.41	Dismantling C.I. or asbestos rain water pipe with fittings and clamps including stacking the material to the appropriate disposal area as per direction of Engineer-in-charge.		
19.41.1	75 to 80 mm dia pipe	**m**	**40.00**
19.41.2	100 mm dia pipe	**m**	**41.00**
19.42.1	Dismantling manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**116.00**
19.42.2	Bituminous road	**m^2**	**227.00**
19.43	Dismantling G.I. pipes (external work) including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means including stacking of pipes to the appropriate disposal area as per direction of Engineer-in-charge.		
19.43.1	15 mm to 40 mm nominal bore	**m**	**80.00**
19.43.2	Above 40 mm nominal bore	**m**	**87.00**
19.44	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 to the appropriate disposal area as per direction of Engineer-in-charge.		
19.44.1	Up to 150 mm diameter	**m**	**435.00**
19.44.2	Above 150 mm dia up to 300 mm dia	**m**	**514.00**
19.44.3	Above 300 mm diameter	**m**	**610.00**

Sl. No.	Specification	Unit	Rate ₹
19.45	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 to the appropriate disposal area as per direction of Engineer-in-charge.		
19.45.1	Up to 600 mm dia materials.	**m**	**349.00**
19.45.2	Above 600 mm diameter	**m**	**871.00**
19.46	Dismantling asbestos cement pressure pipes including excavation and refilling trenches after taking out the pipes manually/ by mechanical means and stacking the pipes to the appropriate disposal area as per direction of Engineer-in-charge.		
19.46.1	Up to 150 mm diameter	**m**	**178.00**
19.46.2	Above 150 mm diameter	**m**	**211.00**
19.46.3	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	**unit**	**353.00**
19.47	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 to the appropriate disposal area as per direction of Engineer-in-charge.	**unit**	**204.00**
19.48	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 to the appropriate disposal area as per direction of Engineer-in-charge.	**unit**	**2,263.00**
19.49	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 to the appropriate disposal area as per direction of Engineer-in-charge.	**unit**	**512.00**
19.50	Dismantling of flushing cistern of all types (C.I./PVC/Vitreous China) including stacking of useful materials near the site and disposal of unserviceable materials to the appropriate disposal area as per direction of Engineer-in-charge.	**unit**	**421.00**
19.51	Dismantling of C.I. sluice valve including stacking of useful materials to the appropriate disposal area as per direction of Engineer-in-charge.		
19.51.1	Up to 150 mm diameter	**each**	**164.00**
19.51.2	Above 150 mm diameter	**each**	**598.00**

Sl. No.	Specification	Unit	Rate ₹
19.51.3	Dismantling of spindle fire hydrant including stacking of useful materials to the appropriate disposal area as per direction of Engineer-in-charge.	**each**	**364.00**
19.52	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 to the appropriate disposal area as per direction of Engineer-in-charge.		
19.52.1	120 x 120 cm (outside to outside)	**each**	**579.00**
19.52.2	210x120 cm (outside to outside)	**each**	**906.00**
19.52.3	320 x 120 cm (outside to outside)	**each**	**1,226.00**
19.53	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**29.00**
19.54	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable material and stacking of serviceable material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^2**	**28.00**
19.55	Demolishing R.C.C. work by mechanical means and stockpiling at designated locations and disposal of dismantled materials to the appropriate disposal area stacking serviceable and unserviceable material separately including cutting reinforcement bars.	**m^3**	**1,092.00**
19.56	Dismantling of flexible pavement (bituminous courses) by mechanical means and disposal of dismantled material to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**214.00**
19.57	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 to the appropriate disposal area.	**m^3**	**87.00**
19.58	Dismantling chain link fencing including removing the posts, cement concrete fedestals, foundation and stacking the useful materials safely at a distance to the appropriate disposal area as per direction of Engineer-in-charge.	**kg**	**17.00**
19.59	Dismantling weather proof course and removing and conveying the debris to a distance to the appropriate disposal area as per direction of Engineer-in-charge.	**m^3**	**441.00**

Chapter - 20

REPAIRS TO BUILDINGS

Sl. No.	Specification	Unit	Rate ₹
	20.0 REPAIRS TO BUILDINGS		
20.1	Making the opening in brick masonry for door/window/clerestory window 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/ rubbish to the nearest municipal dumping ground, all complete as per direction of Engineer-in-Charge.	**m^2**	**1,124.00**
20.2	Renewing glass panes, with putty and nails wherever necessary including racking out the old putty:		
20.2.1	Float glass panes of nominal thickness 4 mm (weight not less than 10kg/m^2)	**m^2**	**716.00**
20.2.2	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/m^2)	**m^2**	**1,001.00**
20.3	Renewing glass panes, with wooden fillets wherever necessary:		
20.3.1	Float glass panes of nominal thickness 4 mm (weight not less than 10kg/m^2)	**m^2**	**1,201.00**
20.3.2	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/sqm)	**m^2**	**1,279.00**
20.4	Renewing glass panes and refixing existing wooden fillets:		
20.4.1	Float glass panes of nominal thickness 4 mm (weight not less than 10kg/m^2)	**m^2**	**785.00**
20.4.2	Float glass panes of nominal thickness 5 mm (weight not less than 12.5kg/m^2)	**m^2**	**1,070.00**
20.5	Supplying and fixing new wooden fillets wherever necessary:		
20.5.1	2nd class teak wood fillets	**m**	**40.00**
20.5.2	Hollock wood fillets (Jungle/Honne wood)	**m**	**34.00**
20.6	Renewal of old putty of glass panes (length)	**m**	**30.00**
20.7	Refixing old glass panes with putty and nails	**m^2**	**391.00**
20.8	Fixing old glass panes with wooden fillets (excluding cost of fillets)	**m^2**	**348.00**
20.9	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**	**3,641.00**

Sl. No.	Specification	Unit	Rate ₹
20.10	Replacing granite stone slabs 100mm to 150mm thick 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, scaffolding and transportation all complete as per direction of Engineer-in-Charge	**m^2**	**419.00**
20.11	Renewing 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.		
20.11.1	Not exceeding 4.00 m in length.		
20.11.1.1	Sal wood beams	**m^2**	**85,675.00**
20.11.1.2	Hollock wood beams (Jungle wood)	**m^3**	**54,469.00**
20.11.2	Above 4.00 metres and upto 5.00 metres length.		
20.11.2.1	Sal wood beams	**m^3**	**86,043.00**
20.11.2.2	Hollock wood beams (Jungle wood)	**m^2**	**57,254.00**
20.12	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.	**m^2**	**38.00**
20.13	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 flat tile bricks on top of mud phaska :		
20.13.1	With Yelahanka tiles for joint filling	**m^2**	**62.00**
20.13.2	With modular brick tiles	**m^2**	**62.00**
20.14	Taking out wind ties from roof including cutting out rusted bolts, nuts etc. and removing materials to any distance within compound and stacking.	**kg**	**18.00**
20.15	Fixing of old wind tie with new fittings including painting two or more coats with anticorrosive paint of approved brand & manufacturer over and including priming coat of ready mixed zinc chromate yellow primer of approved brand.	**m**	**120.00**
20.16	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**	**274.00**
20.17	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.		
20.17.1	Wheel 50 mm dia and below	**Nos.**	**246.00**
20.17.2	Wheel above 50 mm dia	**Nos.**	**185.00**

Sl. No.	Specification	Unit	Rate ₹
20.18	Pumping out water caused by springs, tidal or river seepage, broken water mains or drains and the like.	**kl**	**130.00**
20.19	Brick work with common burnt clay bricks of class designation 5.0 in mud mortar	**m^3**	**1,487.00**
20.20	Providing and fixing 25 mm thick shutters for cup board etc. :		
20.20.1	Panelled or panelled & glazed shutters :		
20.20.1.1	Superior class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	**m^3**	**3,848.00**
20.20.1.2	Ist class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	**m^3**	**3,016.00**
20.20.2	Glazed shutters :		
20.20.2.1	Superior class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	**m^2**	**3,729.00**
20.20.2.2	Ist class teak wood including nickel plated bright finished M.S. piano hinges with necessary screws.	**m^2**	**3,124.00**
20.21	Providing and fixing Teak wood 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 :	**m^2**	**1,337.00**
20.22	Providing 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.		
20.22.1	20 mm diameter.	**m**	**875.00**
20.22.2	25 mm diameter.	**m**	**437.00**
20.23	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**	**92.00**
20.24	Providing joists (karries) including hoisting, fixing in position and applying wood preservative on unexposed surface etc. complete with :		
20.24.1	Sal wood	**m^3**	**80,215.00**
20.24.2	Hollock wood	**m^3**	**50,110.00**
20.25	Providing and fixing bright finished brass single acting spring hinges with necessary brass screws etc. complete :		
20.25.1	150 mm	**each**	**570.00**
20.25.2	125 mm	**each**	**400.00**
20.25.3	100 mm	**each**	**353.00**

Sl. No.	Specification	Unit	Rate ₹
20.26	Providing and fixing bright finished brass double acting spring hinges with necessary brass screws etc. complete :		
20.26.1	150 mm	**each**	**636.00**
20.26.2	125 mm	**each**	**539.00**
20.26.3	100 mm	**each**	**522.00**
20.27	Providing and fixing bright finished brass flush bolts with necessary brass screws etc. complete :		
20.27.1	250 mm	**each**	**200.00**
20.27.2	150 mm	**each**	**174.00**
20.27.3	100 mm	**each**	**126.00**
20.28	Providing and fixing 150 mm bright finished floor brass door stopper with rubber cushion, necessary brass screws etc. to suit shutter thickness complete	**each**	**206.00**
20.29	Providing and fixing bright finished brass hard drawn hooks and eyes :		
20.29.1	300 mm	**each**	**76.00**
20.29.2	250 mm	**Nos.**	**73.00**
20.29.3	200 mm	**each**	**65.00**
20.29.4	150 mm	**each**	**52.00**
20.29.5	100 mm	**each**	**45.00**
20.30	Providing and fixing bright finished brass fan light pivot with necessary brass screws etc. complete.	**each**	**33.00**
20.31	Providing and fixing 300 mm long bright finished brass chain with hook for fan light including necessary brass screws etc. complete.	**each**	**54.00**
20.32	Providing and fixing bright finished brass quadrant stay 300 mm long with necessary brass screws etc. complete.	**each**	**144.00**
20.33	Providing and fixing bright finished brass helical door spring (superior quality).	**each**	**398.00**
20.34	Providing and fixing chromium plated brass butt hinges with necessary chromium plated brass screws etc. complete.		
20.34.1	125x70x4 mm (ordinary type)	**each**	**151.00**
20.34.2	100x70x4 mm (ordinary type)	**each**	**129.00**
20.34.3	75x65x4 mm (heavy type)	**each**	**144.00**
20.34.4	75x40x2.5 mm (ordinary type)	**each**	**85.00**

Sl. No.	Specification	Unit	Rate ₹
20.34.5	50x40x2.5 mm (ordinary type)	**each**	**34.00**
20.35	Providing and fixing 85x42 mm chromium plated brass pull bolt lock with necessary chromium plated brass screws, nuts, bolts and washers etc. complete.	**each**	**222.00**
20.36	Providing and fixing bright finished casement window fasteners or peg stays to windows/ ventilators with necessary welding and machine screws etc. complete.	**kg**	**142.00**
20.37	Providing and fixing 20 mm bright finished steel spring catch to steel centre hung ventilators with necessary welding and machine screws etc. complete.	**each**	**24.00**
20.38	Repair to plaster of thickness 12mm to 20 mm in patches of area 2.5 m^2 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. (For Roof and Water Tanks)	**m^2**	**414.00**
20.39	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)	**l**	**0.25**
20.40	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**	**61.00**
20.41	Cleaning of chocked sewer line by diesel running vehicle mounting hydraulic operated high pressure suction m^3 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	**m**	**259.00**
20.42	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:-	**m^2**	**57.00**

Sl. No.	Specification	Unit	Rate ₹
(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.		
20.43	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**	**226.00**
20.44	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.		
20.44.1	Long pattern W.C Pan of size 580x440 mm	**each**	**5,367.00**
20.44.2	Orissa pattern W.C Pan of size 580x440 mm	**each**	**6,134.00**
20.45	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**	**100.00**
20.46	Hacking of CC flooring including cleaning for surface etc. complete as per direction of the Engineer-in-Charge.	**m^2**	**2.00**
20.47	Taking out existing wooden door shutter, repair by cutting, painting etc. and refixing of repaired door 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.	**m^2**	**200.00**
20.48	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).	**Nos.**	**557.00**
20.49	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).	**Nos.**	**588.00**

Sl. No.	Specification	Unit	Rate ₹
20.50	Removing white wash or colour wash by steel brushing and / or scraping, sand papering and preparing wall surface smooth including repairs to scraches including cost of labour, material complete as per specifications.	**m^2**	**15.00**
20.51	Extra for removing white wash or colour wash by steel brushing and / or scraping, sand papering the ceiling and / or sloping roof surface smooth including repairs to scraches, cost of material, labour, complete as per specifications.	**m^2**	**10.00**
20.52	Extra for washing the wall surface spoiled by smoke, soot, with clear water before sand papering the A80surface smooth including necessary repairs to scraches including cost of material, labour, complete as per specifications.	**m^2**	**4.00**
20.53	Cleaning and washing of decorated wall surface with soap, soda and water including cost of materials, labour, complete as per specifications.	**m^2**	**4.00**
20.54	Cleaning and washing the old plastered wall surface with soap, soda, water including cost of materials, labour, complete as per specifications.	**m^2**	**5.00**
20.55	Cleaning and washing of stone masonry wall surface with nitric acid including cost of materials, labour, complete as per specifications.	**m^2**	
20.56	Removing the old paint or polish from wood and / or wood based surface with paint remover of approved brand / manufacturer and making surface even including cost of materials, labour, complete as per specifications.	**m^2**	**73.00**
20.57	Removing the old paint or polish from wood and / or wood based surface with caustic soda solution and making surface even including cost of materials, labour, complete as per specifications.	**m^2**	**50.00**
20.58	Removing the old paint from wood and / or wood based surface with blow lamp and making surface even including cost of materials, labour, complete as per specifications.	**m^2**	**104.00**
20.59	Removing the old paint from steel and / or other metal surface with hand scraping and making surface even including cost of labour, complete as per specifications.	**m^2**	**91.00**
20.60	Removing the old paint from steel and / or other metal surface with flame cleaning and making surface even including cost of material, labour, complete as per specifications.	**m^2**	**108.00**
20.61	Removing the old paint from steel and / or other metal surface with paint remover of approved brand / manufacturer cleaning and making surface even including cost of material, labour, complete as per specifications.	**m^2**	**71.00**
20.62	Fixing small pieces (not exceeding 0.015 m3) for making good wherever hinges etc., have been removed from frames or joinery etc., with teak wood excluding cost of materials but including cost of labour, complete as per specifications.	**Nos.**	**28.00**

Sl. No.	Specification	Unit	Rate ₹
20.63	Providing and fixing small pieces (not exceeding 0.015 m3) for making good wherever hinges etc., have been removed from frames or joinery etc., with honne wood including cost of materials, labour, complete as per specifications.	**Nos.**	**179.00**
20.64	Providing and fixing small pieces (not exceeding 0.015 m3) for making good wherever hinges etc., have been removed from frames or joinery etc., with honne wood including cost of materials, labour, complete as per specifications.	**Nos.**	**151.00**
20.65	Providing and fixing small pieces (not exceeding 0.015 m3) for making good wherever hinges etc., have been removed from frames or joinery etc., with sal wood including cost of materials, labour, complete as per specifications.	**Nos.**	**126.00**
20.66	Renewing bars, stiles and rails, straight for joinery upto 50mm thick including mitres, haunching, mortices etc., and removing the old defective pieces and replacing with Teak wood including cost of materials, labour, complete as per specification	**Nos.**	**1,232.00**
20.67	Renewing bars, stiles and rails, straight for joinery upto 50mm thick including mitres, haunching, mortices etc., and removing the old defective pieces with Matti / Nandi wood including cost of materials, labour, complete as per specification	**Nos.**	**521.00**
20.68	Renewing bars, stiles and rails, straight for joinery upto 50mm thick including mitres, haunching, mortices etc., and removing the old defective pieces, replacing with Honne wood including cost of materials, labour, complete as per specification	**Nos.**	**446.00**
20.69	Rewedging, cramping joinery of any description with new wedges in glue or white lead and repinning including rehanging or refixing of shutters, hinges or pivots, not exceeding one sqm per leaf, removing or dismantling excluding cost of wood but including cost of labour, complete as per specifications.	**Nos.**	**626.00**
20.70	Rewedging, cramping joinery of any description with new wedges in glue or white lead and repinning including rehanging or refixing of shutters, hinges or pivots, exceeding one m^2 but not exceeding two m^2 per leaf, removing or dismantling excluding cost of wood but including cost of labour, complete as per specifications.	**Nos.**	**839.00**
20.71	Rewedging, cramping joinery of any description with new wedges in glue or white lead and repinning including rehanging or refixing of shutters, hinges or pivots, exceeding two m^2 removing or dismantling excluding cost of wood but including cost of labour, complete as per specifications.	**Nos.**	**1,186.00**

Sl. No.	Specification	Unit	Rate ₹
20.72	Making repairs to joinery at angles with 300mm x 25mm x 3mm length of MS flat forged to shape and let into wood work, counter sunk, drilled and screwed including cost of materials, labour, complete as per specifications.	**each**	**261.00**
20.73	Renewing Honne wood battens in roof including making good the holes in walls, removal of rubbish to the dumping round with a lead upto 50 m including cost of materials, labour, complete as per specifications.	**m^2**	**14,279.00**
20.74	Renewing Matti / Nandi wood battens in roof including making good the holes in walls, removal of rubbish to the dumping round with a lead upto 50 m including cost of materials, labour, complete as per specifications.	**m^2**	**12,559.00**
20.75	Renewing Sal wood battens in roof including making good the holes in walls, removal of rubbish to the dumping round with a lead upto 50 m including cost of materials, labour, complete as per specifications.	**m^2**	**11,026.00**
20.76	Removal of old broken glass panes (any thickness of size, quality or description) from wooden frames, glazed with putty or fixed with beads including cost of labour, complete as per specifications.	**m^2**	**137.00**
20.77	Removal of old broken glass panes (any thickness of size, quality or description) from metal frames, glazed with putty or fixed with beads including cost of labour, complete as per specifications.	**m^2**	**194.00**
20.78	Removing serviceable glass of any description from old wood or metal frames (any thickness or size, quality or description) hacking out old putty etc., including risk and making good breakages in taking out and handling, stacking within a lead of 50m including cost of labour, complete as per specifications.	**m^2**	**194.00**
20.79	Supplying and fixing new teak wood beads wherever necessary including cost of materials, labour, complete as per specifications.	**m^2**	**502.00**
20.80	Supplying and fixing new Honne wood beads wherever necessary including cost of materials, labour, complete as per specifications.	**m^2**	**364.00**
20.81	Removing the glazed tiles in patches in area exceeding 10 tiles and not exceeding 5 sqm including removing old tiles preparing surfaces and laying or setting new or old tiles complete including cost of materials, (excluding cost of tiles) labour, complete as per specifications.	**m^2**	**1,754.00**
20.82	Removing the mosaic tiles in patches in area exceeding 10 tiles and not exceeding 5 sqm including removing old tiles preparing surfaces and laying or setting new or old tiles complete including cost of materials, (excluding cost of tiles) labour, complete as per specifications.	**m^2**	**1,550.00**
20.83	Cutting out cracks of roof terrace to V - section cleaning out, wetting, grouting with cement and sand slurry 1:3 (1 cement, 3 sand) including cost of materials, labour, complete as per specifications.	**m**	**99.00**

Sl. No.	Specification	Unit	Rate ₹
20.84	Cutting out cracks of roof terrace to V - section cleaning out and filling solidly with a hot mixure of bitumen and clean dry sand 1:1 by weight including cost of materials, labour, complete as per specifications.	**m^2**	**8.00**
20.85	Dubbing out on old irregular walls average 10mm thick and making good the surface with cement mortar 1:3 including curing cost of materials, labour, complete as per specifications.	**m^2**	**196.00**
20.86	Dubbing out on old irregular walls average 10mm thick and making good the surface with cement mortar 1:4 including curing cost of materials, labour, complete as per specifications.	**m^2**	**177.00**
20.87	Dubbing out on old irregular walls average 10mm thick and making good the surface with cement mortar 1:6 including curing cost of materials, labour, complete as per specifications.	**m^2**	**157.00**
20.88	Repairs to plaster in patches of 2.5 m^2 and less in walls, ceilings 10 to 20mm thick in cement mortar 1:3 including cutting the patches in proper shape and replastering the surface of the wall including disposal of rubbish with a lead of 50m including curing cost of materials, labour, complete as per specification.	**m^2**	**336.00**
20.89	Repairs to plaster in patches of 2.5 m^2 and less in walls, ceilings 10 to 20mm thick in cement mortar 1:4 including cutting the patches in proper shape and replastering the surface of the wall including disposal of rubbish with a lead of 50m including curing cost of materials, labour, complete as per specification.	**m^2**	**316.00**
20.90	Repairs to plaster in patches of 2.5 m^2 and less in walls, ceilings 10 to 20mm thick in cement mortar 1:6 including cutting the patches in proper shape and replastering the surface of the wall including disposal of rubbish with a lead of 50m including curing cost of materials, labour, complete as per specification.	**m^2**	**297.00**
20.91	External sweeping and terrace cleaning - Cleaning of outer periphery like roads footpaths curb stones terrace including removing grass dust etc., to the nearest garbage pit using suitable coconut broomstic,bombay broomstick, squezers /wipers /rubberbru	**m^2**	**1.00**
20.92	Cleaning stone parapets removing of dirt dust etc., using suitrable soap powder , coconut broomstick, squeezers / wipers/ rubber brushes, coir brushes, plastric brushjes, mugs, booster pumps with portable arrangement, hose pipe etc., complete including.	**m^2**	**2.00**
20.93	Cleaning Quadrangle chajjas including removing of dirt dust etc., using suitrable soap powder , coconut broomstick, squeezers / wipers/ rubber brushes, coir brushes, plastric brushjes, mugs, booster pumps with portable arrangement, hose pipe etc., compl	**m^2**	**6.00**

Sl. No.	Specification	Unit	Rate ₹
20.94	Ceaning sub surface drains including removing of dirt dust etc., using suitrable soap powder , coconut broomstick, squeezers / wipers/ rubber brushes, coir brushes, plastric brushjes, mugs, booster pumps with portable arrangement, hose pipe etc., comple	**m^2**	**13.00**
20.95	Cleaning surface drains including removing of dirt dust etc., using suitrable soap powder , coconut broomstick, squeezers / wipers/ rubber brushes, coir brushes, plastric brushjes, mugs, booster pumps with portable arrangement, hose pipe etc., complete	**m^2**	**7.00**
20.96	Cleaning of office floors, toilet floors, corridors, lobbies, partitions, storage units, furnitures,electrical & electronic equipments, doors, windows, curtains, blinds etc., including cleaning of dust, etc., using suitable bombay broom stick, squezers	**m^2**	**2.00**
20.97	Providing corrugated cement asbestos Ridge sheets set in C.M. 1:3 and pointed with C.M. 1:3.	**m**	**508.00**
20.98	Providing Mangalore Ridge tiles set in C.M. 1:2 and pointed with C.M. 1:2.	**m**	**330.00**
20.99	Fixing doors, window and ventilators in walls.	**m**	**349.00**
20.100	Supplying and fixing new Mangalore tiles on existing reepers.	**m**	**425.00**
20.101	Removing and fixing old Mangalore ridge tiles including pointing with C.M. 1:3.	**m**	**112.00**
20.102	Repairs to roof with available corrugated zinc sheets/ A.C.sheets with new J bolts, screws and washers etc., on existing reeper and rafters.	**m**	**161.00**
20.103	Repairing door and window frames with available wood to the required size.	**m^2**	**756.00**
20.104	Repairing and fixing shutters (panelled or glazed) to doors, windows, ventilators and cupboards.	**m^2**	**756.00**
20.105	Fixing old eve board with necessary screws and approved painting two coats.	**m**	**33.00**
20.106	Providing and fixing plain rolled glass 3mm thick with teakwood beading of 10mm thick.	**m^2**	**1,087.00**
20.107	Providing and fixing plain rolled glass 3mm thick with teakwood beading of 10mm thick.	**m^2**	**758.00**
20.108	Repairs to existing Aluminium partition, refixing and relocating including cost of material,labour, complete as per specifications.	**m^2**	**1,485.00**
20.109	Repairs to existing aluminium partition including glass,board, lock, handle, beading etc cost of all material,labour, complete as per specifications.	**m^2**	**1,642.00**

Sl. No.	Specification	Unit	Rate ₹
20.110	Repairs to Teak wood chair/Table upto 0.005 m3 of teak wood including cost of all material,labour, complete as per specifications.	**Nos.**	**926.00**
20.111	Repairs to Executive chair including cost of materials, labour, complete as per specifications.		
20.111.1	Office Chair Base Replacement - Steel	**Nos.**	**350.00**
20.111.2	Office Chair Base Replacement - PVC Base	**Nos.**	**290.00**
20.111.3	Office Chair seat Replacement - foam Base	**Nos.**	**294.00**
20.111.4	Office Chair Gas Lift Cylinder Replacement - Universal Size, Heavy Duty Hydraulic And Pneumatic Shock, Fits Most Executive Chairs	**Nos.**	**392.00**
20.112	Repairs to Peacock chair including cost of materials, labour, complete as per specifications.		
20.112.1	Servicing with necessary fixtures like bolts and nuts	**Nos.**	**206.00**
20.112.2	Replacement of back rest /seat with servicing	**m^2**	**351.00**
20.113	Repair to existing ply wood ward-robes with 19mm plywood, beading,laminate and all necessary including cost of materials labour, lead,lift complete as per specifications.	**m^2**	**727.00**
20.114	Repair of pull and push type rolling shutters of made of 18 guage, 75mm wide cold rolled steel laths of convex corrugation, with side guides and bottom rail, with interlocking arrangements for steel laths by means of alternate clips, suspension shaft with High tension coil type springs two numbers, mounted on specially designed pipe shaft, with bracket plates, guide channels, ball bearing arrangements, for inside & outside locking with push & pull operations the which ever parts unserviceable should be replace (Springs, wheels, Shaft & replace the leafs which corroded) new one with all necessary including cost of materials, labour, complete as per specifications ---- Including cost of all materials, with all lead,	**m^2**	**465.00**
20.115	Repairs to existing Modular kitchen with Baskets, hinges, sliders/ Drawer, planks including finishing cost of materials, labour, complete as per specifications	**Nos.**	**4,335.00**
20.116	Repairs to steel Almirah with replacement of hinges, lock, handles including finishing and sheet metal work cost of materials, labour, complete as per specifications	**Nos.**	**2,056.00**
20.117	Cleaning of exposed concrete surface from oily sticking material, algae and other wet conditions by sand blasting complete as per direction of Engineer incharge of work.	**m^2**	**291.00**
20.118	Providing & injecting grout of Acrylic Polymer based into honey combs/ cracks for new RCC work / damaged re-work as per direction of Engineer in charge of work.	**m^2**	**117.00**

Sl. No.	Specification	Unit	Rate ₹
20.119	Chipping unsound weak concrete material from slabs. Beams, columns & roofs upto 50mm by manual means or by standard power driven percussion type including cleaning reinforcement with wire brush complete as per direction of Engineer incharge of work.	**m^2**	**113.00**
20.120	Cleaning of reinforcement from rust by Alkaline solution thoroughly as per direction of Engineer in charge of work.	**m^2**	**288.00**
20.121	Shotcreting R.C.C. columns, beams and slabs etc. in layers with approved design mix M25 concrete having the specified minimum characteristic compressive strength with OPC / PPC / PSC 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.	**m^2**	**1,070.00**
	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.*		
20.122	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.	**m^2**	**40.00**

Chapter - 21

CONSERVATION OF HERITAGE BUILDINGS

Sl. No.	Specification	Unit	Rate ₹
	21.0 CONSERVATION OF HERITAGE BUILDINGS		
21.1	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 to nearest area.	**m^2**	**37.00**
21.2	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.	**m^2**	**249.00**
	Note:- The elevational area of the scaffolding shall be measured for payment purpose.		
21.3	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).	**m^2**	**112.00**
21.4	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).	**m^2**	**36.00**
21.5	Ruled / Flush pointing on 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).	**m^2**	**192.00**

Sl. No.	Specification	Unit	Rate ₹
21.6	Ruled/ Flush pointing on White 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 (15% dark red and 85% light yellow surkhi) : 1/2 marble dust}. (The rate is inclusive of all materials & labours involved except scaffolding).	**m^2**	**193.00**
21.7	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).	**m^2**	**105.00**
21.8	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).	**m^2**	**74.00**
21.9	Providing and constructing burnt brick masonry with approved quality of modular bricks of standard size of class designation 5.00 N/mm^2 table moulded) with lime mortar for basement and superstructure including cost of materials, labour charges, scaffolding, curing complete as per specification - Do- in Lime mortar 1:3 Prop		
21.9.1	In Lime mortar 1:1 Prop	**m^3**	**2,735.00**
21.9.2	In Lime mortar 1:2 Prop	**m^3**	**2,774.00**
21.9.3	In Lime mortar 1:3 Prop	**m^3**	**2,800.00**
21.10	Providing ruled pointing to cursed stone masonry with lime mortar 1:3, 20mm deep, after raking joints to depth of 20mm nicely lining, including cost all materials, labour, usage charges of machinery, curing complete as pre specification.	**m^2**	**238.00**

Sl. No.	Specification	Unit	Rate ₹
21.11	Providing fresh lime plaster to brick masonry of 10mm lime mortar (slaked lime : sand) 1:2 proportion as base coat and finishing coat of 10mm of lime mortar (slaked lime : sand) 1:1 proportion including rounding or chamfering corners, arrises, junctions, etc wherever required smooth rendering, including jute netting, lead charges for lime and sand, lift charges above 3mt height providing and removing scaffolding, grinding machine, cost of materials, labour, curing etc., The dashing of the first coat to be done using a strong whipping motion at right angles to the face of the wall. The plaster shall be trowelled hard and tight forcing it into joints to obtain a good bond and surface rubbed smooth with a plaster's trowel complete as per specification and IS 2394 (1984). Curing shall be started 24 hrs after finishing the plaster. The plaster shall be kept wet for a period of 7 days etc complete as per direction of the Engineer in charge of the work.	**m^2**	**1,018.00**

Chapter - 22

NEW TECHNOLOGIES & ITEMS

Sl. No.	Specification	Unit	Rate ₹
	22.0 NEW TECHNOLOGIES & ITEMS		
Based on latest innovation in constuction field and new technologies and with the informations received from manufacturers / suppliers, an attempt is made to formulate the specifications the rate shall be arrived based on rate analysis considering factors such as material cost, labour, equipments and taxes. The work specific data rates shall be prepared with approval from concerned PWD Circle, Superintending Engineers.			
1	Providing & fixing in position Phenol bonded Bamboowood flooring with planks of sizes 14mm thick, minimum 1800mm length and minimum 100 mm wide, 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/m^3, 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/m^3 & minimum Hardness 1000 Kgf. with Eco friendly UV coating, all complete as per direction of the Engineer incharge.	m^2	
2	Providing & fixing in position Phenol bonded Bamboowood wall cladding at all height with planks of sizes 10mm thick, minimum 1800mm length and minimum 100 mm wide, 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/m^3 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/m^3 & minimum Hardness 1000 Kgf. with Eco friendly UV coating, all complete as per direction of the Engineer in-charge.	m^2	
3	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.	m^2	

Sl. No.	Specification	Unit	Rate ₹
11	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.		
12.1	0.71 mm thick, the profile detail width 1044/920 mm, cover width 1000/875 mm	m^2	
12.2	0.91 mm thick, the profile detail width 1044/920 mm, cover width 1000/875 mm.	m^2	
13	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 m^2) 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.		
13.1	With 15 mm thick integral densified micro edge light weight calcium silicate false ceiling tiles	m^2	

Sl. No.	Specification	Unit	Rate ₹
13.2	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		
13.3	With 15 mm thick fully perforated square/butt edge light weight calcium silicate panels/ tiles	m^2	
14	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 interlocking metal T-Grid of hot dipped galvanised iron section of 0.33mm thick (galvanized @ 120 grams per m^2 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 m^2) 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.		
14.1	With semi perforated 12 mm thick micro tegular edged GRG false ceiling tiles.	m^2	
14.2	With fully perforated 12 mm thick micro tegular edged or 10 mm thick square edged GRG false ceiling tiles.	m^2	
15	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.	m^2	

Sl. No.	Specification	Unit	Rate ₹
16	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 m^3. 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)} À 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.	m^2	
17	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 m^3. 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)} À 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.	m^2	
18	Providing & laying M20 grade Hydrophobic concrete Floor over roof slabs, sunken portions, basement & water tanks with concrete permeability less than 10mm tested with DIN 1048 with significant reduction in chloride permeability value for 30% & water absorption less than 1% when tested with BS 1881. The densification to be achieved with proper vibrating equipment.The rate is inclusive of cost of all materials, labour & machinery as per technical specification.	m^3	

Sl. No.	Specification	Unit	Rate ₹
19	Providing & laying M30 grade High Performance Floor with Fibre reinforced concrete of 200mm thickness on densified Sub-Grade with required load bearing capacity for Internal or External application, with panel size 30x30 m for internal & 4x4m for external. The concrete should be have lithium based densification and laser screeding with 4D steel fibres. The prerequisite dry shake hardener of AR-1 with necessary anti shrinkage admixture to be used with spray gun for densification. The cost to include the cost of groove cutting to 1/3rd depth & construction joint inclusive of cost of all materials, labour & machinery as per technical specification.	m^3	
20	Providing and laying of lightweight concrete as a filler material with EPS having density 750kg/m3 to 1250kg/m3, for non-load bearing structures and levelling courses with steel formwork in appropriate shape and size. The air entraining agent shall be used to concrete with EPS beads below 4mm diameter with slump 200-400mm when tested. The cost is inclusive of all materials, labour & machinery as per technical specification.	m^2	
21	Supply & application of the Pre-mixed dry mortar with right proportion of Cement, Sand & Polymer available in 40 Kg bag. Which is a high build, Water resistant plastering of min 5 mm to max 40 mm thickness can be applied on brick, concrete block, AAC Block, Fly ash block, Laterite block and concrete surface. Bulk density of mortar is 1.45 - 1.5 gm/cc and has a pot life @30 deg cent of >120 minutes when tested as per ASTM C 926-11 (a), Compressive strength for 28 days of 8 Mpa when tested as per ASTM C 109, Tensile strength for 28 days of min 1 Mps when tested as per ASTM C 307, Flexural strength for 28 days of min 1.5 Mpa when tested as per ASTM C 348, Water absorption max 5% when tested as per ASTM C1584-13 & Re-bound loss max 2%. The material has to be mixed with 0.15 - 0.16 W/P ratio to achieve mortar consistency for application etc. complete.	m^2	
22	Providing Shivane wood frames of doors, windows, clerestory windows, ventilators and other frames made of Channapatna Crafts Park, wrought, framed or assembled including making plaster groves (excluding cost of cement concrete and side clamps), but including cost of materials, labour, usage charges complete as per specifications.	m^3	
23	Providing and fixing in position fully panelled Shivane wood shutters for doors with stiles and rails of 40mm. thick with bottom and lock rails 180mm wide top rail and stiles 100mm wide made of Channapatna Crafts park and panels of 25mm thick including cost of materials, fixtures, labour, usage charges complete as per specifications.	m^2	

Sl. No.	Specification	Unit	Rate ₹
24	Providing and laying 5mm thick Self levelling epoxy flooring of reputed brand applied at 1ltr/m2 on existing Concrete substrate of 25Mpa or more. The Concrete shall be free from any defects and cracks. The epoxy compound shall have low VOC (Based on USEPA Method 24 Section 11.2.2 & ASTM D2369-98) and is chemically resistant & antimicrobial. The surface of Concrete shall be cleaned thoroughly and free from laitance and applied with primer cured for 6-8 hours. The mix shall be mixed using Hand mixing rotary machine.The underlay shall be laid with 3mm thickness and overlay at 2mm. The entire operation shall be finished in line with epoxy coving and marked with 100mm thickness Yellow marking lines complete as per the direction of Engineer in charge.	m^2	
25	Providing and Erecting Composite Beams designed for Live Load of 500 kg/m2 comprising of NPB/UB/UC of E-350 grade connected with shear studs,necessary reinforcement steel of grade Fe 500,Pre Tension Strands as desired,confirming to all relevant IS Codes,providing design mix of M-60 grade concrete including cost of all materials,Labour,Transportation and erection etc. as per the Technical specifications.The entire beam is manufactured under control systems.		
25.1	10 m Span	m	
25.2	12 m Span	m	
25.3	17 m Span	m	
25.4	18 m Span	m	
25.5	25 m Span	m	
25.6	32 m Span	m	
26	**Insulated Fire rated doorset FD 120 with 30 minutes insulation**		
26.1	**Single Leaf doorset - Insulated Fire rated doorset (FD 120) - Staircase / exit pathway application / Refuge area.**		
	Providing and fixing of ISI marked fire doors as per IS 3614:2021, 120 minutes fire rating with 30 minutes insulation single leaf doorset tested to IS/ISO 3008. Doorset shall include grooved step frame profile of 125x75mm made of 1.2mm GI (120GSM) and 60mm thick shutter made of 1.2mm GI (120GSM) with infill of 120kg density mineral wool. Grooved frame shall include EPDM smoke seal. Include hardwares, minimum 3nos SS ball bearing hinges of SS304 of size 100x89x3mm, 1no of Single point Panic device and external trim with key cylinder tested as per EN1125 and CE marked. 1no of Door closer with spring size of EN 3-5, as per EN1154 & CE marked. vision panel 200 x 300 with 6mm clear fire rated glass and finished in desired colour of powder coating not less than 50microns including suitable anchors & fire rated puff grouting all inclusive for fixing of doorset - for staircase / exit pathway / Refuge area applications.	m^2	

Sl. No.	Specification	Unit	Rate ₹
26.2	**Double Leaf doorset - Insulated Fire rated doorset (FD 120) - Staircase / exit pathway application / Refuge area.**		
	Providing and fixing of ISI marked fire doors as per IS 3614:2021, 120 minutes fire rating with 30 minutes insulation double leaf doorset tested to IS/ISO 3008. Doorset shall include grooved step frame profile of 125x75mm, made of 1.2mm GI (120GSM) and 60mm thick shutter made of 1.2mm GI (120GSM) with infill of 120kg density mineral wool. Grooved frame shall include EPDM smoke seal. Include hardwares, minimum 6nos SS ball bearing hinges of SS304 100x89x3mm, 1no of Single point Panic device and external trim with key cylinder on active leaf and 1no two point Panic device on the inactive leaf, tested as per EN1125 and CE marked. 2no of Door closer with spring size of EN 3-5, as per EN1154 and CE marked. 1no door coordinator for sequencing. 2nos vision panel 200 x 300 with 6mm clear fire rated glass and finished in desired colour of powder coating not less than 50microns including suitable anchors & fire rated puff grouting all inclusive for fixing of doorset - for staircase / exit pathway / Refuge area applications.	m^2	
27	**Un-insulated Fire rated door FD 120**		
27.1	**Single leaf door - Un-insulated Fire rated doorset (FD 120) - All other utility & service area doors**		
	Providing and fixing of ISI marked Single leaf fire doors as per IS 3614:2021, 120 minutes fire rating doorset tested to IS/ISO 3008. Doorset shall include grooved frame profile of 125x55mm made of 1.2mm GI (120GSM) and 46mm thick shutter made of 1.2mm GI (120GSM) with infill of honeycomb core. Grooved frame shall include EPDM smoke seal. Include hardwares, minimum 3nos SS ball bearing hinges of size 100x75x3mm1no Fire rated mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss as per EN 12209 with euro profile cylinder both side key, 1pair Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 1nos of Door closer with spring size of EN 2-4, as per EN1154 and CE marked. vision panel 150 x 750 with 6mm clear fire rated glass and finished in desired colour of powder coating not less than 50microns including suitable anchors & fire rated puff grouting all inclusive for fixing of doorset - for all utility and service area applications.	m^2	
27.2	**Double leaf door - Un-insulated Fire rated doorset (FD 120) - All other utility & service area doors**	Units	
	Providing and fixing of ISI marked fire doors as per IS 3614:2021, 120 minutes fire rating double leaf doorset tested to IS/ISO 3008. Doorset shall include grooved frame profile of 125x55mm made of 1.2mm GI (120GSM) and 46mm thick shutter made of 1.2mm GI (120GSM) with infill of honeycomb core. Grooved frame shall include EPDM smoke seal. Include hardwares, minimum 6nos SS ball bearing hinges of	m^2	

Sl. No.	Specification	Unit	Rate ₹
	SS304 of size 100x75x3mm, 1no Fire rated mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss as per EN 12209 with both side key cylinder on active leaf, 2pairs Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 2nos of Door closer with spring size of EN 2-4, as per EN1154 and CE marked. 2nos flush bolt on the inactive leaf, 1no dust proof socket. 2Nos vision panel 150 x 750 with 6mm clear fire rated glass and finished in desired colour of powder coating not less than 50microns including suitable anchors & fire rated puff grouting all inclusive for fixing of doorset - for all utility and service area applications.		
28	**General Steel Doors**		
28.1	**Single leaf door - General steel doors**		
	Providing and fixing of single leaf hollow metal steel door. Doorset shall include grooved frame profile of 125x55mm made of 1.2mm GI conforming to IS 277 (120GSM) and 46mm thick shutter made of 1.2mm GI (120GSM) with infill of honeycomb core. Grooved frame shall include PVC smoke seal.Vision lite should be minimum 5mm toughned glass on shutter, Include hardwares, 3Nos SS ball bearing hinges of SS304 of size 100x75x3mm, 1no mortise dead lock, 55mm BS, 20 mm^2 forend, including escutheion, sss with euro profile cylinder both side key, 1pair Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 1nos of Door closer with spring size of EN 2-4, as per EN1154. vision panel 150 x 750 with 5mm clear glass and finished in desired colour of powder coating not less than 50microns including suitable anchors & puff grouting all inclusive for fixing of doorset - for all utility and all general application.	m^2	
28.2	**Double leaf door - General Steel doors**		
	Providing and fixing of double leaf hollow metal steel door. Doorset shall include grooved frame profile of 125x55mm made of 1.2mm GI conforming to IS 277 (120GSM) and 46mm thick shutter made of 1.2mm GI (120GSM) with infill of honeycomb core. Grooved frame shall include PVC smoke seal.Vision lite should be minimum 5mm toughned glass on shutter, Include hardwares, 6Nos SS ball bearing hinges of SS304 grade of size 100x75x3mm, 1no mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss with both side key cylinder on active leaf, 2pairs Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 2nos of Door closer with spring size of EN 2-4, as per EN1154. 2nos flush bolt on the inactive leaf, 1no dust proof socket. 2Nos vision panel 150 x 750 with 5mm clear glass and finished in desired colour of powder coating not less than 50microns including suitable anchors & puff grouting all inclusive for fixing of doorset - for all utility and all general application.	m^2	

Sl. No.	Specification	Unit	Rate ₹
29	**Scientific door -OT**		
29.1	**Single leaf door - Scientific door OT**		
	Providing and fixing of Single leaf hollow metal steel door. Doorset shall include grooved frame profile of 125x55mm made of 1.2mm SS304 conforming to IS 277 and 46mm thick shutter made of 1.2mm SS304 with infill of honeycomb core. Vision lite wherever applicable should be special DGU (Double glazed unit) provided as per manufacturers recommendation with sealent. The glass should be minimum 4mm clear toughned glass flush in line with the shutter thickness. (4+38+4). Minimum size 200 x 300mm. All frame and door shutter shall be finished Satin stainless steel. Cost of single leaf doorset shall include following hardware, 3Nos SS ball bearing hinges of SS304 of size 100x75x3mm, 1no mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss with euro profile cylinder both side key, 1pair Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 1nos of Door closer with spring size of EN 2-4, as per EN1154. 1no Concealed auto door bottom. Suitable anchor fastners for fixing on different type of wall construction as per manufacturer recommendation. Once frames is installed it shall be filled with PUF.	m^2	
29.2	**Double leaf door - Scientific door OT**		
	Providing and fixing of Single leaf hollow metal steel door. Doorset shall include grooved frame profile of 125x55mm made of 1.2mm SS304 conforming to IS 277 and 46mm thick shutter made of 1.2mm SS304 with infill of honeycomb core. Vision lite wherever applicable should be special DGU (Double glazed unit) provided as per manufacturers recommendation with sealent. The glass should be minimum 4mm clear toughned glass flush in line with the shutter thickness. (4+38+4). Minimum size 200 x 300mm. All frame and door shutter shall be finished Satin stainless steel. 3Nos SS ball bearing hinges of SS304 grade of size 100x75x3mm, 1no mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss with euro profile cylinder both side key, 2pair Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 2nos of Door closer with spring size of EN 2-4, as per EN1154. 2nos flush bolt on the inactive leaf, 1no dust proof socket. 2no Concealed auto door bottom. Suitable anchor fastners for fixing on different type of wall construction as per manufacturer recommendation. Once frames is installed it shall be filled with PUF.	m^2	
30	**Glazed fire door**		
30.1	**Insulated Galzed fire door - Single leaf**		
	Providing and fixing of single leaf insulated glazed fire door as per IS 16947 for integrity (E/EW 120) & Insulation (EI 30). Glazed door shall be tested to IS/ISO 834-1, IS/ISO 3009-1 for integrity & insulation (E/EW 120). Glazed door shall be tested from CBRI for maximum rating		

Sl. No.	Specification	Unit	Rate ₹
	of 120min, Door frames and partitions shall be single rebate frame profile of size 125 x 60mm made out of 1.60mm GI (120GSM). Door leaf shall be fully glazed with minimum 60 x 100mm profile step box section for taking glass elements. Door leaf shall be manufactured from 1.2mm GI (120GSM). For doors and partitions, beeding shall be minimum 1.2 mm GI with 25mm height, with screws 6 x 19mm. The infill material shall be mineral wool 96kg density. The glass shall be, ultra clear fire rated, interlayered minimum 13mm thick, for (E) 120 minutes integrity & (EI 30) 30minutes insulation with light transmission of minimum 89% as per EN1363 and EN1364. Glass shall have a impact resistance of 1B1 as per EN 12600 and sound insulation of 37db including ceramic tape. Cost of single leaf doorset shall include following hardware and accessories as a complete assembly. 3nos SS ball bearing hinges of SS304 grade of size 100x75x3mm, 1no Fire rated mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, as per EN 12209 with both side key cylinder on active leaf, 1pairs Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 1nos of Door closer with spring size of EN 2-4, as per EN1154 and CE marked. Doorset finished in desired colour of powder coating not less than 50microns including suitable anchors & fire rated puff grouting all inclusive for fixing of doorset	m^2	
30.2	**Insulated Galzed fire door - Double leaf**		
	Providing and fixing of double leaf insulated glazed fire door as per IS 16947 for integrity (E/EW 120) & Insulation (EI 30). Glazed door shall be tested to IS/ISO 834-1, IS/ISO 3009-1 for integrity & insulation (E/EW 120). Glazed door shall be tested from CBRI for maximum rating of 120min, Door frames and partitions shall be single rebate frame profile of size 125 x 60mm made out of 1.60mm GI (120GSM). Door leaf shall be fully glazed with minimum 60 x 100mm profile step box section for taking glass elements. Door leaf shall be manufactured from 1.2mm GI (120GSM). For doors and partitions, beeding shall be minimum 1.2 mm GI with 25mm height, with screws 6 x 19mm. The infill material shall be mineral wool 96kg density. The glass shall be fire rated, ultra clear, interlayered minimum 13mm thick, for (E) 120 minutes integrity & (EI 30) 30minutes insulation with light transmission of minimum 89% as per EN1363 and EN1364. Glass shall have a impact resistance of 1B1 as per EN 12600 and sound insulation of 37db including ceramic tape. Cost of single leaf doorset shall include following hardware and accessories as a complete assembly, 6nos SS ball bearing hinges of SS304 grade of size 100x75x3mm, 1no Fire rated mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss as per EN 12209 with both side key cylinder on active leaf, 2pairs Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 2nos of Door closer with spring size of EN 2-4, as per EN1154 and CE marked.	m^2	

Sl. No.	Specification	Unit	Rate ₹
	2nos flush bolt on the inactive leaf, 1no dust proof socket. Suitable anchor fastners for fixing on different type of wall construction as per manufacturer recommendation. All doors and frames shall be finished Pure Polyster Powder coated and shall have passed minimum 500 hours of salt sprey test. Once frame installed should be filled with PUF as recomended by the manufacturer or engineer.		
30.3	**Un-insulated Glazed fire door - Single leaf**		
	Providing and fixing of glazed uninsulated fire door as per IS 16947 for stability and integrity (E120). Pressed galvanized steel confirming to IS 277 with the following specification. Glazed door shall be tested to IS/ISO 834-1 & IS/ISO 3009-1 for integrity (E120).Glazed door shall be tested from CBRI for maximum rating of 120min, Door frames and partitions shall be single rebate frame profile of size 125 x 60mm made out of 1.60mm GI (120GSM). Door leaf shall be fully glazed with minimum 60 x 100mm profile step box section for taking glass elements. Door leaf shall be manufactured from 1.2mm GI (120GSM). For doors and partitions,beeding shall be minimum 1.2 mm GI with 25mm height, with screws 6 x 19mm. The infill material shall be honeycomb. The glass shall be, ultra clear fire rated glass E120 minimum 08mm thick, for (E) 120 minutes integrity with light transmission of minimum 92% as per EN1363 and EN1364. Glass shall have a impact resistance of 1B1 as per EN 12600, Glazing kit to be provided along with steel beeding and ceramic tape. Cost of single leaf doorset shall include following hardware and accessories as a complete assembly. 3nos SS ball bearing hinges of SS304 grade of size 100x75x3mm, 1no Fire rated mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss as per EN 12209 with both side key cylinder on active leaf, 1pairs Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 1nos of Door closer with spring size of EN 2-4, as per EN1154 and CE marked. Doorset finished in desired colour of powder coating not less than 50microns including suitable anchors & fire rated puff grouting all inclusive for fixing of doorset	m^2	
30.4	**Un-insulated Glazed fire door - Double leaf**		
	Providing and fixing of glazed uninsulated fire door as per IS 16947 for stability and integrity (E120). Pressed galvanized steel confirming to IS 277 with the following specification. Glazed door shall be tested to IS/ISO 834-1 & IS/ISO 3009-1 for integrity (E120).Glazed door shall be tested from CBRI for maximum rating of 120min, Door frames and partitions shall be single rebate frame profile of size 125 x 60mm made out of 1.60mm GI (120GSM). Door leaf shall be fully glazed with minimum 60 x 100mm profile step box section for taking glass elements. Door leaf shall be manufactured from 1.2mm GI (120GSM). For doors and partitions, beeding shall be minimum 1.2 mm GI with 25mm height, with screws 6 x 19mm. The	m^2	

Sl. No.	Specification	Unit	Rate ₹
	infill material shall be honeycomb. The glass shall be fire rated, ultra clear fire rated glass E120 minimum 08mm thick, for (E) 120 minutes integrity with light transmission of minimum 92% as per EN1363 and EN1364. Glass shall have a impact resistance of 1B1 as per EN 12600, Glazing kit to be provided along with steel beeding and ceramic tape. Cost of single leaf doorset shall include following hardware and accessories as a complete assembly. 6nos SS ball bearing hinges of SS304 grade of size 100x75x3mm, 1no Fire rated mortise dead lock, 55mm BS, 20mm sq. forend, including escutheion, sss as per EN 12209 with both side key cylinder on active leaf, 2pairs Pull handle D type, 22dia, CTC 300mm, back to back, with spindle, SS 304, SSS finish. 2nos of Door closer with spring size of EN 2-4, as per EN1154 and CE marked. 2nos flush bolt on the inactive leaf, 1no dust proof socket. Suitable anchor fastners for fixing on different type of wall construction as per manufacturer recommendation.All doors and frames shall be finished Pure Polyster Powder coated and shall have passed minimum 500 hours of salt sprey test. Once frame installed should be filled with PUF as recomended by the manufacturer or engineer.		
31	**Rolling Shutters**		
	Fire rated motorised rolling shutter 120min		
31.1	Providing and fixing of single skin fire rated rolling shutter FRS120 as per IS3614: 2021 and tested to IS/ISO 834-1, ISO 3008-1.from CBRI for maximum rating of 120min Slats shall be made from galvanised steel 0.8/1.2mm (22/18 guage) as per IS 277 of size 109mm of approved make Rolling shutter shall be certifire labled and approved for fire rating for 120minutes, stability and integrity. slats shall be of 0.8/1.2mm thick GI sheet forming to the door height, the bottom edge of the door shall be 100mm bar fabricated from 50mmX50mmX5mm thick Steel angle,Motor capacity shall be 1hp for size upto 5000mm x 5000mm, and 3hp for sizes above 5000mm x 5000mm. Connecting volt shall be 220Volt 50Hz 1 phase up to 5000mm x 5000mm, and 415V 50Hz 3 phase for bigger sizes. One unit Push Button Switch (Up, Stop, Down), IP 65. Current rating will be 5 Amp for sizes less than 5000mm x 5000mm, 9 Amp for more than 5000mm x 5000mm size. The fusible link shall be 24V solenoid release. Vendor should supply 16A, 3 pin, industrial male socket with 1m cable along with controller.	m^2	

Sl. No.	Specification	Unit	Rate ₹
	Non Fire rated Single skin non-fire rated motorised rolling shutter		
31.2	Providing and fixing of single skin non-fire rated rolling shutter. Slats shall be made from galvanised pre coated steel 0.8 (22 guage) as per IS 277 of size 109mm of approved make. Construction of the slats shall be of 0.8mm thick GI sheet forming to the door height, the bottom edge of the door shall be 100mm bar fabricated from 50mmX50mmX5mm thick Steel angle, Motor capacity shall be 1hp for size upto 5000mm x 5000mm, and 3hp for sizes above 5000mm x 5000mm. Connecting volt shall be 220Volt 50Hz 1 phase up to 5000mm x 5000mm, and 415V 50Hz 3 phase for bigger sizes. One unit Push Button Switch (Up, Stop, Down), IP 65. Rolling shutter finish shall be Galvanized and painted in RAL 9002 outside and soft grey from inside.	m^2	

APPENDIX

Appendix I – Material Consumption : Co-efficients

Will be appended separately

ANNEXURE - II

CO-EFFICIENTS FOR PAINTING, VARNISHING ETC.,

TABLE : 1 EQUIVALENT PLAIN AREAS OF UNEVEN SURFACES (CLAUSE 3.5)

Sl. No. (1)	Description of Work (2)	How Measured (3)	Multiplying Factor (4)
i)	Panelled or framed and brazed or ledged and battened or ledged, batten-battened and braced joinery	Measured flat (not girthed) including CHOWKAT or frame, Edged, chocks, cleats, etc., shall be deemed to be included in the item	1.30 (for each side)
ii)	Flush joinery	Measured flat (not girthed) including CHOWKAT or frame, edges, chocks, cleats, etc., shall be deemed to be included in the item	1.20 (for each side)
iii)	Flush shutter	Measured flat overall	1.20 (for each side)
iv)	Fully glazed or gauzed joinery	Measured flat (not girthed) including CHOWKAT or frame, Edges, chocks, cleats shall be deemed to be included in the item	0.80 (for each side)
v)	Partly panelled and partly glazed or gauzed joinery	Measured flat (not girthed) including CHOWKAT or frame, edges, chocks, cleats, etc., shall deemed to be included in the item	1 (for each side)
vi)	Fully venetianed or louvred joinery	Measured flat (not girthed) including CHOWKAT or frame, edges, chocks, cleats, etc., shall be deemed to be included in the item	1.80 (for each side)
vii)	Weather boarding	Measured flat (not girthed) supporting frame work shall not be measured separately	1.20 (for each side)
viii)	Wood shingle roofing	Measured flat (not girthed)	1.10 (for each side)
ix)	Boarding with covers fillets and match boarding	Measured flat (not girthed)	1.05 (for each side)
x)	Tile and slate battening	Measured flat overall; no deduction shall be made for open spaces	0.80 (for painting all over)
xi)	Trellis (or JAFFRI) work one-way or two way	Measured overall; no deduction shall be made for open spaces, supporting members shall not be measured seperately	2 (for painting all over)
xii)	Guard bars, balus-traders, gates greetings, grills expanded metal and railings	Measured flat overall; no deduction shall be made for open spaces; supporting members shall not be measured separately	1 (for painting all over)

xiii)	Gates and open palisade fencing including standards, braces, rails stays etc.,	Measured flat overall; no deduction shall made for open spaces; supporting members shall not be measured separately (see Note 1)	1 (for painting all over)
xiv)	Carved or enriched work	Measured flat	2 (for each side)
xv)	Steel roller shutter	Measured flat (size of opening) overall; jam guides, bottom raise and locking arrangement, etc., shall be included in the item (top cover shall be measured separately)	1.10 (for each side)
xvi)	Plain sheet steel doors and windows etc	Measured flat (not girthed) including frame, edges,	1.10 (for each side)
xvii)	Fully glazed or gauzed steel doors and windows	Measured flat (not girthed) including frame, edges	0.50 (for each side)
xviii)	Partly papelled and partly glazed gauged steel door	Measured flat (not girthed) including frame, edges	0.80 (for each side)
xiix)	Collapsible gate	Measured flat (size of opening)	1.50 (for painting all over)

Note 1 : The height shall be taken from bottom of lowest rail, if palisades do not go below it or from lower end of palisades, if they project below lowest rail, up to top of palisades, but not up to top of standards, if they are higher than palisades.

Note 2 : Where doors, windows, etc., are of composite types other than thoses included in this table, different portions shall be measured separately with their appropriate coefficients, centre line of common rail being taken as the dividing line between the two portions.

Note 3 : Measurements of painting doors, windows, collapsible gates, rolling shutters, etc., as given in this table shall be deemed to include painting, if required, of all iron fittings in the same shade.

Note 4 : When two faces of a door, window, etc., are to be treated with different specified finishes, measurable under separate items, edges of frames and shutters shall be treated with the one or the other type of finish and measurement thereof shall be deemed to be included in the measurement of the face treated with that finish.

Note 5 : In case where shutters are fixed on both faces of a frame, measurement for the door frame and shutter on one face shall be taken in the manner already described, while the additional shutter on the other face shall be measured exclusive of the frame.

Note 6 : Where shutter is provided with clearence exeeding 15 cm at top and / or at bottom, such openings shall be deducted from the overall measurement and relevant coefficient applied.

Appendix III – Weightages of Components in Building works

(Source : Central Building Research Institute, Roorkee)

The table shall be followed for preparation of Rough cost / Nornative cost estimate.

(Load bearing residential building)

Main item	Sub item	Sub item			% weightage Main item		
		Material	Labour	Total	Material	Labour	Total
Foundation and plinth	Excavation	0.03	0.27	0.30	4.35	1.35	6.20
	Concrete	2.24	0.56	2.80			
	Masonry work	1.68	0.82	2.50			
	D.P. Course	0.40	0.20	0.60			
Lobby : Living room etc	Masonry work	8.17	4.03	12.20	9.80	4.90	14.70
	RCC lintels and chajjas etc,	1.63	0.87	2.50			
Roof	Concrete slab	5.22	3.48	8.70	16.83	6.97	23.80
	Steel	7.76	1.94	4.70			
	Water proofing	3.29	1.41	4.70			
	R.W. Pipe	0.56	0.14	0.70			
Flooring	Sub floor	1.58	0.52	2.10	2.84	1.36	4.20
	Top finish	1.26	0.84	2.10			
Joinery	Doors	4.44	2.96	7.40	9.60	6.40	16.00
	Windows	5.16	3.44	8.60			
Finishes	Plaster	3.48	2.32	5.80	4.11	2.89	7.00
	Whitewash	0.30	0.40	0.70			
	Painting	0.33	0.17	0.50			
Fitting and fixtures services	Ward rob	1.98	1.32	3.30	2.18	1.43	3.60
	Kitchen facilities	0.20	0.10	3.30			
	External services						
	Path	1.20	0.30	1.50	6.45	3.15	9.60
	Sanitary	2.53	1.27	3.80			
	Water supply	0.98	0.42	1.40			
	Electrification	1.74	1.16	2.90			
	Internal services						
	Sanitary	3.92	1.68	5.60	9.79	5.11	14.9
	Water supply	2.03	0.87	2.90			
	Electrification	3.84	2.56	6.49			

2. Percentage cost of various materials and labour (load bearing residential buildings)

Name of items	Percentage of total cost
a) Bricks/Solid Blocks	20
b) Cement	10
c) Steel reinforcement & Steel by products	10
d) Wood work	15
e) M-Sand & aggregate	10
f) Labour	30
g) Miscellaneous	5

3. Material required on plinth area basis for single storey load bearing residential buildings.

a) Brick	Approx 500 Nos., per m^2, of plinth area
b) Cement	1.5 bags per m^2, of plinth area
c) Steel bars	12 kg per m^2, of plinth area (for plain M.S. bars) 8 kg per m^2, of plinth area (for TMT)

4. Material and labour required on plinth area basis for various buildings

(i. For residential buildings (A $\Rightarrow$ Total plinth area of all storeys)

Materials / Labour	Unit	Statistical relationships		
		For single storey building	For double storey building	For four storey building
		Load bearing construction (including foundation)		RCC-framed construction (including foundation)
Material				
Bricks	100 Nos	2.26A + 66/8	2.15 A + 63	2.56 A – 0.0096A^2 –26.2
Cement	t	0.153A + 0.57	0.145 A+0.54	0.2024A-0.364
Steel	kg	21.3A-314	21.97A-305	102.46A-0.401A^2 – 1662
Sand	m^3	0.47A – 7	0.43A – 5.6	397A – 0.76
Coarse aggregate:				
i) 20mm and down ii) 40 mm and down	m^3	0.176A-0.21 0.145A+1.5	0.178A-0.21 0.075A+0.78	0.366A-0.76 0.027A+0.0001A^2 + 0.45
Brick aggregate timber for:	m^3	0.113-0.83	0.0566 – 0.42	0.021A+ 0.01

i) Frames and shutters	m^3	0.019A+0.23	0.019A+0.23	0.02A + 0.11
ii) Shuttering Bal-lies for formwork	m^3	0.0042A	0.0042A	0.0097A-0.03
Lime	q	0.145A-0.35	0.083A-0.17	0.063A-0.08
Surkhi	m^3	0.052A-0.37	0.026A-0.18	0.01A
Bitumen	kg	1.836A-9	0.818A-4	0.357A+0.14
Glass panes	m^2	0.047A	0.047A	0.047A
Primer for oil paint	l	0.048A	0.048A	0.045A+0.56
Oil paint	l	0.08A+0.27	0.08A+0.27	0.075A+0.83
Stone rubble	m^3	-	-	0.032A

Labour				
Mason	Day	1.335A+28	1.355A+6	1.593A-2
Carpenter	Day	1.184A-9	1.194A-9	1.66A
Painter	Day	0.19A	0.19A	0.19A
Blacksmith	Day	0.269A-4	0.274A-1.4	$1.11A-0.0043A^2-17.6$
Mazdoor	Day	4.769A+32	4.91A+13	5.833A-9.2

Note- I) The above relationships are applicable for plinth areas ranging from 30 to 300 m^2 (of one dwelling) in the case of single and double storied buildings and up to 100 m^2 for four storied framed building builder's hardware, rainwater goods, water supply, plumbing, drains and electrical wiring etc., will have to be added extra.

5. For office buildings

(A $\Rightarrow$ Total plinth area of all stories added up, in m^2)

Material / labour	Unit	Statistical relationship	Material / la-bour	Unit	Statistical relationship
Cement	t	0.1925A+18.52	Steel windows	m^2	0.1117A+93.26
Fine sand	m^3	0.03A+105.50	Glass (for glazing)	m^2	0.1407A+55.99
Coarse sand	m^3	0.2592A-80.84	Primer for paint-ing	l	0.0256A+9.7
			Oil paint	l	0.0322A+7.24

Coarse aggregate:					
i) 20mm size	m^3	0.2728A-48.50	Lime	q	0.0754A-51.21
ii) 10mm size	m^3	0.1164A-20.74	Surkhi	m^3	0.0204A-18.39
III) 40 mm size	m^3	0.0151A-73.91	Stone chips	q	0.1338A-48.52
Brick ballast	m^3	0.0426A-38.37	Stone powder	m^3	0.0012A-0.36
Timer for:	m^3		**Labour**		
i) form work	m^3	0.0050A+11.19			
ii) Joinery	m^3	0.0024A-0.53	Mason	day	1.1314A-07.40
			Carpenter	day	0.7094A+449.09
Ballies (centering)	m	0.5507A+797.75	Glazier	day	0.0122A+10.31
Bricks	100 nos.	1.1829A-524.23	Painter	day	0.0905A + 37.26
Steel	t	0.0479A	Blacksmith	day	0.479A
Flush doors	m^2	0.0636A-17.07	Mazdoor	day	6.055A-2024.37

Note- The above relationships are applicable for plinth areas ranging from 1600 to 2600m^2 spread over 4 to 10 storey high office buildings, having average storey height of 3.00m. The relationship does not include for builder's hardware, waterproofing at top of roof slab, rain water pipes and services like water supply, plumbing, drains, sanitary fittings, and electrical wiring. Materials required for scaffolding are excluded. Quantity of steel consists of about 80% TMT reinforcement bars, the rest being round mild steel bars for reinforcement and a small negligible quantity of flat iron holdfasts & structural steel.

Appendix IV – General specifications for consideration in Building estimates

The following components of the Schedule of rates shall be adopted in the preparation of Buildings estimate.

Sl No.	Description	Specification	Remarks
1.	**Foundation**	As per structural requirements	The design shall vary as per soil conditions with suitable documentation from Quality Assurance & Design wing.
2.	**Superstructure**		
	For multi storey RCC framed structure	RCC Frame & filler walls of AAC, Fly ash, Burnt clay bricks, Solid block masonry	Any other energy efficient suitable locally available material as per Architect & Design drawings.
	For composite structure (partially load bearing & partially RCC structure)	AAC, Fly ash, Burnt clay bricks, Solid block masonry with partial RCC frame	Any other energy efficient suitable locally available material as per Architect & Design drawings.
	Internal partition	Half brick thick masonry in AAC, Fly ash bricks, Burnt Clay Bricks & Solid block masonry.	Any other energy efficient suitable locally available material as per Architect & Design drawings.
	Sunken floors for toilets & DPC	Sunk recess in RCC floors of required size & depth for floor trap & WC trap	
3.	**Doors & Windows**		
	a) Door	Teakwood completely or Sal/Neem/ Honne frames with Teak wood shutter preferably. Otherwise, Chemically treated Hardwood/Seamless MS tubular frame (with hot dipped GI coating) with min. wall thickness 2mm. External entrance door frame will have double rebate or sub frame for double doors i.e main door and safety drill door with SS 304 wire powder coated mesh. For internal doors, single rebate frame.	

	b) Window	Chemically treated Hard wood (Neem/Sal/Honne etc), upvc extruded frames (2, 2.5, 3, 3.5 tracks) with min wall thickness 2mm/ powder coated or colored anodized Aluminum extruded tubular sections/Engineered wood sections along with provision of subframe with suitable material/ Steel windows for school buildings.	
	c) Doors/Windows of WC/Toilet	Chemically treated Hard wood, upvc extruded frames, Wood composite doors, FRP, PVC & with Compatible door shutters.	
4.	**Flooring, skirting & Dadooding**		
	Flooring – Common areas	Vitrified tiles of varied sizes not less than 300x300mm .(Thickness as specified in the IS with suitable tolerance). Granite in special cases with min thickness of 18mm or Ceramic glazed vitrified tiles.	
	Flooring – Kitchen & Wet areas	Granite flooring of minimum 18mm thickness	
5.	**Finishes**		
	Internal finishes	All walls & ceilings to be properly rendered with appropriate thickness (One time only) and painted with low VOC acrylic paint. Synthetic enamel paint on all wood works & steel works.	
	External finishes	Quartz reinforced textured acrylic paint finish / premium acrylic smooth water proof exterior finish over cement based putty. Synthetic enamel paint on all wood work & steel work.	In case of large campus, the external finishes of the residences shall match the overall colour and texture finishes. The energy efficient color code shall be followed.
.6	**Water proofing**	PU based for roofing, external walls / cement based for sunken areas and food grade for water retaining structures of approved brands.	

7.	**Railings, Parapets in Balconies**	Clear 1m height MS railing made out of MS flats & square bars with 40mm dia MS pipes and handrail on top as per Architect's drawings.	
		200/230mm thick Masonry in AAC, BBM, Solid block duly plastered on both sides and top up to 1m clear height.	
8.	**Water supply & drainage**	As per water supply line drawings with reputed brands of materials.	
9.	**Rain water harvesting**	As per Rain water harvesting manual and compulsorily to be operated for the building area of 100 m^2 and above.	
10.	**Electrification**	As per electrical layout drawings, with materials of reputed brands and durability.	
11.	**Fire safety**	As per manual of Fire safety & general instructions of Fire department with bare minimum provisions for the building of min area 200m^2.	

Aspects of Building Area Measurements

At present different methods for calculating plinth / carpet areas of buildings are followed by various departments. This Indian Standard was formulated in 1966 to provide a basis for uniform method of measurement of such areas of buildings. This revision has been prepared to include rentable area of the building on the basis of recommendations of Central Public Works Department. This standard as per IS: 3861-1975 covers method of measurement of plinth, carpet and rentable areas of old and new buildings.

1. Terminology For the purpose of this standard the following definitions shall apply.

* **Plinth area** – Shall mean the build up covered area measured at the floor level of the basement or of any storey

* **Carpet area** – Shall mean covered area of the usable rooms at any floor level

* **Rentable area** – Shall mean the usable carpet area at any floor level

* **Balcony** – A horizontal projection with a hand-rail, balustrade or a parapet, to serve as passage or sitting out place.

* **Stair cover** - It is a space having a roof over a staircase and its landing, built to enclose only the stairs for the purpose of providing protection from weather and not used for human habitation.

* **Loft** – An intermediate storage area in between two main floors.
* **Porch** – It is a covered surface supported on pillars or otherwise for the purpose of pedestrian or vehicular approach to a building.
* Linear measurement shall be measured to nearest .01m, and areas shall be worked out to the nearest .01m^2.
* The areas of each of the following categories shall be measured separately :
    (1) Basement,
    (2) Floor without cladding (stilted floor),
    (3) Floors including top floor which may be partly covered,
    (4) Vitrified floor, and
    5) Garage.

Measurement of plinth area

For the purpose of plinth area, following shall be included for the categories

* Area of the wall at the floor level excluding plinth offsets, if any; when the building consists of columns projecting beyond cladding, the plinth area shall be taken up to the external face of cladding (in case of corrugated sheet cladding outer edge of corrugation shall be considered)
* Internal shaft for sanitary installations and garbage chute, provided these do not exceed m^2 in area, vertical duct for air-conditioning, lift well including landing; Stair cover; Machine room and Porch.

The following shall not be included in the plinth area

* Additional floor for seating in assembly building/theatres and auditorium, etc.,
* Cantilevered porch;
* Balcony;
* Area of loft;
* Internal sanitary shaft and garbage chute provided these are more than 2m^2 in area;
* Area of architectural band, cornice, etc;. Area of vertical sun breaker or box louver projecting out and other architectural feature,
* Open platform;
* Terrace at floor one;
* Spiral staircase including landing; and
* Towers, domes projecting above the terrace level at terrace *.

Measurement of carpet area

From the plinth area as worked out above, the area of the wall shall be deducted. Thickness of wall shall be inclusive of finishing and dado if the height of such finish is more than 1m from floor finish.

The following shall be included in the wall area:

* Door and other openings in the wall;
* Intermediate pillars, supports or any other such obstruction within the plinth area irrespective of their location;
* Pilaster along wall exceeding 300 cm^2 in area;
* Flues which are within the wall'
* Built in cupboard, almirahs and shelf appearing within a height of 2.2m from floor; and
* Fire place projecting beyond the face of the wall in living or bed room.

The following shall be excluded from the wall area:

* Pilaster along wall not exceeding 300 cm^2 in area, and
* Platform projecting beyond the face of the wall.

The carpet area shall be the plinth area worked out as above excluding the area of the following portion:

* Verandah;
* Corridor and passage;
* Entrance hall and porch;
* Staircase and stair-cover
* Shaft and machine room for lift;
* Bathroom and lavatory '
* Kitchen and pantry;
* Store;
* Canteen;
* Air–conditioning duct and plant room; and
* Shaft for sanitary piping.

Note–In a hall or basement areas of portion 1 m beyond last step shall be part of the staircase.

Measurement of Rentable area

Residential Buildings

The rentable area shall be the carpet area as worked out in 5 but shall further include the following:

* The carpet area of kitchen, pantry, store, lavatory, bath room; and
* Fifty percent of carpet area of unglazed and 100 percent of glazed verandah.

It shall, however, exclude the carpet area of the following:

* Covered portion of the building within portion specified such as storage space on top, landings of staircase, under and first landing and waist slab on floor one.
* Fifty percent of carpet area of balcony.

While accounting the rentable area for the category mentioned above, one-fourth carpet area shall be accounted for when stilts have height more than 2.4 m.

Non-residential buildings – The rentable area shall be the carpet area as worked out above but shall further include the carpet area of the canteen including store, kitchen and pantry attached to it. It shall, however, not include carpet areas of bathroom and lavatory.

Appendix – V : IS Codes - References

The following codes under various sub heads provides the information regarding the procedures to be followed for procurement of materials, practices and design during the execution of work of various structures.

Earthwork & Anti-Termite Treatment		
S. No.	**IS No.**	**Subject**
1	IS 632	Gamma – BHC (Lindane) emulsifiable concentrates
2	IS 6313 (Part-II)	Anti Termite measures in buildings (pre -constructional)
3	IS 6313(Part-III)	Anti Termite Measures in Buildings for existing buildings
4	IS 6940	Methods of test for pesticides and their formulations
5	IS 8944	Chlorpyrifos emulsifiable concentrates
6	IS 8963	Chlorpyrifos – Technical specifications
7	IS 12138	Earth moving Equipments

Cement Mortar		
S. No.	**IS 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 455	Specification for Portland slag cement.
4	IS 460 (Part I)	Specification for test sieves: wire cloth test sieves.
5	IS 650	Specification for standard sand for testing of cement
6	IS 1269	Specification for 53 grade ordinary Portland cement
7	IS 1344	Specification for calcined clay Pozzolana.
8	IS 1489	Specification for Portland pozzolana cement
9	IS 1542	Specification for sand for plaster
10	IS 1727	Methods of Test for Pozzolanic materials
11	IS 2116	Specification for sand for masonry mortar.
12	IS 2250	Code of practice for preparation and use of masonry Mortar.
13	IS 2386 (Part-I)	Method of test for aggregate for concrete (Particle size and shape)
14	IS 2386 (Part-II)	-Do- Estimation of deleterious materials and organic impurities.
15	IS 2386 (Part-III)	-Do- Specific gravity, density, voids, absorption and bulking.

16	IS 3025	Method of sampling and test for water
17	IS 3406	Specification for masonry cement.
18	IS 3812 (Part I)	Specification for fly ash for use as pozzolana in cement mortar and concrete
19	IS 3812 (Part II)	Specification for flyash for use as admixture in cement mortar and concrete
20	IS 4031 (Part I) to (Part XIII)	Method of Physical test for hydraulic cement
21	IS 4032	Method of chemical analysis of Hydraulic cement.
22	IS 8041	Rapid hardening Portland cement.
23	IS 8042	Specification for white cement
24	IS 8043	Hydrophobic Portland cement
25	IS 8112	Specification for 43 grade ordinary Portland cement
26	IS 11652	Woven HDPE sacks for packing cement
27	IS 11653	Woven polypropylene sacks for packing cement
28	IS 12174	Jute synthetic union bags for packing cement

Brick Masonry		
S. No.	**IS No.**	**Subject**
1.	IS 269	Specification for Ordinary Portland cement (33 Grade)
2.	IS 383	Specification for coarse and fine aggregate
3.	IS 456	Plain and reinforced concrete - Code of practice
4.	IS 712	Specification for building limes.
5.	IS 1077	Common burnt clay building bricks.
6.	IS 1200 (Part 3)	Method of measurements of brick works
7.	IS 2212	Code of practice for brick work. (1st Revision)
8.	IS 2222	Specification for burnt clay perforated building bricks.
9.	IS 2645	Specification for integral water proofing compounds for cement mortar and concrete
10.	IS 2849	Specification for non load bearing gypsum partition blocks, (Solid and hollow types)
11.	IS 3346:1980	Method of the determination of thermal conductivity of thermal insulation materials
12.	IS 3495	Method of test for burnt clay building bricks.
13.	IS 3812	Specification for fly ash for use as pozzolana and admixture.

14.	IS 4082:1977	Stacking & storage of construction materials and components at site – Recommendations
15.	IS 4139	Specification of calcium silicate bricks
16.	IS 4885	Specification for sewer brick
17.	IS 5454	Methods of sampling of clay building bricks.
18.	IS 6441 (Part-1): 1972	Methods for test for Autoclaved Cellular concrete Products: Determination of unit weight or bulk density and moisture content
19.	IS 6441 (Part-2): 1972	Methods for test for Autoclaved Cellular concrete Products: Determination of dry shrinkage
20.	IS 6441 (Part-5): 1972	Methods for test for Autoclaved Cellular concrete Products: Determination of compressive strength
21.	IS 9103	Specification for concrete admixtures
22.	IS 12894	Pulverized fuel ash lime bricks specification,
23.	IS 13757	Specification of burnt clay fly ash bricks.

Stone Masonry		
S. No.	**IS No.**	**Subject**
1.	IS 737	Specifications for wrought aluminium and aluminium alloy, steel and strip for general engineering purpose.
2.	IS 1121 - (Part. I)	Methods of determination of properties and strengths of natural building stones (Part-I compressive strength).
3.	IS 1122	Methods for determination of specific gravity of natural building stone
4.	IS 1123	Methods of identification of natural building stones.
5.	IS 1124	Methods of test of determination of water absorption, apparent, specific gravity and porposity of natural building stones.
6.	IS 1125	Methods of test of determination of weathering of natural building stone
7.	IS 1126	Methods of test for determination of durability of natural building stone
8.	IS 1128	Specification for Lime stone (Slab & Tiles).
9.	IS 1129	Recommendations for dressing of natural building stones.
10.	IS 1200 (Pt. IV)	Methods of measurements of building and Civil engineering works stone Masonry.
11.	IS 1197 (Pt. I)	Code of practice for construction of Rubble stone masonry
12.	IS 1597 (Pt. II)	Code of practice for construction of Ashlar stone masonry
13.	IS 1805	Glossary of terms relating to stones, quarrying and dressing
14.	IS 3620	Specification for laterite stone block for masonry

15.	IS 3622	Sand stone (Slab & Tiles)
16.	IS 4104 (Part I)	Code of practice for external facings and veneers (Part I-Stone facing).
17.	IS 4101 (Part II)	Code of practice for external facing and veneers: (Part II-Cement Concrete facing).

Roofing		
S. No.	**BIS. No.**	**Subject**
1.	IS 73	Specification for paving Bitumen
2.	IS 277	Galvanised steel sheets (plain and corrugated)
3	IS 651	Glazed stoneware pipes and fittings
4.	IS 702	Specification for industrial bitumen
5.	IS 1199	Methods of sampling and analysis of concrete
6.	IS 1200 (PT.IX)	Method of measurements of building and civil engineering works Part - 9 Roof covering (including cladding)
7.	IS 1200 (PTX)	Method of measurements of building and civil engineering works: Part -10 ceiling and lining
8	IS 1230	Cast iron rain water pipes and fitting
9.	IS 1367 (PT -13)	Technical supply conditions for threaded steel fasteners pt.13 hotdip galvanized coating on threaded fasteners
10	IS 2095 (PT-1)	Gypsum plaster boards (Pt.1) plain Gypsum plaster boards
11.	IS 2115	Code of practice for flat roof finish: mud phuska
12.	IS 2633	Method of testing uniformity of coating on zinc coated articles
13.	IS 2645	Specification for integral water proofing compounds for cement mortar and concrete
14.	IS 3007 (PT.1)	Code of practice for laying of asbestos cement sheets: part- 1 corrugated sheets
15.	IS 3007 (PT.2)	Code of practice for laying of asbestos cement sheets part- 2 semi-corrugated sheets
16.	IS 3087	Particle boards of wood and other lignocellulogic materials (medium density) for general purposes - specifications
17.	IS 3144	Methods of test for mineral wool thermal insulation materials
18.	IS 3346	Method of the determination of thermal conductivity of thermal insulation materials
19.	IS 3348	Specification for fibre insulation boards

20.	IS 3384	Specification for bitumen primer for water proofing and damp proofing
21.	IS 4671	Expanded polystyrene for thermal insulation purposes
22	IS 5382	Specification for rubber sealing rings for gas mains, water mainsand sewers
23.	IS 5688	Methods of test of performed block type and pipe covering typethermal insulations
24.	IS 6598	Cellular concrete for thermal insulation
25.	IS 7193	Specification for glass fibre base coal tarpitch & bitumen felts (Amendment I)
26.	IS 8183	Bonded mineral wool
27.	IS 10192	Specifications for synthetic resin bonded glass fibre (SRBGF) forelectrical purposes.
28.	IS 13592	Unplasticised polyvinyl chloride (UPVC) pipes for soil and Wastedischarge system for inside and outside building.
29.	IS 14753	Specifications for polymethyl Methacrylate (PMMA) (Arylic) sheets
30	IS 14862	Fibre cement flat sheets - specifications
31	IS 14871	Specifications for products in fibre reinforced cement - Long corrugated or Asymmetrical section sheets and fittings for roofing and cladding.

Flooring		
S. No.	**IS No.**	**Subject**
1.	IS 269	Specification for 33 grade Ordinary portland Cement
2.	IS 401	Code of practice for preservation of timber
3.	IS 455	Specification for portland slag cement
4.	IS 661	Code of practice for thermal insulation of cold storages
5.	IS 1124	Method of test for determination of water absortion, apparent specific gravity and porosity of natural building stones
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 1322	Specification for bitumen felts for water proofing and damp-proofing

10.	IS 1443	Code of practice for laying and finishing of cement concrete flooring tiles
11.	IS 1489 (Part-I)	Specification for portland pozzolana cement (Part-I) flyash based & Part – II Calcined Clay Based
12.	IS 1580	Specification for bituminous compounds for water proofing and caulking purpose
13.	IS 2114	Code of practice for laying in-situ terrazzo floor finish
14.	IS 2571	Code of practice for laying in-situ cement concrete flooring
15.	IS 3622	Specification for sand stone (Slab & Tiles)
16.	IS 3670	Code of practice for construction of timber floors
17.	IS 4457	Acid and/or alkali Resistant tiles.
18.	IS 5318	Code of practice for laying of hard wood parquet and wood block floors
19.	IS 5766	Code of practice for laying of burnt clay brick floor
20.	IS 8041	Specification for rapid hardening portland cement
21.	IS 8042	Specification for white portland cement
22.	IS 8112	Specification for 43 grade ordinary portland cement
23.	IS 12330	Specification for sulphate resisting portland cement.
24.	IS: 13630 (Part-1 to 15)	Methods of Testing of ceramic tiles
25.	IS 13712	Specification for ceramic tiles; definition, classification characteristic and marking
26.	IS 15622	Specification for pressed ceramic tile

Cladding		
S. No.	**IS No.**	**Subject**
1.	IS 848	Specification for synthetic resin adhesives for plywood (Phenolic and Aminoplastic)
2.	IS 1122	Method of test for determination of true specific gravity of naturalbuilding stones.
3.	IS 1124	Method of test for determination of water absorption, apparent specific gravity and porosity of natural building stones.
4.	IS 1328	Specification for Veneered decorative plywood
5.	IS 1734 (Part-1)	Methods of test for plywood

6.	IS 2380	Methods of test for wood particle boards and boards from other lignocellulosic materials
7.	IS 3316	Specifications for structural granite
8.	IS 3734 (Part-1)	Rubber – Tolerance for products
9.	IS 4101 (Part 1)	Code of practice for external facing and veneers: Stone facing.
10.	IS 7638	Wood/Lignocellulosic based panel products – Methods of sampling
11.	IS 12049	Dimensions and tolerances relating to wood based panel materials
12.	IS 12823	Wood products – Prelaminated particle boards – Specification
13.	IS 14223 (Part 1)	Polished Building Stones (Part-1) Granite
14.	IS 14842	Coir Veneer board for general purposes – Specification

Steel & Aluminium.		
S. No.	**IS No.**	**Subject**
1	IS 63	Whiting for paints and putty
2	IS 198	Varnish gold size
3	IS 228	Structural steel (Standard quality)
4	IS 277	Specification for galvanized steel sheets (Plain and corrugated)
5	IS 419	Putty for use on window frames
6	IS 800	Code of practice for use of structural steel in general in steel construction
7.	IS 806	Code of practice for use of steel Tubes in general building construction
8.	IS 808	Dimensions for Hot rolled steel beams, columns, channel and angle sections
9.	IS 812	Glossary of terms relating to welding and cutting metals
10	IS 813	Scheme of symbols for welding
11	IS 814	Covered electrodes for manual metal arc welding of carbon and carbon manganese steel
12	IS 816	Code of practice for use of metal arc welding for general construction in mild steel
13	IS 817	Code of practice for training and testing of metal arc welders
14	IS 818	Code of practice for safety and healthy requirements in electric and gas welding and cutting operations

15	IS 822	Code of procedure for inspection of welds
16	IS 823	Manual for metal arc welding in mild steel
17	IS 1038	Steel doors, windows and ventilators
18	IS 1081	Code of practice for fixing and glazing of metal (Steel and aluminium) doors, windows and ventilators
19	IS 1148	Hot rolled steel rivet bars (upto 40 mm diameters) for structural purposes
20	IS 1161	Steel tubes for structural purposes
21	IS 1182	Recommended practice for radiographic examination of fusion welded butt joints in steel plates
22	IS 1200- (Pt. VIII)	Method of measurements of steel work and iron works
23	IS 1363 Part I	Hexagon head bolts, screws, and nuts of product grade C (Hexagon Head bolt)
24	IS 1363 Part II	Hexagon Head Bolts, screws and nuts of product Grade 'C'
25	IS 1363 Part-III	Hexagon M Head Bolts, screws and Nuts of product grade 'C'
26	IS 1367	Technical supply conditions for threaded steel fasteners

Finishing		
S. No.	**BIS. No.**	**Subject**
1.	IS 16 (Pt-I)	Shellac : Part : I - Hand Made Shellac
	IS 16 (Pt-II)	Shellac : Part : II - Machine Made Shellac
2.	IS 75	Linseed Oil Raw and Refined
3.	IS 77	Linseed Oil Boiled For Paints
4.	IS 102	Ready Mixed Paint, Brushing, Red Lead, Nonsetting, Priming
5.	IS 104	Specification for Ready Mixed Paint, Brushing, Zinc Chrome, Priming
6.	IS 109	Ready Mixed Paint, brushing, priming Plaster to Indian Standard Colour No.361, 631 White and off White
7.	IS 117	Ready Mixed Paint, Brushing, Finishing Exterior, Semigloss for General Purposes to Indian Standards Colours.
8.	IS 133	Enamel, Interior (a) Under Coating (b) Finishing
9.	IS 137	Ready Mixed Paint, Brushing, Matt Or Egg Shell Flat, Finishing Interior to Indian Standard Colour as required
10.	IS 158	Ready Mixed Paint, Brushing, Bituminous Black, Lead Free, Acid, Alkali and Heat Resisting

11.	IS 217	Specification for Cut Back Bitumen
12.	IS 218	Specification for Creosote and Anthracene Oil For Use As Wood Preservatives
8.	IS 290	Coal Tar Black Paint
14.	IS 337	Varnish, Finishing Interior
15.	IS 341	Black Japan, Types 'A', 'B' & 'C'
16.	IS 347	Varnish, Shellac for General Purposes
17.	IS 348	French Polish
18.	IS 419	Putty for Use On Window Frames
19.	IS 427	Distemper, Dry Colour as Required
20.	IS 428	Distemper, Oil Emulsion, Colour as Required
21.	IS 524	Varnish, Finishing, Exterior, Synthetic Air Drying
22.	IS 533	Gum Spirit of Turpentine (Oil of Turpentine)
23.	IS 712	Specification For Building Limes
24.	IS 1200 (Pt-XII)	Method of Measurements of Building and Civil Engineering Works : Part : XII - Plastering and Pointing
25.	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.
26.	IS 1200 (Pt-XV)	Methods of Measurements of Building and Civil Engineering Works : Part : XV - Painting, Polishing, Varnishing etc.
27.	IS 2339	Aluminium Paint For General Purposes, in Dual Container
28.	IS 2547 (Pt-II)	Gypsum Building Plasters Pt.II Premixed Light Weight Plasters
29.	IS 2932	Enamel, Synthetic, Exterior (a) Undercoating, (b) Finishing
30.	IS 2933	Enamel, Exterior (a) Undercoating (b) Finishing
31.	IS 5410	Cement Paint
32.	IS 5411 (Pt-1)	Plastic Emulsion : Paint Part I For Interior Use
33.	IS 6278	Code of Practice For White Washing and Colour Washing
34.	IS 12777	Method for classification of flame spread of products

Sanitary Works		
S. No.	**IS No.**	**Subject**
1.	IS 771 (Pt.1)	Specification for glazed fire clay sanitary appliances: Part 1: General requirements.
2.	IS 771 (Part.-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 cistern)-Specifications.
5.	IS 1300	Phenolic moulding materials.- Specifications
6.	IS 13983	Providing and fixing stainless steel sink
7.	IS 1570 (Part-5)	Schedule for Wrought steel (Stainless Steel and heat resisting steels)
8.	IS 1703	Water fittings- copper alloy float valves (horizontal plunger type) - Specification.
9.	IS 1729	Cast iron /Ductile Iron Drainage Pipes and pipe fittings for Over ground non-pressure pipe line Socket and Spigot Series.
10.	IS 1795	Specification for pillar taps for water supply purposes.
11.	IS 1865	Iron casting with spheroidal or nodular graphite
12.	IS 2267	Polystyrene moulding and extrusion materials - Specifications
13.	IS 2326	Specification for Automatic Flushing Cisterns for Urinals (Other than plastic cisterns)
14.	IS 2548 (Part-1)	Plastic seats and covers for water closets Part 1: Thermo set seats and covers - Specifications
15.	IS 2548 (Part-2)	Plastic seats and covers for water closets Part 2: Thermoplastic seats and covers.- Specifications
16.	IS 2556	Vitreous sanitary appliances (vitreous china) -Specifications
17.	IS 2556 (Part-1)	Part-1: General requirements.
18.	IS 2556 (Part-2)	Part-2: Specific requirements of wash-down water closets.
19.	IS 2556 (Part-3)	Part-3: Specific squatting pans.
20.	IS 2556 (Part-4)	Part-4: Specific requirements of wash basins.
21.	IS 2556 (Part-5)	Part-5: Specific requirements of laboratory sinks.
22.	IS 2556 (Part-6)	Part-6: Specific requirements of Urinals & Partition plates
23.	IS 2556 (Part-7)	Part-7: Specific requirements of accessories for sanitary appliances
24.	IS 2556 (Part -14)	Part-14: Specific requirements of integrated squatting pans.

Rain Water Harvesting		
S. No.	**IS No.**	**Subject**
1	IS 226:1975	Structural Steel
2	IS 460:1985 (Part-1)	Code of practice for particle size distribution
3	1239 (Part I):1990	Mild steel tubes, tubulars and other wrought steel fittings: Part I Mild steel tubes (fifth revision)
4	2800 (Part I): 1991	Code of Practice for Construction and Testing of Tubewells/ Borewells
5	3589 :1991	Seamless or electrically welded steel pipes for water, gasand sewage (1683 to 2032 mm outside diameter) (second revision)
6	4097: 1967	Gravel for use as pack in tubewells
7	4270 : 2001	Steel tubes used for water wells(second revisions)
8	8110 : 1985	Well Screens and Slotted Pipes
9	9439 : 1980	Glossary of terms used in water-well drilling technology
10	10500 : 1983	Drinking water
11	10151 : 1982	Polyvinyl chloride (PVC) and its copolymers for its safe usein contact with foodstuffs, pharmaceuticals and drinking water
12	11189 : 1985	Methods for tubewell development
13	12818 : 2010	Unplasticized PVC ribbed screen casing and plain casing pipes for bore/ tubewells – Specification

Dismantling & Demolition		
S. No.	**IS No.**	**Subject**
1	IS 1200 (Pt-XVIII)	Method of Measurements of Building and Civil Engineering Works (Part-XVIII) Demolition and Dismantling
2	IS 4130	Demolition of Buildings
3	3696 (Part 1) : 1987	Safety code of scaffolds and ladders Part 1 Scaffolds
4	4014 (Part2): 1967	Code of practice for steel tubular scaffolding; Part 2 Safety regulations for scaffolding
5	3764 : 1992	Code of safety for excavation work (first revision)
6	7969 : 1975	Safety code for handling and storage of building materials
7	13415 : 1992	Code of safety for protective barriers in and around buildings
8	13416 (Part1) : 1992	Recommendations for preventive measures against hazards at work places; Part 2 Fall prevention
9	13416 (Part 2) : 1982	Recommendations for preventive measures against hazards at work places; Part 2 Fall prevention
10	13430 : 1992	Code of practice for safety during additional construction and alteration to existing buildings

Appendix – VI : Ready Reckoners – Reference for National building

Code : IS : Green Manual : GRIHA, GST etc

Sl No.	Code : Reference	Description
1.	www.kpwd.karnataka.gov.in	PWD Official Website, GoK
2.	www.bis.gov.in	Indian Standard Codes
3.	www.bis.gov.in & www.lawresource.org	National Building Code SP 7
4.	www.cpwd.gov.in	Central Public Works Department Official website
5.	www.grihaindia.org	Green Rating for Integrated Habitat Assessment - Manual
6.	www.cbri.res.in	Central Building Research Institute
7.	www.igbc.in	Indian Green Buidling Council
8.	www.cbic.gov.in	Goods & Services Tax
9.	www.gstcouncil.gov.in	Goods & Services Tax Council
10.	www.ctax.kar.nic.in	Commercial Taxes Department, GoK
11.	www.cgwb.gov.in	Central Ground Water Board Official Website
11.	www.ksfesonline.in	Karnataka State Fire & Emergency Services

Appendix – VII

Classification for installation of fire extinguishers

Note :

ANNEX B

(Clause 5.3, IS2190:2010)

RECOMMENDATIONS FOR INSTALLATION OF FIRE EXTINGUISHERS

B-1 occupancies classified according to IS 1641 are given together with nature of fire hazard and type of fire risk along with typical examples. The classifications, groupings etc., given in this Annex are only for general guidance for installation of fire extinguishers and not for other purposes.

Class of Occupancy	Type of Occupancy	Nature of Occupancy	Class of Fire	Typical Examples
Group A	Residential buildings	LH	Class A	Lodging or rooming, one or two family houses, Private dwellings dormitories, apartment houses, flats, upto 4 star hotels, etc
		LH	Class C	Small Kitchens having LPG connection, electrical heaters, etc.
		MH	Class A	Multi-storeyed buildings, multi-risk buildings, five star hotels, etc.
Group B	Educational buildings	LH	Class A	Tutorials, vocational training institutes, evening colleges, commercial institutes
		MH	Class A	Schools, Colleges, etc
Group C	Institutional buildings	MH	Class A	Hospitals, sanatoria, homes for aged, orphanage jails, etc.
Group D	Assembly buildings D-1	HH	Class A	Theatres, Assembly halls, Exhibition halls, Museums, Restaurants, Places of Worship, Club rooms, Dance halls, etc., Having seating capacity of over 100 persons
	D-2	MH	Class A	Theatres, Assembly halls, Exhibition halls, Museums, Restaurants, Places of Worship, Club rooms, Dance halls etc. Having seating capacity less than 1000 persons
	D-3	MH	Class A	Theatres, Assembly halls, Exhibition halls, Museums, Restaurants, Places of Worship, Club rooms, Dance halls etc. but having ccommodation for more than 300 persons, but less than 1000 persons, with no permanent seating arrangement
	D-4 & D-5	MH	Class A	Theatres, Assembly halls, Exhibition halls, Museums, Restaurants, Places of Worship, Club rooms, Dance halls etc. Having accommodation less than 300 and those not covered under D-1 to D-3
Group E	Business buildings E-1	SH	Class A	Offices, Banks, Record Rooms, Archives, Libraries, data processing centres, etc.
	E-2	MH	Class B	Laboratories, research establishment, test houses etc.
	E-3	SH	Class A	Computer installations
Group F	Mercantile buildings	MH	Class A	Shops, Stores, Markets, Departmental stores, Underground shopping centres, etc.
Group G	Industrial buildings	LH	Class A	Small industrial units
		MH	Class A	Corrugated carton manufacturing units, Paper cane units, Packing case manufacturing units, cotton waste manufacturing units.
		HH	Class A	Large number yards, saw mills godowns and warehouses storing combustible materials, cold Storages, freight depots, etc.

		LH	Class B	Demonstration chemical plants, small chemical, processing plants, pilot plants, etc.
		MH	Class B	Workshops, painting shops, large kitchens, industrial canteens, generator rooms, heat treatment shops, tread rubber manufacturing units, petrol bunks, tubes & flaps units, etc.,
		HH	Class B	Petroleum processing units, chemical plants, industrial alcohol plants, effluent treatment plants etc.
		LH	Class C	---
		MH	Class C	---
		HH	Class C	Fertiliser plants, petrochemical plants, LPG bottling plants, etc.
		HH	Class D	All processes involving use of combustible highly flammable materials, reactive metals and alloys, including their storage
Group H	Storage buildings	MH	Class B	Flammable liquid stores, storage in drums and cans in open, paints and varnishes godown.
		HH	Class B	Tank farmes chemical and petroleum bulk storage depots, large service stations, truck and marine terminals, underground LDO/ furnace oil storage yards, etc.
		MH	Class C	LPG distribution godown/office, distribution storage godowns/ offices of D, N, H, Argon and other industrial gases
		HH	Class C	Storage and handling of gas cylinders in bulk, gas plant, gas holders (Horton), spheres, etc.
Group J	hazardous	---	---	Buildings used for storage, handling, manufacture and processing of highly combustible explosive materials. (Risks involved in terms of class of fire and intensity of fire has to be assessed on case to case basis and statutory authorities to be consulted, environmental factors and mutual aid facilities to be taken into account before deciding on the fire extinguisher requirements.)

NOTES : 1 LH - Low Hazard, 2 MH - Medium Hazard, 3 HH - High Hazard, 4 SH: Special Hazard.

B-2 RECOMMENDED SCALE OF EQUIPMENT TO BE INSTALLED		
B-2.1 Class A		
LH	Occupancy	One 9 litre water expelling extinguisher or ABC 5kg/6 kg fire extinguisher, for every 200 m2 of floor area or part there of with minimum of two extinguishers per compartment or floor of the building. The extinguishers should be so located as to be available within 15 m radious.
MH	Occupancy	Two 9 litre water expelling extinguisher or ABC 5kg/6 kg fire extinguisher, for every 200 m2 with minimum of 4 extinguishers per compartment or floor .The extinguishers should be so located as to be available within 15 m radious.
HH	Occupancy	Provision as per MH occupancy, in addition to one 50 litre water CO_2/ 25 kg ABC fire extinguisher for every 100 m2 of floor area or part thereof.
Special Hazard		One 4.5 kg capacity carbon dioxide or one 2/3 kg capacity clean agent extinguisher for every 100 m2 of floor area or part there of with minimum of two extinguishers so located as to be available within 10 m radious.

B-2.2 Class B		
LH	Occupancy	One 9 litre foam extinguisher, mechanical or BC or ABC, 5 kg / 6 kg fire extinguisher, for every 200 m2 of floor area or part there of with minimum of two extinguishers per compartment or floor. The extinguishers located as to be available within 15m radious.
MH	Occupancy	Two 9 litre foam extinguisher, mechanical type, or 5/6 kg dry powder extinguisher (or one of each type) for every 200 m2 area with minimum of four extinguisher per compertment. Extinguisher should be available within 15 m radious.
HH	Occupancy	Provision as per MH, and in addition to one 50 litre mechanical foam type extinguisher or 25 kg BC fire extinguisher for every 100 m2 or part thereof one 135 litre foam mechanical extinguisher for every 300 m2 of floor area or part thereof.
B-2.3 Class C		
LH	Occupancy	One 2/3kg dry powder of clean agent extinguisher for every 20 m2 of floor area or part thereof; extinguisher available within 15 m radious.
MH	Occupancy	One 10kg dry powder extinguisher(stored pressure) or 6.5kg carbon dioxide extinguisher or 5kg clean agent for 100 m2 of floor area or part thereof, with minimum of one extinguisher of the same type for every compartment; extinguisher should be available within a radious of 15m, the same type for every compartment; extinguisher.
HH	Occupancy	Dry powder extinguisher (stored pressure) of 10 kg or 6.5 Kg CO2 extinguisher, or 5 kg clean agent extinguisher for every 100 m2 of floor area or part thereof, subject to a minimum of two extinguishers of same type per room or compartment. Extinguishers should be available within a radius of 10 m.
B-2.4 Class D		
HH	Occupancy	One 10 kg dry powder extinguisher with special dry powder for metal fires for every 100 m2 of floor area or part thereof with minimum of two extinguisher per compartment/ room. Extinguishers should be available within a radius of 10m.

NOTES -

1. *The recommendations are minimum for a specific area.Incase, the area is more than specified, high capacity extinguishers may be used based on these minimum requirements,that is proportionately higher capacity can be used.*
2. *In case of dry powder /Co2/clean agent types, equivalent lower capacities may also be used.*
3. *The halons shall be restricted for essential use only.*
4. *On implementation of IS 15683, 6 kg and 9 kg dry powder extinguishers shall be replaced by 5 kg or 10 kg dry powder extinguishers.*

Appendix – VIII : Contact details of PWD officers

Sl No	CONTACT DETAILS	E-Mail – Office Address.
1	Secretary, PWD	secytech-pwd@karnataka.gov.in O/o Secretary, Public Works Department, Room No. 334, 3rd Floor, Vikasa Soudha, Bangalore -560001 # 080-22251548 080-22034852 080-22034834
2	Engineer in Chief, Planning & Road Asset Management Centre	cepramc@kpwd.gov.in eicpramc@gmail.com O/o Engineer in Chief, Planning and Roads Asset Management Centre (PRAMC), K.R Circle, Bengaluru – 560001 # 080-22117302
3	Chief Engineer, C& B (S)	cecbs@kpwd.gov.in O/o Chief Engineer, C&B (S), KR Circle, Bengaluru – 560001 # 080-22212830
4	Chief Engineer, C& B (N)	cecbn@kpwd.gov.in O/o Chief Engineer, C&B (N), Dharwad- 580001 # 0836-2447900
5	Chief Engineer, C& B (NE)	cecbned2017@gmail.com O/o The Chief Engineer, C & B North-East Zone, PWD, Near Public Graden, Kalaburagi – 585103 # 08472-233918
6	Chief Engineer, C& B (C)	cectlsmg@gmail.com O/o The Chief Engineer, C & B Central Zone,Shivamogga– 577201 # 08182-279898
7	Superintending Engineer, PWD Bengaluru Circle	sebgl@kpwd.gov.in/sebglkpwd@gmail.com O/o Superintending Engineer, PWD Bengaluru Circle, Ananda Rao, Bengaluru – 560009 # 080-22875794
8	Superintending Engineer, PWD Mysuru Circle	semys@kpwd.gov.in/sepwdmysore@gmail.com O/o Superintending Engineer, PWD Mysuru Circle, Nazarabad, Mysuru– 570010 # 0821-2446851

9	Superintending Engineer, PWD Hassan Circle	sehsn@kpwd.gov.in O/o Superintending Engineer, PWD Hassan Circle, N.R Circle, Hassan 573201 # 08172-268385
10	Superintending Engineer, PWD Mangaluru Circle	semng@kpwd.gov.in O/o Superintending Engineer, PWD Mangaluru Circle, Hampankatta, Mangaluru 575001 # 0824-2423516
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13	Superintending Engineer, PWD Belagavi Circle	sebgm@kpwd.gov.in O/o Superintending Engineer, PWD Belagavi Circle, Belagavi Fort Area, Belagavi 590016 # 0831-2420153
14	Superintending Engineer, PWD Kalaburgi Circle	seglb@kpwd.gov.in O/o Superintending Engineer, PWD Kalaburgi Circle, Aween- e-shahi, Kalaburgi 585101 # 08472-220272
15	Superintending Engineer, PWD Ballari Circle	sebly@kpwd.gov.in/seblykpwd@gmail.com O/o The Superintending Engineer, PWD Circle, Anantapur road, Bellary -583103 # 08392-274301
16	Superintending Engineer, PWD Building Circle	sebldgpwd@gmail.com O/o O/o The Superintending Engineer, PWD Circle, K.R. Circle, Bangalore -560001 # 080-22483237

Appendix – IX : Photographs of Major Building Works executed in Karnataka

Mini Vidhan Soudha at Bhatkala Taluk

Court Building at Karkala Taluk

Construction of Division Office Building of PWD in Madhugiri Taluk

Inspection Bungalow at Chikkaballapura District

New District Court Complex in Channapatna layout at Hassan (II Phase)

Govt. Junior College Building at Chakkere in Channapatna Taluk, Ramanagara District

District Court Complex, Hassan

Deputy Commissioner's office, Mysuru

Bar Association Building at Kunigal Taluk

Construction of Govt Women's Polytechnic building main block in Holenarasipura town

Development works by PWD in Malemahadeshwara Hills

PWD Bhavan at Kalaburagi

Suvarna Soudha at Belagavi

Airport Terminal at Bidar

Construction of Fast Track court Judge Quarters at Channarayapatana, Hassan District

Renovation of Sri Yadiyur Siddalingeshwara Swamy Temple at Yadiyur (Phase-II)

Construction of Additional Civil Judge & JMFC Court Building at Shikaripura, Shimoga District

Construction of District Court complex at Parvathinagar Ballari

Arogya Soudha at Magadi Road, Bengaluru

Construction of Glass House at Kuppanna Park (Nishat Bagh) at Mysuru (I Phase)

Bar Association Building at Puttur, Dakshin Kannada

Boys Hostel at Gunnal Village, Koppal District

PG centre and skill development centre Talkal yelburga Tq. Koppal District

Govt. Engineering college Talkal, Yelburga Tq. Koppal District

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Although due care has been taken to print the Buildings SR as correctly as possible, there is possibility that some errors might have crept in inadvertently. In case, any error or omission is noticed, it may be brought to the notice of Superintending Engineers of PWD Circles for the respective chapters prepared or communicate with the e-mail ids provided in the appendices.

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