



GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT

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CPWD also publishes various documents to help the construction industry. This publication, DSR-2012 Supplement (Green Building and New technology items) is a further step forward in the department's commitment towards environment sustainability, adoption of green Building aspect and New technology in the works.

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GOVERNMENT OF INDIA

CENTRAL PUBLIC WORKS DEPARTMENT

DELHI SCHEDULE OF RATES-2012

SUPPLEMENT

(GREEN BUILDING AND NEW TECHNOLOGY ITEMS)



PUBLISHED BY

DIRECTOR GENERAL, CPWD, NIRMAN BHAWAN, NEW DELHI-110011



सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INDIA

केन्द्रीय लोक निर्माण विभाग

CENTRAL PWD

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SUPPLEMENT

(GREEN BUILDING AND NEW TECHNOLOGY ITEMS)

महानिदेशक, के.लो.नि.वि., नई दिल्ली के प्राधिकार से प्रकाशित
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FOREWORD

Delhi Schedule of Rates (DSR), being published by CPWD from time to time, is a comprehensive document useful in execution of works. Apart from CPWD, this Schedule of Rates is used as a guide by a number of departments, public sector undertakings, private sector builders and architects, etc.

The Central Public Works Department Schedule of Rates was first compiled in the year 1931, followed by a number of revisions from time to time in order to bring it in line with the prevailing technology and market rates. The DSR were thus revised in 1977, 1981, 1985, 1989, 1993, 1997, 2002, 2007, 2010 (Reprint) and recently in 2012.

Besides the cost, there has been spurt of new construction materials and introduction of Green Building concepts in buildings, new technology, etc.. This supplement is brought to extend the scope of existing DSR -2012 to include these changes.

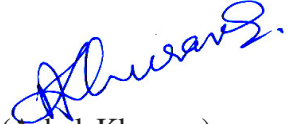
Construction of centrally air-conditioned building with extensive E&M services is on the rise all over India. In light of the sustainability aspect and Green Building norms, it has become necessary to insulate the building envelop to minimise the heat load and at the same time allow the natural light to reduce the load on internal lighting of the building. This has been taken care of by incorporating the item of structural glazing with insulated double glass panels, items of insulation on walls and ceiling and items of Aluminium composite panel, etc.

The rate analyses of these items have also been included in this document, for proper understanding and working out of justification of each item.

I wish to place on record the technical input and effective coordination on the part of Shri V. K. Gupta, Special DG (HQ), Shri S. Jethwani, ADG (TD) and the efforts put in by Shri V.K. Rokade, CE(CSQ), Shri Mathura Prasad, SE (TAS) and his team of officers in TAS unit in finalising the DSR-2012 (Supplement) in a record time.

I am sure that this DSR-2012 SUPPLEMENT (Green Building and New Technology items) will be useful to all concerned with the Building industry in general and CPWD in particular.

New Delhi


(Ashok Khurana)

Director General, CPWD



PREFACE

This Delhi Schedule of Rates- 2012, Supplement (Green Building and new technology item) includes the new items for the adoption of green building parameters and new technology emerged in the field of construction in the recent few years. The DSR 2012 items will remain effective as such. These items are in addition to the items already existing in DSR- 2012.

DSR - 2012 supplement, (Green Building and New Technology items) is based on the prevailing market rates as taken in DSR - 2012, wherever the DSR rates are not available, rates have been adopted as per the prevailing market rates with normalization to make them at par with DSR rates. The labour rates adopted are also based on the DSR 2012.

The applicable cost index for these items will be same as applicable on DSR-2012 which is 149 based on DPAR- 2007 (base 100 as on 1/10/2007).

The details of new items in various sub heads of the DSR-2012 Supplement (Green Building and New Technology items) are furnished below:

Sub head 5 (Reinforced Cement Concrete); The new items for expansion joints in RCC framed structure have been introduced.

Sub head 8 (Marble and Granite work): The new items for Italian marble/flamed finished granite have been included.

Sub head 11 (flooring) - The items for Italian marble and glass mosaic tiles have been introduced. In addition to that, item for raised flooring to facilitate the various types cables in computer rooms etc. have been included in this supplement.

Sub head - 12 (Roofing) - The new items for calcium silicate board/ perforated tiles has been introduced.

Sub head -16 (Road Work): Various items for granite stone, mat finished vitrified tiles, tactile (for vision impaired persons), granite stone block paving in footpaths/ floors have been introduced. In addition to the above the R.C.C. road pavement with automatic slip form paver is also included.

Wherever the work Flyover, Bridge, Grade separator and Highways/ Hill Road/ Major road are involved, MoRTH specifications and its Standard data book for the analysis of rates shall be followed.

Sub head -19 (Drainage): The items for various diameters of NP 3 and NP4 RCC Pipes have been introduced.

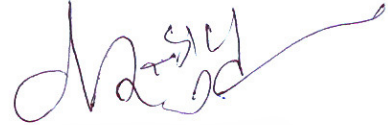
Sub head -26: (Structural glazing and Aluminium composite panel): The new items for structural glazing and aluminium composite panel along with the double glazed unit (DGU) have been introduced, as per guidelines of ECBC, NBC for Sustainable Habitat.

A lot of effort has gone into the preparation of this Delhi Schedule of Rates- 2012, Supplement (Green Building and new technology item). I convey my deep appreciation and sincere thanks to Sh. V.K. Rokade, CE. CSQ, Sh. Mathura Prasad ,S.E. (TAS), Sh. Sanjeev Rastogi, SE(C&M),Sh. R.K Saraswat EE I (TAS), Sh. Kamta Prasad EE II (TAS), Sh. R.K Vashisth AE, Sh. Chhabilal Singh AE, Sh. R.K Goel JE, Sh. Abhishek kumar JE, Sh. Ram Janam Chaudhary JE, Sh. Kashinath Ratha JE, Sh. Vijay Singh Estimator, Sh. Bahal Singh Estimator, and other officers and staff of TAS Unit for sincere efforts made in the preparation of this document in such a short time. Various field units, who contributed field inputs also deserves appreciation for their timely help.

Due care has been taken to print the DSR - 2012 supplement, (Green Building and New Technology items) as correctly as possible. It is however, possible that some errors might have crept in. In case any error or omission is noticed it may be brought to the notice of Superintending Engineer (TAS), CPWD, room no. 418, A-Wing, Nirman Bhawan, New Delhi 110011.

The Hindi version of DSR - 2012 supplement (Green Building and New Technology Items) will be released soon.

Suggestions for the improvement are welcome.



(V.K. Gupta)

Spl. DG.(H.Q.), CPWD,
Nirman Bhawan, New Delhi

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Note: All sub heads are not shown in the contents. Only those Sub-Head are shown wherever any addition of items has been made. Sub-Head 26 (Structural Glazing and ACP panel) is newly introduced.

BASIC RATES

BASIC RATES

0.3 MATERIALS

Note :- These rates are exclusive of contractor's profit, over heads and carriage but include octroi, royalty, sales tax (VAT) etc.

Code No	Description	Unit	Rate ₹
0323	Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	12.00
0349	Curing compound	litre	50.00
0369	Plastic sheath,1.25 mm thick for dowel bars	sqm	30.00
0371	Sealant primer	kg	125.00
0374	Pre moulded Joint filler, 25 mm thick for expansion joint.	sqm	500.00
1239	18 mm thick Flamed finish granite stone slab	sqm	1695.00
1240	18 mm thick Italian Marble stone slab, Perlato (slab area up to 0.5 sqm).	sqm	3330.00
1242	Glass mosaaic tiles (20 mm x 20 mm x 4 mm)	sqm	1050.00
1243	Tile fixing chemical adhesive	kg	34.00
1244	Cement Polymer Grout Compound	kg	34.00
1245	Acid for cleaning tiles	litre	16.00
1728	RCC pipe 450 mm dia NP-3 spigot	metre	1496.00
1729	RCC pipe 600 mm dia NP-3 spigot	metre	1995.00
1730	RCC pipe 900 mm dia NP-3 spigot	metre	3150.00
1731	RCC pipe 1000 mm dia NP-3 spigot	metre	3885.00
1732	RCC pipe 1200 mm dia NP-3 spigot	metre	5040.00
1733	RCC pipe 1800 mm dia NP-3 spigot	metre	9450.00
1734	RCC pipe 450 mm dia NP-4 spigot	metre	1733.00
1735	RCC pipe 600 mm dia pipe NP-4 spigot	metre	2310.00
1736	RCC pipe 900 mm dia pipe NP-4 spigot	metre	4595.00
1737	RCC pipe 1000 mm dia pipe NP-4 spigot	metre	5565.00
1738	RCC pipe 1200 mm dia pipe NP-4 spigot	metre	6510.00
1739	RCC pipe 1800 mm dia pipe NP-4 spigot	metre	13650.00
2399	Complete Roof Joint of 100 mm	metre	4500.00
2400	Complete Roof Joint of 150 mm	metre	4800.00
2401	Complete Roof Joint of 200 mm	metre	5000.00
2402	Epoxy adhesive	kg	150.00
2403	Floor Joint of 100 mm	metre	4500.00
2404	Floor Joint of 150 mm	metre	5000.00
2405	Floor Joint of 200 mm	metre	5400.00

Code No	Description	Unit	Rate ₹
2409	Wall Joint of 100 mm	metre	3400.00
2410	Wall Joint of 150 mm	metre	3700.00
2411	Wall Joint of 200 mm	metre	4000.00
2711	FS800H Grade Flooring Panel	each	750.00
2712	Zinc Electroplated Pedestals - 300 mm	each	140.00
2713	Zinc Electroplated Pedestals - 450 mm	each	150.00
2714	Zinc Electroplated Tube Stinger	each	70.00
2715	Machine Screw for Fixing	each	2.00
7238	High Albedo paint	Kg.	246.00
7273	Resin Bonded Rockwool 48 kg/m3	sqm	211.00
7295	Granite stone slab 18mm thick	sqm	1550.00
7296	Granite stone slab 30mm thick	sqm	2300.00
7743	Coloured inter locking C.C. paver Block	sqm.	500.00
7744	Stone size 10x10x7.50cm	each	9.00
7803	Tactile tile	sqm	868.00
7805	Matt finished vitrified tile 100x100 x16mm	sqm	930.00
7806	Vitrified tile	sqm	510.00
8784	8mm thick Calcium silicate perforated tiles of size 595 x595mm	sqm	688.00
8785	8 mm thick tapered edge calcium silicate board	sqm	368.00

BASIC RATES
0.4 CARRIAGE CODES

(Carriage by Mechanical Transport including loading, Unloading and Stacking)
Note :- These rates are exclusive of contractor's profit and over head charges

Code No	Description	Unit	Rate ₹
2336	RCC pipe above 1200 mm dia and upto 1800 mm dia	100 metre	7339.87

NOMENCLATURE OF ITEMS

SUB HEAD : 5.0

**REINFORCED CEMENT
CONCRETE**

Code No.	Description	Unit	Rate ₹
5.44	Providing and fixing of expansion joint system related with floor location as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical localtion in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with a universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self -centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in-Charge . (Material shall confirm to ASTM 6063.)		
	5.44.1 Floor Joint of 100 mm gap	metre	6374.30
	5.44.2 Floor Joint of 150 mm gap	metre	6998.60
	5.44.3 Floor Joint of 200 mm gap	metre	7506.80
5.45	Providing and fixing of expansion joint system related with wall joint (internal/external) location as per drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221-02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multi-cellular to facilitate movement. (Material shall confirm to ASTM 6063.)		
	5.45.1 Wall Joint of 100 mm gap	metre	5096.65
	5.45.2 Wall Joint of 150 mm gap	metre	5488.65
	5.45.3 Wall Joint of 200 mm gap	metre	5880.70
5.46	Providing and fixing of expansion joint system of approved make and manufactures for various roof locations as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering rrange ment support plates asper ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that		

Code No.	Description	Unit	Rate ₹
	freely rotates / moves in all directions. The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resist damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement. Material shall conform to ASTM 6063.		
5.46.1	Roof Joint of 100 mm gap	metre	6374.30
5.46.2	Roof Joint of 150 mm gp	metre	6766.30
5.46.3	Roof Joint of 200 mm gap	metre	7042.20

SUB HEAD : 8.0

MARBLE & GRANITE WORK

Code No.	Description	Unit	Rate ₹
8.11	<p>Providing and fixing machine cut, mirror / eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.</p> <p>(a) 18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.</p>	sqm	6732.05
8.12	<p>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 :</p> <p>(a) Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.</p>	sqm	2667.60

SUB HEAD : 11.0

FLOORING

Code No.	Description	Unit	Rate ₹
11.51	<p>Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.</p> <p>(a) 18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.</p>	sqm	4995.25
11.52	<p>Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.</p> <p>(a) 18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.</p>	sqm	5215.05
11.53	<p>Providing and fixing Glass mosaic tiles at finished plain wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in-Charge:</p>	sqm	1551.35
11.54	<p>Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings, as specified and as directed by Engineer-in-charge consisting of :</p> <p>(a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25mm outer diameter, fully welded on to the G.I. Base plate of size 100mmx100mmx3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug.</p> <p>(b) Stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for securing the stringers on to the pedestal head using fully threaded screws ensuring maximum lateral stability in all directions, the grid</p>		

Code No.	Description	Unit	Rate ₹
	<p>formed by the pedestal and stringer assembly shall receive the floor panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the architectural drawings, as specified and as directed by the Engineer-in-charge.</p> <p>(c) Providing and fixing Access Floor panel of 600x600x32 mm medium grade Filled Steel anti static high pressure Lamination of 800H grade (FS800H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and 20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is filled with Pyrogrip non-combustible Portland cementitious core mixed with lightweight foaming compound. The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for superior adhesion and Surface flatness within 0.75mm. The panel is to withstand a Concentrated Load of 363 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 1250 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-in-charge. All specification must be printed on the side of the panel to ensure the quality of the product.</p>		
11.54.1	300 mm Finished Floor Height	sqm	3,875.95
11.54.2	450 mm Finished Floor Height	sqm	3,917.75

SUB HEAD : 12.0

ROOFING

Code No.	Description	Unit	Rate ₹
12.58	<p>Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level, suspended on interlocking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x25 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 x 1.6 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.</p>		
12.58.1	<p>8 mm thick fully perforated calcium silicate tile made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with minimum compressive strength 225 kg/ sq. cm, bending strength 100 kg/sq. cm , of size 595x595 mm, having perforation of dia. 10 mm with minimum perforated area 18 % with non woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.85, with 50 mm thick rockwool of 48 kg /cum backing.</p>	sqm	1285.25
12.59.	<p>Providing & fixing false ceiling at all height including providing & fixing of framework made of special section, power pressed from M.S. sheets and galvanised with zinc coating of 120 gms/ sqm (both side inclusive) as per IS : 277 and consisting of angle cleat of size 25mm wide x 1.6mm thick with flanges of 27mm and 37mm, at 1200mm c/c, one flange fixed to the ceiling with dash fastener 12.5mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25 x10 x0.50mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I channels 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</p>		

Code No.	Description	Unit	Rate ₹
	@ 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, specification and direction of the Engineer in charge but excluding the cost of painting with:		
	12.59.1 (a) 8 mm thick Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process.	sqm	945.10
12.60	Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Rockwool conforming to IS: 8183, density 48 kg/m ³ , 50 mm thick, wrapped in 200 G Virgin Polythene bags fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5mm x 24 gauge wire mesh, for top most ceiling of building.	sqm	440.65
12.61	Providing and fixing thermal insulation with Resin bonded rock wool conforming to IS: 8183, density 48 kg/m ³ , 50 mm thick, wrapped in 200 G virgin Polythene bags placed over existing false ceiling and held in position by criss- crossing GI wire.	sqm	310.40
12.62	Providing and fixing thermal insulation with Resin Bonded rock wool conforming to IS: 8183, having density 48 kg/m ³ , 50 mm thick, wrapped in 200 G Virgin Polythene Bags fixed to wall with screw, rawel plug & washers and held in position by criss crossing GI wire etc. complete as per directions of Engineer-in-Charge.	sqm	313.85
12.63	Providing and applying two coats of High Albedo paint having minimum Solar Reflective Index (SRI) 108 (with solar reflectance & thermal emittance tested as per ASTM C 1549 and ASTM C 1371 respectively), VOC less than 10 cc/gm. The coating thickness and the methodology of application shall 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.	sqm	240.60

SUB HEAD : 16.0

ROAD WORK

Code No.	Description	Unit	Rate ₹
16.86	Providing and laying gang saw cut 18 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.		
16.86.1	Area less than 0.50 sqm	sqm	2497.35
16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.		
16.87.1	Area less than 0.50 sqm	sqm	3412.05
16.88	Providing and laying matt finished vitrified tile of size 100x100x16mm having water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in out door floors such as footpath, court yard multi models etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as direction of Engineer-in-Charge.	sqm	1387.50
16.89	Providing and laying matt finished vitrified tile of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	sqm	899.65
16.90	Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.	sqm	1315.50
16.91	Providing and laying factory made coloured chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of fine sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. complete as per manufacturer's specifications & direction of Engineer-in-Charge. 60mm thick C.C. paver block of M-35 grade with approved colour, design & pattern.	sqm	703.80

Code No.	Description	Unit	Rate ₹
16.92	Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20mm thick base mortar 1:4 (1cement:4 coarse sand) with joints 10mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in charge.	sqm	1259.65
16.93	Construction of un-reinforced, dowel jointed, plain quality concrete of M-40 grade in road/pavement/taxi track etc. for all leads and lifts over a prepared sub base with 43 grade cement @ 360 kg. (minimum) per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, in transit mixture, laid with fully automatic slip form paver with electronic sensor with dowel bar and tie rod insertor, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing and as per direction of Engineer-in-charge (including all cost of form work, dowel bars and tie bars).	sqm	4845.80

SUB HEAD : 19.0

DRAINAGE

Code No.	Description	Unit	Rate ₹
19.35	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete		
19.35.1	450 mm dia RCC pipes.	metre	1874.95
19.35.2	600 mm dia RCC pipes.	metre	2458.70
19.35.3	900 mm dia RCC pipes.	metre	3874.70
19.35.4	1000 mm dia RCC pipes. (Laying by manual/machanical means)	metre	4790.85
19.35.5	1200 mm dia RCC pipes. (Laying by manual/machanical means)	metre	6274.00
19.35.6	1800 mm dia RCC pipes. (Laying by manual/machanical means)	metre	11575.65
19.36	Providing and laying Non Pressure NP-4 class (Heavy duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete		
19.36.1	450 mm dia RCC pipes.	metre	2150.20
19.36.2	600 mm dia RCC pipes.	metre	2824.55
19.36.3	900 mm dia RCC pipes.	metre	5553.05
19.36.4	1000 mm dia RCC pipes. (Laying by manual/machanical means)	metre	6742.20
19.36.5	1200 mm dia RCC pipes. (Laying by manual/machanical means)	metre	7981.40
19.36.6	1800 mm dia RCC pipes. (Laying by manual/machanical means)	metre	16453.95

SUB HEAD : 26.0

**Structural Glazing and Aluminium
Composite Panel**

Code No.	Description	Unit	Rate ₹
26.1	<p>Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawings, the aluminium quality as per grade 6063 T5 or T6 as per BS 1474, including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer-in-Charge.</p> <p>(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).</p>	kg	363.85
26.2	<p>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:</p> <p>(a) Structural analysis, design and preparation of shop drawings for the specified design loads conforming to IS 875 part III (the system must pass 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:</p> <p>(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 Dimensional movement for achieving perfect verticality and proper fixing of structural glazing system with the RCC/ masonry/structural steel framework of building structure, using stainless steel anchor fasteners/ bolts, nylon separator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.</p> <p>(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 manufacturer, as per the approved sealant design, within and all around the perimeter for holding glass.</p> <p>(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.</p> <p>(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.</p>		

Code No.	Description	Unit	Rate ₹
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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 checked and all the shop drawings vetted by the Principals of the structural glazing system.

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.

sqm 2282.65

"Note:- 1

The cost of providing extruded aluminium frames, shadow boxes, fire stop (barrier)- cum-smoke seals, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub-head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places.

Note-2

The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 Sqm from the certified laboratories accredited by NABL (National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. 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 certified laboratories

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. (50pato 1500pa) as per ASTM E-331-09 testing method for a range upto 2000 ml."
3. Dynamic Water Penetration (50pato 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 ASTM E-330-10 testing method for a range upto 50 mm"
5. Seismic Movement Test (Upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test"

Tests to be conducted on site

6. Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35 psi) upto 2000 ml"

Code No.	Description	Unit	Rate ₹
26.3	<p>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 high performance 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 strengthened 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.1) For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm.</p> <p>(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.</p>	sqm	3862.85
26.4	<p>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.</p>	sqm	2966.80
26.5	<p>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 having density 48 Kg/cum, conforming to IS: 8183 and BS: 3958 Part 5. The insulation layer shall have facing (factory bonded on surface # 1 of the fibre glass insulation layer), of black non-woven fibre glass tissue of nominal thickness 0.5 mm and nominal mass not less than 60 gm / sqm, made of randomly oriented glass fibres distributed in a binder by a wet-lay process including fixing 1.5 mm thick solid aluminum sheet backing using, 6 mm thick cement board including SS rivets, nuts, bolts, washers etc complete.</p>	sqm	1582.05
26.6	<p>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</p>		

SUBHEAD -26.0 STRUCTURAL GLAZING AND ALUMINIUM COMPOSITE PANEL

Code No.	Description	Unit	Rate ₹
26.7	<p>shop drawings, as specified, and as directed by the Engineer- in-Charge. For payment, only the actual area of glass on face # 1 of the glass panels (but excluding the area of grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm.(Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevent Item*).</p> <p>(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.</p> <p>Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building , for all heights and all levels etc. including:</p> <p>(a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design.</p> <p>(b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. “</p> <p>(c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing</p> <p>The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation.</p> <p>The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge.</p>	sqm	2796.45

Code No.	Description	Unit	Rate ₹
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"However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. up to two decimal places. "

sqm

3465.00

"Note : The following performance test are to be conducted on ACP system if area of ACP system exceeds 4500 Sqm from the certified laboratories accredited by NABL (National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. 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 ACP system

Tests to be conducted in the NABL certified laboratories

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. (50pato 1500pa) as per ASTM E-331-09 testing method for a range upto 2000 ml."
3. Dynamic Water Penetration (50pato 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 ASTM E-330-10 testing method for a range upto 50 mm"
5. Seismic Movement Test (Upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test.

Tests to be conducted on site

6. Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35 psi) upto 2000 ml"

ANALYSIS OF RATES

SUB HEAD : 5.0
REINFORCED CEMENT
CONCRETE WORK

5.44 Providing and fixing of expansion joint system related with floor location as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical localtion in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with a universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self -centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in-Charge . (Material shall confirm to ASTM 6063.)

5.44.1 Floor Joint of 100 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2403	Floor Joint of 100 mm	metre	1.00	4500.00	4500.00
2402	Epoxy adhesive	kg	4.25	150.00	637.50
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				5488.00
	Add water Charges @ 1%				54.88
	Total				5542.88
	Add CPOH @15%				831.43
	Cost of 1 metre				6374.32
	Say				6374.30

5.44.2 Floor Joint of 150 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2404	Floor Joint of 150 mm	metre	1.00	5000.00	5000.00
2402	Epoxy adhesive	kg	4.50	150.00	675.00
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				6025.50
	Add water Charges @ 1%				60.26
	Total				6085.76
	Add CPOH @15%				912.86
	Cost of 1 metre				6998.62
	Say				6998.60

5.44.3 Floor Joint of 200 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2405	Floor Joint of 200 mm	metre	1.00	5400.00	5400.00
2402	Epoxy adhesive	kg	4.75	150.00	712.50
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				6463.00
	Add water Charges @ 1%				64.63
	Total				6527.63
	Add CPOH @15%				979.14
	Cost of 1 metre				7506.78
	Say				7506.80

5.45 Providing and fixing of expansion joint system related with wall joint (internal/ external) location as per drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221-02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multi-cellular to facilitate movement. (Material shall confirm to ASTM 6063.)

5.45.1 Wall Joint of 100 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2409	Wall Joint of 100 mm	metre	1.00	3400.00	3400.00
2402	Epoxy adhesive	kg	4.25	150.00	637.50
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				4388.00
	Add water Charges @ 1%				43.88
	Total				4431.88
	Add CPOH @15%				664.78
	Cost of 1 metre				5096.67
	Say				5096.65

5.45.2 Wall Joint of 150 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2410	Wall Joint of 150 mm	metre	1.00	3700.00	3700.00
2402	Epoxy adhesive	kg	4.50	150.00	675.00
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
0102	LABOUR : Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				4725.50
	Add water Charges @ 1%				47.26
	Total				4772.76
	Add CPOH @15%				715.91
	Cost of 1 metre				5488.67
	Say				5488.65

5.45.3 Wall Joint of 200 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2411	Wall Joint of 200 mm	metre	1.00	4000.00	4000.00
2402	Epoxy adhesive	kg	4.75	150.00	712.50
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				5063.00
	Add water Charges @ 1%				50.63
	Total				5113.63
	Add CPOH @15%				767.04
	Cost of 1 metre				5880.68
	Say				5880.70

5.46 Providing and fixing of expansion joint system of approved make and manufactures for various roof locations as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering arrangement support plates asper ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resists damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement. Material shall confirm to ASTM 6063.

5.46.1 Roof Joint of 100 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2399	Complete Roof Joint of 100 mm	metre	1.00	4500.00	4500.00
8782	Epoxy adhesive & repair	kg	4.25	150.00	637.50
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				5488.00
	Add water Charges @ 1%				54.88
	Total				5542.88
	Add CPOH @15%				831.43
	Cost of 1 metre				6374.32
	Say				6374.30

5.46.2 Roof Joint of 150 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2400	Complete Roof Joint of 150 mm	metre	1.00	4800.00	4800.00
8782	Epoxy adhesive & Repair	kg	4.50	150.00	675.00
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				5825.50
	Add water Charges @ 1%				58.26
	Total				5883.76
	Add CPOH @15%				882.56
	Cost of 1 metre				6766.32
	Say				6766.30

5.46.3 Roof Joint of 200 mm gap

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 1.00 metre.</i>				
	MATERIAL:				
2401	Complete Roof Joint of 200 mm	metre	1.00	5000.00	5000.00
8782	Epoxy adhesive & Repair	kg	4.75	150.00	712.50
9999	Carriage of material etc.	L.S.	124.90	1.49	186.10
	LABOUR :				
0102	Blacksmith 1st class	day	0.15	301.00	45.15
0123	Mason 1st class	day	0.15	301.00	45.15
0114	Belder	day	0.30	247.00	74.10
	Total				6063.00
	Add water Charges @ 1%				60.63
	Total				6123.63
	Add CPOH @15%				918.54
	Cost of 1 metre				7042.18
	Say				7042.20

SUB HEAD : 8.0
MARBLE & GRANITE WORK

8.11 Providing and fixing machine cut, mirror / eggshell polished , Marble stone work for wall lining (veneer work) including dado, skirting, risers of steps etc., in required design and pattern wherever required, stones of different finished surface texture, on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) laid and jointed with white cement slurry @ 3.3 kg/sqm including pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing, polishing etc. all complete as per Architectural drawings, and as directed by the Engineer-in-Charge.

(a) 18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 0.5 sqm</i>				
	Finished work= 0.5 sqm				
	Add for wastage @ 20%=0.1sqm				
	Total 0.60 sqm				
1240	18 mm thick Italian Marble stone slab, Perlato (slab area up to 0.5 sqm).	sqm	0.60	3330.00	1998.00
2216	Carriage of stone slab	tonne	0.03	77.87	2.34
3.8	Cement mortar 1:3 (1 Cement: 3 Coarse sand)				
368	Rate as per item no. 3.8 SH mortars	cum	0.008	4145.55	33.16
	White Cement				
	Slurry @ 3.3kg/ sqm	tonne	0.0165	12000.00	198.00
2209	Carriage of white cement	tonne	0.0165	77.87	1.28
9999	Mortar for pointing in white cement (11.22)	L.S.	25.35	1.49	37.77
	LABOUR:				
	For fixing				
0126	Mason (for ornamental stone work) 1st class	day	0.335	301.00	100.84
0100	Bandhani	day	0.335	260.00	87.10
0114	Beldar	day	0.033	247.00	8.15
0115	Coolie	day	0.335	247.00	82.75
0101	Bhisti	day	0.335	260.00	87.10
0128	Mate	day	0.165	260.00	42.90
0102	Blacksmith 1st class	day	0.135	301.00	40.64
9999	Scaffolding	L.S.	25.74	1.49	38.35
	Total				2758.37
	Add Water Charges @ 1% except				27.58
	Total				2785.95
	Add CPOH @ 15% except except				417.89
	Cost of 0.5 sqm				3203.84
	Cost of 1 sqm				6407.69
	Say				6407.70

8.12 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 :

(a) Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost per 10 sqm</i>				
	MATERIAL :-				
	18 mm thick Flamed finish granite	stone	slab	10.00	sqm
	Add for wastage 15%= 1..50 sqm				
	Total: 11.50 sqm				
1239	18 mm thick Flamed finish granite stone slab	sqm	11.50	1695.00	19492.50
2216	Carriage of stone slab	tonne	0.67	77.87	52.17
3.9	Cement mortar 1:4 (Rate as per item no. 3.9	cum	0.224	3485.40	780.73
0367	Portland Cement	tonne	0.064	5000.00	320.00
	slurry@, 3.3 kg/sqm				
2209	Carriage of cement	tonne	0.064	77.87	4.98
9999	Mortar for pointing in white cement (11.22)	L.S.	25.35	1.49	37.77
	LABOUR:				
0124	Mason (brick layer) 1st class	day	1.20	273.00	327.60
0114	Beldar	day	1.00	247.00	247.00
0115	Coolie	day	1.00	247.00	247.00
0139	Skilled beldar (for floor joints rubbing etc.)	day	5.00	260.00	1300.00
9999	Sundries	L.S	208.13	1.49	310.11
	Total				23119.87
	Add Water Charges @ 1% except				231.20
	Total				23351.07
	Add CPOH @ 15% except				3502.66
	Cost of 10 sqm				26853.73
	Cost of 1 sqm				2685.73
	Say				2685.35

SUB HEAD : 11.0
FLOORING

- 11.51 Providing and laying machine cut, mirror polished, Italian Marble stone flooring laid in required pattern in linear portion of the building all complete as per architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.**
(a) 18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost per 10 sqm</i>				
	MATERIAL				
	18 mm thick italian marble stone slab 10.00 sqm				
	Add for wastage 15%= 1..50 sqm				
	Total: 11.50 sqm				
1240	18 mm thick Italian marble stone slab	sqm	11.50	3330.00	38295.00
	Base mortar1:4 (1 cement :4 coarse sand)				
3.9	Rate as per item number 3.9 SH: Mortars	cum	0.224	3485.40	780.73
	Cemnt for slurry@, 4.4 kg/sqm				
	(i) for bedding=44 kg+				
	(ii) for jointing= 6 kg				
	Total=50 kg				
0368	White Cement	Tonne	0.05	12000.00	600.00
2209	Carriage of white cement	Tone	0.05	77.87	3.89
9999	carriage of marble slab	L.S.	26.91	1.49	40.10
	LABOUR:				
	(for finishing , polishing and fixing)				
0123	Mason (brick layer) 1 st class	day	1.20	301.00	361.20
0114	Beldar	day	1.00	247.00	247.00
0115	Coolie	day	1.00	247.00	247.00
0101	Bhisti	day	0.33	260.00	85.80
0139	Skilled beldar (for floor rubbing etc.)	day	5.00	260.00	1300.00
0013	Machine for rubbing floors	day	4.00	300.00	1200.00
9999	Mortar for pointing in white cement	L.S.	25.74	1.49	38.35
	TOTAL				43199.01
	Add 1% water charges				431.99
	TOTAL				43631.06
	Add 15% CPOH				6544.66
	Cost for 10 sqm				50175.72
	Cost for 1 sqm				5017.57
	Say				5017.55

- 11.52 Providing and laying machine cut, mirror polished Marble stone flooring, in required design (Simple geometrical, abstract etc.) and in patterns in combination with Italian marble stones of different colours, shades and finished surface texture etc., in linear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab laid over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with white cement slurry @ 4.4 kg/sqm including pointing with white cement slurry admixed with pigment to match the marble shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.**

(a) 18 mm thick Italian Marble stone slab,Perlato, Rosso verona, Fire Red or Dark Emperadore etc.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost per 10 sqm</i>				
	MATERIAL				
	18 mm thick italian marble stone slab 10.00 sqm				
	Add for wastage 20%= 2 sqm				
	Total: 12 sqm				
1240	18 mm thick Italian marble stone slab	sqm	12.00	3330.00	39960.00
	Base mortar1:4 (1 cement :4 coarse sand)				
3.9	Rate as per item number 3.9 SH: Mortars Cemnt for slurry@, 4.4 kg/sqm	cum	0.224	3485.40	780.73
	(i) for bedding=44 kg+				
	(ii) for jointing= 6 kg				
	Total=50 kg				
0368	White Cement	Tonne	0.05	12000.00	600.00
2209	carriage of white cement	Tonne	0.05	77.87	3.89
9999	carriage of marble slab	L.S.	26.91	1.49	40.10
	LABOUR:				
	(for finishing , polishing and fixing)				
0123	Mason (brick layer) 1 st class	day	1.75	301.00	526.75
0114	Beldar	day	1.25	247.00	308.75
0115	Coolie	day	1.00	247.00	247.00
0101	Bhisti	day	0.33	260.00	85.80
0139	Skilled beldar (for floor rubbing etc.)	day	5.00	260.00	1300.00
0013	Machine for rubbing floors	day	4.00	300.00	1200.00
9999	Mortar for pointing in white cement	L.S.	25.74	1.49	38.35
	TOTAL				45091.37
	Add 1% water charges				450.91
	TOTAL				45542.28
	Add 15% CPOH				6831.34
	Cost for 10 sqm				52373.62
	Cost for 1 sqm				5237.36
	Say				5237.35

11.53 Providing and fixing Glass mosaic tiles at finished plain wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in-Charge:

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost per 8 sqm</i>				
	MATERIAL				
	Glass mosaic tiles (20 mm x 20 mm x 4mm)				
	Add for wastage 2.5%= 0.2 sqm				
	Total: 8.20 sqm				
1242	Glass mosaic tiles (20 mm x 20 mm x 4 mm)	sqm	8.20	1050.00	8610.00
1243	Tile fixing chemical adhesive	kg	20.00	34.00	680.00
1244	Cement Polymer Grout Compound	kg	10.00	34.00	340.00

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
1245	Acid for cleaning tiles	ltr	4.00	16.00	64.00
9999	Carriage of tiles (8x6.24=49.92) Based on item 11.49.1 LABOUR: (for finishing , polishing and fixing)	L.S.	49.92	1.49	74.38
0123	Mason (brick layer) 1 st class	day	1.60	301.00	481.60
0115	Coolie	day	1.60	247.00	395.20
9999	Sundries including carriage of adhesive etc.	L.S.	26.91	1.49	40.10
	TOTAL				10685.28
	Add 1% water charges				106.85
	TOTAL				10792.13
	Add 15% CPOH				1618.82
	Cost for 8.00 sqm sqm				12410.95
	Cost for 1.00 sqm sqm				1551.37
	Say				1551.35

11.54 Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings, as specified and as directed by Engineer-in-charge consisting of :

(a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25mm outer diameter, fully welded on to the G.I. Base plate of size 100mmx100mmx3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug.

(b) Stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for securing the stringers on to the pedestal head using fully threaded screws ensuring maximum lateral stability in all directions, the grid formed by the pedestal and stringer assembly shall receive the floor panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the architectural drawings, as specified and as directed by the Engineer-in-charge.

(c) Providing and fixing Access Floor panel of 600x600x32 mm medium grade Filled Steel anti static high pressure Lamination of 800H grade (FS800H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and 20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is filled with Pyrogrip non-combustible Portland cementitious core mixed with lightweight foaming compound. The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for

superior adhesion and Surface flatness within 0.75mm. The panel is to withstand a Concentrated Load of 363 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 1250 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-in-charge. All specification must be printed on the side of the panel to ensure the quality of the product.

11.54.1 300mm Finished Floor Height (FFH)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of Cost for : 100.00 Sqm</i>				
	MATERIAL				
2711	FS800H Grade Flooring Panel (i/c) 5% wastage	each	292.00	750.00	219000.00
2712	Zinc Electroplated Pedestals - 300 mm	each	360.00	140.00	50400.00
2714	Zinc Electroplated Tube Stinger	each	570.00	70.00	39900.00
2715	Machine Screw for Fixing	each	1140.00	2.00	2280.00
7048	Rawl Plug floor pedestal grouting on floor	each	1440.00	5.00	7200.00
9999	Carriage of material	L.S.	490.00	1.49	730.10
	LABOUR:				
0111	Carpenter 1st class	Day	25.00	301.00	7525.00
0114	Beldar	Day	25.00	247.00	6175.00
9999	Sundries	L.S.	329.00	1.49	490.21
	Total				333700.31
	Add Water Charges @ 1%				3337.0031
	Total				337037.31
	Add CPOH @ 15%				50555.60
	Cost of 100 sqm				387592.91
	Cost of 1 sqm				3875.93
	Say				3875.95

11.54.2 450mm Finished Floor Height (FFH)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of Cost for : 100.00 Sqm</i>				
	MATERIAL				
2711	FS800H Grade Flooring Panel (i/c 5% wastage)	each	292.00	750.00	219000.00
2713	Zinc Electroplated Pedestals - 450 mm	each	360.00	150.00	54000.00
2714	Zinc Electroplated Tube Stinger	each	570.00	70.00	39900.00
2715	Machine Screw for Fixing	each	1140.00	2.00	2280.00
7048	Rawl Plug floor pedestal grouting on floor	each	1440.00	5.00	7200.00
9999	Carriage of material	L.S.	490.00	1.49	730.10
	LABOUR:				
0111	Carpenter 1st class	Day	25.00	301.00	7525.00
0114	Beldar	Day	25.00	247.00	6175.00
9999	Sundries	L.S.	329.00	1.49	490.21
	Total				337300.31
	Add Water Charges @ 1%				3373.00
	Total				340673.31
	Add CPOH @ 15%				51101.00
	Cost of 100 sqm				391774.31
	Cost of 1 sqm				3917.74
	Say				3917.75

SUB HEAD : 12
ROOFING

12.58 Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level, suspended on interlocking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x25 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.

12.58.1 8 mm thick fully perforated calcium silicate tile made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with minimum compressive strength 225 kg/ sq. cm, bending strength 100 kg/sq. cm , of size 595x595 mm, having perforation of dia. 10 mm with minimum perforated area 18 % with non woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.85, with 50 mm thick rockwool of 48 kg /cum backing.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 100 sqm</i> Ceiling area = 100 sq.m Add wastage @ 5% = 0.05 Sqm Total =100.05 Sq.m MATERIALS:				
8784	8mm thick Calcium silicate perforated tiles of size 595 x595mm	Sqm	100.05	688.00	68834.40
8611	Main T ceiling section 24x38x0.3mm (3 meter long) including wastage of 10%	each	29.50	187.00	5516.50
8612	Perimeter wall angle 24 x24 x0.3mm (3 meter long) including wastage of 10%	each	13.50	118.00	1593.00
8613	Intermediate cross T-Section 24 x25 x 0.3mm (1.2 m long) including wastage of 10% on grid for cut outs	each	147.00	72.00	10584.00
8614	Intermediate cross T-Section 24 x25 x 0.3mm (0.6 m long) including wastage of 10% on grid for cut outs	each	147.00	34.00	4998.00
8615	Hanger rod 4mm thick	each	72.00	7.00	504.00
8616	Adjustment clip 85x 30 x0.8mm	each	72.00	6.00	432.00
8617	Soffit cleat (Size 27x37x25x1.60mm)	each	72.00	3.00	216.00
7388	Dash hold fasteneres 12.5mm dia, 50mm long with 6mm dia bolts	each	72.00	48.00	3456.00
9999	Cariage of materials	L.S	89.28	1.49	133.03
9999	Sundries i.e scaffolding etc.	L.S	187.95	1.49	280.05

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
0111	LABOUR: Carpenter 1st class	day	28.00	301.00	8428.00
0114	Beldar	day	23.00	247.00	5681.00
	TOTAL				110655.98
	Add Water Charges @ 1%				1106.56
	TOTAL				111762.54
	Add CPOH @ 15%				16764.38
	Cost of 100 Sqm				128526.92
	Cost of 1 Sqm				1285.27
	Say				1285.25

12.59 Providing & fixing false ceiling at all height including providing & fixing of framework made of special section, power pressed from M.S. sheets and galvanised with zinc coating of 120 gms/ sqm (both side inclusive) as per IS : 277 and consisting of angle cleat of size 25mm wide x 1.6mm thick with flanges of 27mm and 37mm, at 1200mm c/c, one flange fixed to the ceiling with dash fastener 12.5mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25 x10 x0.50mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I chanel 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:

12.59.1 (a) 8 mm thick Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 10.8 m x 9.6m = 103.68 Sqm</i>				
	MATERIALS:				
	Area = 103.68 sq.m + Add. Wastage of 5% = 5.18 Sq.m Total = 108.86 Sqm				
8785	8 mm thick tapered edge calcium silicate board	Sqm	108.86	368.00	40060.48
7010	G.I Ceiling Section (80 x26mm x26mm x 10.5mm each lip x 0.55 mm)	Metre	238.14	39.00	9287.46
7011	Galvanised Steel perimetre Channel (Size 20x27x30x0.50 mm)	Metre	41.84	27.00	1129.68

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
7012	G.I Intermediate Channel (Size 15 x45 x 15 x 0.90mm)	Metre	90.72	42.00	3810.24
7013	G.I Steel angle hanger (Ceiling Angle) (Size 25 x 10x 0.50mm)	Metre	10.80	19.00	205.20
7014	G.I steel connecting clips (2.64mm dia & 230mm long G.I wire)	each	189.00	6.20	1171.80
1022	G.I steel bolts & nuts 6mm dia and 25mm long round head with slots	10 Nos.	216.00	20.00	432.00
8617	G.I steel soffit cleat (size 27x37x25x1.60mm)	each	72.00	4.00	288.00
7020	All drive screws(for gypsum board / calcium silicate board)	100 Nos	1000.00	56.00	560.00
7016	Joint filler	Kg.	22.81	22.00	501.82
7017	Joint finisher	Kg.	34.21	24.00	821.04
7388	Dash hold fasteners 12.5mm dia, 50mm long with 6mm dia bolts	each	72.00	48.00	3456.00
7018	Joint Tape roll (120mm Roll)	Roll	1.27	140.00	177.80
7021	Primer (for gypsum board / calcium silicate board)	Litre	18.66	85.00	1586.10
9999	Cariage of materials	L.S	447.20	1.49	666.33
9999	Sundries i.e rawl plug, scaffolding etc.	L.S	807.30	1.49	1202.88
	LABOUR:				
0111	Carpenter 2nd class	day	31.10	273.00	8491.39
0114	Beldar	day	31.10	247.00	7682.69
0131	Painter	day	10.37	273.00	2830.46
	TOTAL				84361.37
	Add Water Charges @ 1%				843.61
	TOTAL				85204.98
	Add CPOH @ 15%				12780.75
	Cost of 103.68 sqm				97985.73
	Cost of 1 sqm				945.08
	Say				945.10

12.60 Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Rockwool conforming to IS: 8183, density 48 kg/m³, 50 mm thick, wrapped in 200 G Virgin Polythene bags fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5mm x 24 gauge wire mesh, for top most ceiling of building.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of For 10 sqm</i> Area for 10.00sqm. (Finished surface)= 10.00sqm.+ Add 10% for overlappings & wastage= 1.00sqm. Total= 11.00sqm				
7273	Resin Bonded Rockwool 48 kg/m ³	sqm	11.00	211.00	2321.00
9999	Sundries including GI wire 20 SWG and polythene bags 200gms	L.S	104.00	1.49	154.96
9999	GI chicken mesh 12.5mm x 24 SWG	L.S	351.00	1.49	522.99
	LABOUR				
0111	Carpenter 1st class	Day	1.00	301.00	301.00

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
0114	Beldar	Day	2.00	247.00	494.00
	Total				3793.95
	Add water Charges @ 1%				37.94
	Total				3831.89
	Add CPOH @ 15%				574.78
	Cost of 10 sqm				4406.67
	Cost of 1 sqm				440.67
	Say				440.65

12.61 Providing and fixing thermal insulation with Resin bonded rock wool conforming to IS: 8183, density 48 kg/m³, 50 mm thick, wrapped in 200 G virgin Polythene bags placed over existing false ceiling and held in position by criss-crossing GI wire.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of For 10 sqm</i>				
	Area for 10.00sqm. (Finished surface)= 10.00sqm.+ Add 10% for overlappings & wastage= 1.00sqm. Total= 11.00sqm				
7273	Resin Bonded Rockwool 48 kg/m ³	sqm	11.00	211.00	2321.00
9999	Sundries including GI wire 20 SWG and polythene bags 200gms	L.S	52.00	1.49	77.48
	LABOUR				
111	Carpenter 1st class	day	0.50	301.00	150.50
114	Beldar	day	0.50	247.00	123.50
	Total				2672.48
	Add water Charges @ 1%				26.72
	Total				2699.20
	Add CPOH @ 15%				404.88
	Cost of 10 sqm				3104.09
	Cost of 1 sqm				310.41
	Say				310.40

12.62 Providing and fixing thermal insulation with Resin Bonded rock wool conforming to IS: 8183, having density 48 kg/m³,50 mm thick,wrapped in 200 G Virgin Polythene Bags fixed to wall with screw, rawel plug & washers and held and in position by criss crossing GI wire etc. complete as per directions of Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of cost for 10.00 sqm.</i>				
	MATERIAL:				
	Area for 10.00 sqm. (Finished surface) = 10.00sqm.+ Add 10 % for overlapping and wastage =1.00 sqm Total=11.00sqm				
7273	Resin Bonded Rockwool 48 kg/m ³	sqm	11.00	211.00	2321.00
9999	Sundries including GI wire 20 SWg and Virgin polythene bags 200 gram and Carriage	L.S.	52.00	1.49	77.48
	LABOUR :				
0111	Carpenter 1st class	Day	0.50	301.00	150.50

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
0114	Beldar	Day	0.50	247.00	123.50
9999	sundries (screws & washers)	L.S.	20.00	1.49	29.80
	Total				2702.28
	Add water Charges @ 1%				27.02
	Total				2729.30
	Add CPOH @15%				409.40
	Cost of 10.00 sqm				3138.70
	Cost of 1 sqm				313.87
	Say				313.85

12.63 Providing and applying two coats of High Albedo paint having minimum Solar Reflective Index (SRI) 108 (with solar reflectance & thermal emittance tested as per ASTM C 1549 and ASTM C 1371 respectively), VOC less than 10 cc/gm. The coating thickness and the methodology of application shall 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.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Details of For 10 sqm</i>				
	MATERIAL:				
7238	High Albedo paint	Kg.	7.17	246.00	1763.82
9999	Carriage of paint	L.S	4.53	1.49	6.75
	LABOUR				
0114	Beldar	day	0.54	247.00	133.38
	(for cleanign the surface)				
0131	Painter	day	0.54	273.00	147.42
9999	Sundries (Brushes & T&P etc.	L.S	13.52	1.49	20.14
	TOTAL				2071.51
	Add Water Charges @1%				20.72
	TOTAL				2092.23
	AddCPOH @ 15%				313.83
	Cost of 10 sqm				2406.06
	Cost of 1 sqm				240.61
	Say				240.60

SUB HEAD : 16.0
ROAD WORK

16.86 Providing and laying gang saw cut 18 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.

16.86.1 Area less than 0.50 sqm.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 0.5sqm.</i>				
	Mirror polished granite 0.5 sqm.				
	Waste @5% = 0.025 +0.5 = 0.525 sqm.				
7295	Granite stone slab 18mm thick	sqm	0.525	1550.00	813.75
3.9	Cement morat 1:4 (1 cement: 4 coarse sand)	cum	0.012	3485.40	41.82
	Labour:				
0123	Mason-1st class	day	0.56	301	168.56
0114	Beldar	day	0.05	247	12.35
0115	Coolie	day	0.05	247	12.35
9999	Sundriesincluding carriage of stone& cement	L.S.	17.60	1.49	26.22
	Total				1075.06
	Total				1075.06
	Add 1% for water charges				10.75
	Total				1085.81
	Add 15% for C.P. & O.H.				162.87
	Total				1248.68
	Rate per sqm.				2497.36
	Say				2497.35

16.87 Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.

16.87.1 Area less than 0.50 sqm.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 0.50 sqm.</i>				
	Mirror polished granite 0.50 sqm.				
	Waste @5% total = 0.025 +0.50 = 0.525 sqm.				
7296	Granite stone slab 30mm thick	sqm	0.525	2300.00	1207.50
3.9	Cement morat 1:4 (1 cement: 4 coarse sand)	cum	0.012	3485.40	41.82
	Labour:				
0123	Mason-1st class	day	0.56	301	168.56
0114	Beldar	day	0.05	247	12.35
0115	Coolie	day	0.05	247	12.35
9999	Sundries including carriage of stone & cement	L.S.	17.60	1.49	26.22
	Total				1468.81
	Total				1468.81
	Add 1% for water charges				14.69
	Total				1483.50
	Add 15% for C.P. & O.H.				222.52
	Total				1706.02
	Rate per sqm.				3412.04
	Say				3412.05

16.88 Providing and laying matt finished vitrified tile of size 100x100x16mm having water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in out door floors such as footpath, court yard multi models etc., laid on 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as direction of Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 1 sqm.</i>				
	Material				
	Matt finished vitrified tile 100x100 x16mm =10sqm.				
7805	Total = 10.25 sqm.	sqm	1.00	930	930.00
9999	Cartage of tile	L.S.	6.24	1.49	9.30
3.9	20mm thick cement mortar 1:4	cum	0.024	3485.40	83.65
9999	Mortar for pointing in white cement	L.S.	3.64	1.49	5.42
0367	Cement for slurry over bed @ 3.30 Kg. per sqm.	tonne	0.0033	5000	16.50
	Labour:				
0123	Mason-I	Day	0.20	301.00	60.20
0115	Coolie	Day	0.20	247.00	49.40
9999	Sundries including carriage of cement etc.	L.S.	26.91	1.49	40.10
	Total				1194.57
	Add for Water charges @1%				11.95
	Total				1206.51
	Add for CP & OH @15%				180.98
	Total				1387.49
	Cost per sqm				1387.49
	Say				1387.50

16.89 Providing and laying matt finished vitrified tile of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 1 sqm.</i>				
	Material				
	Tile 300x300 x9.8mm = 1.00 sqm.				
7806	Vitrified tile	sqm	1.00	510	510.00
9999	Cartage of tile	L.S.	6.24	1.49	9.30
3.9	20mm thick cement mortar 1:4	cum	0.024	3485.40	83.65
9999	Mortar for pointing in white cement	L.S.	3.64	1.49	5.42
0367	Cement for slurry over bed @ 3.30 Kg. per sqm.	tonne	0.0033	5000	16.50
	LABOUR				
0123	Mason-I	Day	0.20	301.00	60.20
0115	Coolie	Day	0.20	247.00	49.40
9999	Sundries including carriage of cement etc.	L.S.	26.91	1.49	40.10
	Total				774.57
	Add for Water charges @1%				7.75
	Total				782.31
	Add for CP & OH @15%				117.35
	Total				899.66
	Cost per sqm				899.66
	Say				899.65

16.90 Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8mm having with water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 1 sqm.</i>				
	MATERIAL:				
	Tile 300x300 x9.8mm = 1.00 sqm.				
7803	Tactile tile =1.0 sqm	sqm	1.00	868.00	868.00
9999	Cartage of tile	L.S.	6.24	1.49	9.30
3.9	20mm thick cement mortar 1:4	cum	0.024	3485.40	83.65
9999	Mortar for pointing in white cement	L.S.	3.64	1.49	5.42
0367	Cement for slurry over bed @ 3.30 Kg. per sqm.	tonne	0.0033	5000	16.50
	LABOUR				
0123	Mason-I	Day	0.20	301.00	60.20
0115	Coolie	Day	0.20	247.00	49.40
9999	Sundries including carriage of cement etc.	L.S.	26.91	1.49	40.10
	Total				1132.57
	Total				1132.57
	Add for Water charges @1%				11.33
	Total				1143.89
	Add for CP & OH @15%				171.58
	Total				1315.48
	Cost per sqm				1315.48
	Say				1315.50

16.91 Providing and laying factory made coloured chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of fine sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. complete as per manufacturer's specifications & direction of Engineer-in-Charge.
60mm thick C.C. paver block of M-35 grade with approved colour, design & pattern.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 10.00 sqm.</i>				
	MATERIAL:				
7743	Coloured inter locking C.C. paver Block	sqm.	10.00	500.00	5000.00
	Bedding layer				
0983	Fine Sand for bed fitting joints	cum	0.50	640.00	320.00
2261	Carriage of fine sand	cum	0.65	87.60	56.94
0123	Mason 1st Class	day	0.50	301.00	150.50
0124	Mason 2nd Class	day	0.50	273.00	136.50
0114	Beldar	day	1.00	247.00	247.00
0115	Coolie	day	0.50	247.00	123.50

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
9999	Sundries including plate vibrator etc.	L.S.	25.00	1.00	25.00
	TOTAL				6059.44
	Add for Water charges @1%				60.59
	TOTAL				6120.03
	Add for CP & OH @15%				918.01
	Total cost of 10 sqm				7038.04
	Cost of 1.00 sqm.				703.80
	Say				703.80

16.92 Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20mm thick base mortar 1:4 (1cement:4 coarse sand) with joints 10mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in charge.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	MATERIAL:				
	Stone size 10x10x7.50cm =1sqm+5% wastage=sqm				
7744	10/(0.11x0.11) = 826.4 i.e.827 Nos =	each	827	9.00	7443.00
3.9	Cement mortar 1:4 (1 cement: 4 coarse sand)	0.434	cum	3485.40	1512.66
0367	Cement for slury	0.02	tonne	5000.00	100.00
	Labour:-				
0124	Mason 2nd class	1.08	Day	273.00	294.84
0114	Beldar	0.25	Day	247.00	61.75
0115	Coolie	1.62	Day	247.00	400.14
0101	Bhisti	0.27	Day	260.00	70.20
13.33.1	Pointing on Stone	10.00	sqm	111.80	1118.00(A)
	Total				11000.59
	Add for water charges @1% except A				98.83
	Total				11099.42
	Add for contractor's profit & over head @ 15% except A cost for 10sqm.				1497.21
	Rate per sqm.				12596.63
	Rate per 1 sqm.				1259.66
	Say				1259.65

16.93 Construction of un-reinforced, dowel jointed, plain quality concrete of M-40 grade in road/pavement/taxi track etc. for all leads and lifts over a prepared sub base with 43 grade cement @ 360 kg. (minimum) per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, in transit mixture, laid with fully automatic slip form paver with electronic sensor with dowel bar and tie rod insertor, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per

drawing and as per direction of Engineer-in-charge (including all cost of form work, dowel bars and tie bars).

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail of cost for 1050 cum (2415 tonne) Taking output = 1050 cum (2415 tonne)</i>				
	A) MATERIAL:				
0294	Crushed stone coarse aggregates of 25mm nominal size @ 0.45 cum/cum of concrete conforming to clause 602.2.4. .	Cum	472.50	1000.00	472500.00
0296	Crushed stone coarse aggregates 12.5mm nominal size @ 0.45 cum/cum of concrete conforming to clause 602.2.4. .	Cum	472.50	1,050.00	496125.00
2202	Carriage of aggregate	cum	945.00	87.60	82782.00
0982	Sand as per IS: 383 and conforming to clause 602.2.4 @ 0.45 cum/cum of concrete	cum	472.50	1120.00	529200.00
2203	Carriage of sand	cum	472.50	87.60	41391.00
0367	Cement 43 grade @ 360 kg/cum of concrete	tonne	378.00	5000.00	1890000.00
2209	Carriage of cement	tonne	378.00	77.87	29434.86
1003	32 mm mild steel dowel bars of grade S 240	tonne	9.92	40000.00	396800.00
1005	16 mm deformed steel tie bars of grade S 415	tonne	1.23	45000.00	55350.00
2205	Carriage of steel	tonne	11.15	77.87	868.25
0323	Separation Membrane of impermeable plastic sheeting 125 micron thick	sqm	3675.00	12.00	44100.00
0374	Pre moulded Joint filler, 25 mm thick for expansion joint.	sqm	16.33	500.00	8165.00
0314	Bitumen Joint sealant	kg	875.00	26.00	22750.00
0371	Sealant primer	kg	116.67	125.00	14583.75
0369	Plastic sheath,1.25 mm thick for dowel bars	sqm	46.67	30.00	1400.10
0349	Curing compound	liter	1850.00	50.00	92500.00
7318	Super plastisizer admixture IS marked as per 9103-1999 @ 0.5 per cent by weight of cement	kg	1890.00	36.50	68985.00
	TOTAL				4246934.96
	Add 1 per cent of material for cost of miscellaneous materials like tarpauline, Hessian cloth, metal cap, cotton / compressible sponge and cradle for dowel bars, work bridges for men to approach concrete surface without walking over it, cutting blades and bites, minor equipments like scabbling machine, threads, ropes, guide wires and any other unforeseen items.				42469.35
	B) MACHINERY				
`0075	Road Sweeper @ 1250 sqm per hour	hour	2.80	360.00	1008.00
`0052	Front end loader 1 cum bucket capacity	hour	18.00	800.00	14400.00
0042	Cement concrete batch mix plant	day	0.75	10000.00	7500.00
0069	Electric generator 250 KVA	hour	6.00	900.00	5400.00
0045	Fully automatic slip form paver with electronic sensor with dowel bar and tie rod insertor	day	0.75	13000.00	9750.00
0057	Water tanker 5 to 6 KL capacity	hour	36.00	150.00	5400.00
0029	Carriage of concrete by transit mixer	cum/km	1050.00	30.00	31500.00
0041	Concrete joint cutting machine .	hour	12.00	150.00	1800.00
0048	Texturing machine .	day	1.50	925.00	1387.50

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
0114	LABOUR: Mate	day	2.00	260.00	520.00
0139	Skilled Beldar	day	15.00	260.00	3900.00
0114	Beldar	day	35.00	247.00	8645.00
	Total				4380614.81
	Add 1% for Water charges				43806.15
	Total				4424420.96
	Add 15% for Contractor's Profit & Over Heads				663663.14
	Total Cost for 1050 cum				5088084.10
	Rate per cum				4845.79
	Say				4845.80

SUB HEAD : 19
DRAINAGE

19.35 Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete

19.35.1 450 mm dia RCC pipes.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1728	450 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10	1496	14960.00
2299	Carriage of Pipes	100 mtr.	10	2127.5	212.75
0367	Cement of 4 joints = $4 \times .0041 = 0.0164$ cum = 0.24 tonne/2	Tonne	0.012	5000	60.00
2209	Carriage of cement	Tonne	0.012	77.87	0.93
0983	Fine sand for 4 joints = $.0082 \times 4 = 0.033$ cum/2	cum	0.017	640	10.88
2261	Carriage of fine sand	cum	0.017	87.6	1.49
	LABOUR:				
0123	Mason 1st class	Each	0.375	301	112.88
0124	Mason 2nd class	Each	0.375	273	102.38
0114	Beldar/Coolie	Each	2.41	247	595.27
0101	Bhisti	Each	0.33	260	85.80
	Total				16142.38
	Add : water Charge @ 1%				161.42
					16303.80
	Add: CP&OH 15%				2445.57
	Detail of cost for 10 meter				18749.37
	Rate per meter				1874.94
	Say				1874.95

19.35.2 600 mm dia RCC pipes.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1729	600 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	1995.00	19950.00
2303	Carriage of Pipes	100 mtr.	10.00	3191.25	319.13
0367	Cement of 4 joints = $4 \times .0054 = 0.0216$ cum = 0.32 tonne/2	Tonne	0.016	5000.00	80.00
2209	Carriage of cement	Tone	0.016	77.87	1.25
0983	Fine sand for 4 joints = $.0108 \times 4 = 0.043$ cum/2	cum	0.022	640.00	14.08
2261	Carriage of fine sand	cum	0.022	87.60	1.93
	LABOUR:				
0123	Mason 1st class	Each	0.46	301.00	138.46
0124	Mason 2nd class	Each	0.46	273.00	125.58
0114	Beldar/Coolie	Each	1.83	247.00	452.01
0101	Bhisti	Each	0.33	260.00	85.8
	Total				21168.24
	Add : water Charge @ 1%				211.68
	Total				21379.92
	Add: CP&OH 15%				3206.99
	Detail of cost for 10 meter				24586.91
	Rate per meter				2458.69
	Say				2458.70

19.35.3 900 mm dia RCC pipes.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1730	900 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	3150.00	31500.00
2331	Carriage of Pipes	100 mtr	10.00	4786.87	478.69
0367	Cement of 4 joints = $4 \times 0.0082 = 0.0328$ cum = 0.049 tonne/2	Tonne	0.025	5000.00	125.00
2209	Carriage of cement	Tonne	0.025	77.87	1.95
9083	Fine sand for 4 joints = $.0164 \times 4 = 0.066$ cum/2	cum	0.033	640.00	21.12
2261	Carriage of fine sand		0.033	87.60	2.89
	LABOUR:				
0123	Mason 1st class	Each	0.625	301.00	188.13
0124	Mason 2nd class	Each	0.625	273.00	170.63
0114	Beldar/Coolie	Each	3.00	247.00	741.00
0101	Bhisti	Each	0.50	260.00	130.00
	Total				33359.40
	Add : water Charge @1%				333.59
	Total				33692.99
	Add: CP&OH 15%				5053.95
	Detail of cost for 10 meter				38746.94
	Rate per meter				3874.69
	Say				3874.70

19.35.4 1000 mm dia RCC pipes. (Laying by manual/machanical means)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1731	1000 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	3885.00	38850.00
2332	Carriage of Pipes	100 mtr	10.00	6382.50	638.25
0367	Cement of 4 joints = $4 \times 0.0092 = 0.0368$ cum = 0.055 tonne/2	Tonne	0.028	5000.00	140.00
2209	Carriage of cement	Tonne	0.028	77.87	2.18
0983	Fine sand for 4 joints = $.0185 \times 4 = 0.074$ cum/2	cum	0.037	640.00	23.68
2261	Carriage of fine sand		0.037	87.60	3.24
	LABOUR:				
0123	Mason 1st class	Each	0.68	301.00	204.68
0124	Mason 2nd class	Each	0.68	273.00	185.64
0114	Beldar/Coolie	Each	4.33	247.00	1069.51
0101	Bhisti	Each	0.5	260.00	130
	Total				41247.18
	Add : water Charge @1%				412.47
	Total				41659.65
	Add: CP&OH 15%				6248.95
	Detail of cost for 10 meter				47908.60
	Rate per meter				4790.86
	Say				4790.85

19.35.5 1200 mm dia RCC pipes. (Laying by manual/machanical means)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1732	1200 mm dia pipe (in 2.5 mtr leng th = 4 Nos. with collars/spigot)	mtr.	10.00	5040.00	50400.00
2334	Carriage of Pipes	100 mtr	10.00	6382.50	638.25
0367	Cement of 4 joints = $4 \times 0.0114 = 0.0456$ cum = 0.068 tonne/2	Tonne	0.034	5000.00	170.00
2209	Carriage of cement	Tonne	0.034	77.87	2.65
0983	Fine sand for 4 joints = $.0229 \times 4 = 0.0916 = 0.092$ cum/2	cum	0.046	640.00	29.44
2261	Carriage of fine sand	cum	0.046	87.60	4.03
	LABOUR:				
0123	Mason 1st class	Each	0.795	301.00	239.295
0124	Mason 2nd class	Each	0.795	273.00	217.035
0114	Beldar/Coolie	Each	8.67	247.00	2141.49
0101	Bhisti	Each	0.67	260.00	174.2
	Total				54016.39
	Add : water Charge @1%				540.16
	Total				54556.55
	Add: CP&OH 15%				8183.48
	Detail of cost for 10 meter				62740.04
	Rate per meter				6274.00
	Say				6274.00

19.35.6 1800 mm dia RCC pipes. (Laying by manual/machanical means)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1733	1800 mm dia pipe (in 2.5 mtr leng th = 4 Nos. with collars/spigot)	mtr.	10.00	9450.00	94500.00
2336	Carriage of Pipes	100 mtr	10.00	7339.87	733.99
0367	Cement of 4 joints /2=	Tonne	0.049	5000.00	245.00
2209	Carriage of cement	Tonne	0.049	77.87	3.82
0983	Fine sand for 4 joints = $.0276 \times 4 = 0.1103 = 0.11$ cum/2	cum	0.065	640.00	41.60
2261	Carriage of fine sand	cum	0.065	87.60	5.69
	LABOUR:				
0123	Mason 1st class	Each	1.15	301.00	346.15
0124	Mason 2nd class	Each	1.15	273.00	313.95
0114	Beldar/Coolie	Each	13.00	247.00	3211.00
0101	Bhisti	Each	1.00	260.00	260.00
	Total				99661.20
	Add : water Charge @1%				996.61
	Total				100657.81
	Add: CP&OH 15%				15098.672
	Detail of cost for 10 meter				115756.48
	Rate per meter				11575.65
	Say				11575.65

19.36 Providing and laying Non Pressure NP-4 class (Heavy duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete

19.36.1 450 mm dia RCC pipes.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1734	450 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	1733.00	17330.00
2299	Carriage of Pipes	100 mtr.	10.00	2127.50	212.75
0367	Cement of 4 joints = $4 \times .0041 = 0.0164$ cum = 0.24 tonne/2	Tonne	0.012	5000.00	60.00
2209	Carriage of cement	Tonne	0.012	77.87	0.93
0983	Fine sand for 4 joints = $.0082 \times 4 = 0.033$ cum/2	cum	0.017	640.00	10.88
2261	Carriage of fine sand	cum	0.017	87.60	1.49
	LABOUR:				
0123	Mason 1st class	Each	0.375	301.00	112.88
0124	Mason 2nd class	Each	0.375	273.00	102.38
0114	Beldar/Coolie	Each	2.41	247.00	595.27
0101	Bhisti	Each	0.33	260.00	85.80
	Total				18512.38
	Add : water Charge @1%				185.12
	Total				18697.50
	Add: CP&OH 15%				2804.63
	Detail of cost for 10 meter				21502.13
	Rate per meter				2150.21
	Say				2150.20

19.36.2 600 mm dia RCC pipes.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1735	600 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	2310.00	23100.00
2303	Carriage of Pipes	100 mtr.	10.00	3191.25	319.13
0367	Cement of 4 joints = $4 \times .0054 = 0.0216$ cum = 0.32 tonne/2	Tonne	0.016	5000.00	80.00
2209	Carriage of cement	Tone	0.016	77.87	1.25
0983	Fine sand for 4 joints = $.0108 \times 4 = 0.043$ cum/2	cum	0.022	640.00	14.08
2261	Carriage of fine sand	cum	0.022	87.60	1.93
	LABOUR:				
0123	Mason 1st class	Each	0.46	301.00	138.46
0124	Mason 2nd class	Each	0.46	273.00	125.58
0114	Beldar/Coolie	Each	1.83	247.00	452.01
0101	Bhisti	Each	0.33	260.00	85.8
	Total				24318.24
	Add : water Charge @1%				243.1824
	Total				24561.42
	Add: CP&OH 15%				3684.21
	Detail of cost for 10 meter				28245.64
	Rate per meter				2824.56
	Say				2824.55

19.36.3 900 mm dia RCC pipes.

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1736	900 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	4595.00	45950.00
2209	Carriage of Pipes	100 mtr	10.00	4786.87	478.69
0367	Cement of 4 joints = $4 \times 0.0082 = 0.0328$ cum = 0.049 tonne/2	Tonne	0.025	5000.00	125.00
2261	Carriage of cement	Tonne	0.025	77.87	1.95
0983	Fine sand for 4 joints = $.0164 \times 4 = 0.066$ cum/2	cum	0.033	640.00	21.12
2261	Carriage of fine sand		0.033	87.60	2.89
	LABOUR:				
0123	Mason 1st class	Each	0.625	301.00	188.125
0124	Mason 2nd class	Each	0.625	273.00	170.625
0114	Beldar/Coolie	Each	3.00	247.00	741
0101	Bhisti	Each	0.50	260.00	130
	Total				47809.40
	Add : water Charge @1%				478.09
	Total				48287.49
	Add: CP&OH 15%				7243.12
	Detail of cost for 10 meter				55530.62
	Rate per meter				5553.06
	Say				5553.05

19.36.4 1000 mm dia RCC pipes.(Laying by manual/machanical means)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1737	1000 mm dia pipe (in 2.5 mtr length = 4 Nos. with collars/spigot)	mtr.	10.00	5565.00	55650.00
2332	Carriage of Pipes	100 mtr	10.00	6382.50	638.25
0367	Cement of 4 joints = $4 \times 0.0092 = 0.0368$ cum = 0.055 tonne/2	Tonne	0.028	5000.00	140.00
2209	Carriage of cement	Tonne	0.028	77.87	2.18
0983	Fine sand for 4 joints = $.0185 \times 4 = 0.074$ cum/2	cum	0.037	640.00	23.68
2261	Carriage of fine sand		0.037	87.60	3.24
	LABOUR:				
0123	Mason 1st class	Each	0.68	301.00	204.68
0124	Mason 2nd class	Each	0.68	273.00	185.64
0114	Beldar/Coolie	Each	4.33	247.00	1069.51
0101	Bhisti	Each	0.50	260.00	130
	Total				58047.18
	Add : water Charge @1%				580.47
	Total				58627.65
	Add: CP&OH 15%				8794.15
	Detail of cost for 10 meter				67421.80
	Rate per meter				6742.18
	Say				6742.20

19.36.5 1200 mm dia RCC pipes. (Laying by manual/machanical means)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1738	1200 mm dia pipe (in 2.5 mtr leng th = 4 Nos. with collars/spigot)	mtr.	10.00	6510.00	65100.00
2334	Carriage of Pipes	100 mtr	10.00	6382.50	638.25
3067	Cement of 4 joints = $4 \times .0114 = 0.0456$ cum = 0.068 tonne/2	Tonne	0.034	5000.00	170.00
2209	Carriage of cement	Tonne	0.034	77.87	2.65
0983	Fine sand for 4 joints = $.0229 \times 4 = 0.0916 = 0.092$ cum/2	cum	0.046	640.00	29.44
2261	Carriage of fine sand	cum	0.046	87.60	4.03
	LABOUR:				
0123	Mason 1st class	Each	0.795	301.00	239.295
0124	Mason 2nd class	Each	0.795	273.00	217.035
0114	Beldar/Coolie	Each	8.67	247.00	2141.49
0101	Bhisti	Each	0.67	260.00	174.2
	Total				68716.39
	Add : water Charge @1%				687.16
	Total				69403.55
	Add: CP&OH 15%				10410.53
	Detail of cost for 10 meter				79814.09
	Rate per meter				7981.41
	Say				7981.40

19.36.6 1800 mm dia RCC pipes. (Laying by manual/machanical means)

Code	Description	Unit	Quantity	Rate ₹	Amount ₹
	<i>Detail for 10 meter</i>				
	MATERIAL:				
1739	1800 mm dia pipe (in 2.5 mtr leng th = 4 Nos. with collars/spigot)	mtr.	10.00	13650.00	136500.00
2336	Carriage of Pipes	100 mtr	10.00	7339.00	733.90
0367	cement of 4 joints = $4 \times .0276 = 0.1103$ cum = 0.075 tonne/2	Tonne	0.049	5000.00	245.00
2209	Carriage of cement	Tonne	0.049	77.87	3.82
0983	Fine sand for 4 joints = $.0276 \times 4 = 0.1103 = 0.11$ cum/2	cum	0.065	640.00	41.60
2261	Carriage of fine sand	cum	0.065	87.60	5.69
	LABOUR:				
0123	Mason 1st class	Each	1.15	301.00	346.15
0124	Mason 2nd class	Each	1.15	273.00	313.95
0114	Beldar/Coolie	Each	13.00	247.00	3211.00
0101	Bhisti	Each	1.00	260.00	260.00
	Total				141661.11
	Add : water Charge @1%				1416.61
	Total				143077.72
	Add: CP&OH 15%				21461.66
	Detail of cost for 10 meter				164539.38
	Rate per meter				16453.94
	Say				16453.95

SUB HEAD : 26

**Structural Glazing and Aluminium
Composite Panel**

26.1 Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawings , the aluminium quality as per grade 6063 T5 or T6 as per BS 1474,including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer-in-Charge.

(The item includes cost of material such as cleats, sleeves, screws etc. necessary for fabrication of extruded aluminium frame work. Nothing extra shall be paid on this account).

Analysis of Rate

Width of the unit	1.6	m		
Height of the unit	4.2	m		
Area of Single Unit	6.72	m ²		
Total Area	6.72	m ²	No of Panels	1 no
Aluminium Weight per m ²	6.50	Kg/m ²	Vision Height	2.2 m
Add for cleats, sleeves, screws etc.@5%	0.33		Spandrel Height	2.0 m
	6.83			
Wastages @ 5%	0.341			
Weight of Aluminium	7.17			

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Aluminium / Finish				
1.1	Aluminium Weight	Kg	7.17	220	1,577.40
1.2	Super Durable Powder Coating	Kg	7.17	64	458.88
					2036.28
	1% water charges				20.36
					2056.64
	15% contractor profit and over head				308.50
	Cost for 6.5 Kg of Aluminium				22365.14
	Cost for 1 Kg of Aluminium				363.86
	Say				363.85

26.2 Semi-unitized Glazing (design, fabrication and installation)

1. 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 separator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.

- (c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment , including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass.
- (d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.
- (e) Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design checked and all the shop drawings vetted by the Principals of the structural glazing system.

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:- The cost of providing extruded aluminium frames, shadow boxes, fire stop (barrier)- cum-smoke seals, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub-head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places.

ANALYSIS OF RATE

Width of the unit	1.6	m		
Height of the unit	4.2	m		
Area of Single Unit	6.72	m ²		
Total Area	6.72	m ²	No of Panels	1
Aluminium Weight per m ²	6.50	Kg/m ²	Vision Height	2.2
			Spandrel Height	2.0

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Material				
1.1	Structural Sealant - 6mm x 12mm	RMT	17.02	31.62	538.17
1.2	Spacer Tape 6.4mm (Thick) x 6mm (W)	RMT	20.11	18.00	361.98
1.3	Weather Sealant - Non Staining	600ml	1.96	459.15	899.93
1.4	Weather Sealant - Normal	300ml	2.55	143.21	365.19
1.5	MS Brackets/Aluminium Alloy Brackets	Kg	9.78	100.00	978.00
1.6	Silicon Gasket in Kg (Above 50 g / m)	Kg	0.78	601.26	468.98
1.7	EPDM Gasket in Kg (Above 60 g / m)	Kg	0.70	163.98	114.79
1.8	Anchor Fastner - M10	nos	2.00	110.93	221.86
1.9	SS Bolt with Washer	nos	2.00	35.00	70.00
1.10	SS Screws	nos	51.38	5.00	256.90
1.11	Fire Stop	RMT	1.60	561.94	899.10
1.12	Protective Tape	m ²	6.72	25.00	168.00
1.13	Baker Rod	RMT	5.04	5.00	25.20
1.14	GI flashing - 1.2mm Thk.	Kg	3.96	65.99	261.32
1.15	Masking Tape	m ²	6.72	2.50	16.80
1.16	MISC	m ²	6.72	50.00	336.00
	Material Cost=				5,982.22
2	Fabrication / Installation / Transport / Scaffolding / Labour PF + ESIS				
2.1	Fabrication	m ²	6.72	400.00	2,688
2.2	Installation	m ²	6.72	400.00	2,688
2.3	Transporation	m ²	6.72	100.00	672
2.4	Scaffolding / Loading / Unloading	m ²	6.72	127.10	854.11
	Material + Fabrication + Transport + Scaffolding Cost =				12,884.33
3	Designing charges				
3.1	Designing charges	-	-	2.50%	322.11
	Total Cost with designing charges=				13,206.44
	1% water charges				132.06
					13,338.50
	15% contractor profit and over head				2,000.77
	Total rate for 6.72 Sqm				15,339.27
	Rate per Sqm				2,282.63
	Say				2282.65

26.3 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 strengthened 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.1) For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm.

- (i) **Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, + 12mm Airgap + 6mm Heat Strengthened clear Glass of approved make having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 degree K etc.**

Width of the unit	1.6	m		
Height of the unit	4.2	m		
Area of Single Unit	6.72	m ²		
Total Area	6.72	m ²	No of Panels	1 no
Area of Glass deducting area of gap/grove 5%	6.38	m ²	Vision Height	2.2 m
Wastage 10%	0.638	m ²	Spandrel Height	2.0 m
Area of glass	7.02	m ²		

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Glass				
1.1	6mm thick High performance Glass	m ²	7.02	1,910	13,408.20
1.2	6mm thick clear heat strengthened Glass	m ²	7.02	770	5,405.40
	Total				18813.60
	Insurance charges @1%				188.14
	Total				19,001.74
2	Fabrication charges including silicon sealant, baker rod, desecant etc.				
2.1	Fabrication charges including silicon sealant, baker rod, desecant etc.	m ²	7.02	450.00	3,159.00
2.2	Transporation including loading and unloading Material + Fabrication + Transport Total =	m ²	7.02	26.80	188.14
	1% water charges				22348.88
	Total				223.49
	15% contractor profit and over head				22572.37
	Total rate for 6.72 sqm				3,385.86
	Rate per Sqm				25,958.23
	Say				3,862.83
					3862.85

- 26.4 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.**

Analysis of Rates

Width of the unit	1.6	m	Shuttter Weight	
Height of the unit	1.1	m	Outer glass	6 mm
Area	1.76	m ²	Inner glass	6 mm
Aluminium Weight per m ²	7.78	Kg/m ²	Al weight	13.7 Kg
No of Locking Point	4	no	Total	67 Kg
Wedge Block	1	no	Hinge size	0.512 m

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Material				
1.1	Weather sealaant - Normal - Sika WS 305N	600ml	3	145.00	435.00
1.2	EPDM Gasket in Kg (Above 60 g / m)	Kg	0.8	160.00	128.00
1.3	SS Screws	nos	49	5.00	245.00
1.4	Protective Tape	m ²	1.76	25.00	44.00
1.5	ARMS GS HD -TOP HUNG -20"-TYPE P-COUPLE	Pair	1	1,570.8	1,570.80
1.6	Connection Block	no	2	39.33	78.66
1.7	Curtain wall striker	no	4	102.68	410.72
1.8	Adjustable Fastening Pawl	no	4	38.23	152.92
1.9	Corner drive	no	2	294.94	589.88
1.10	Top wedge Block	no	1	136.55	136.55
9999	Sundries	L.S	118.12	1.49	176.00
	Total Material Cost=				3967.56
2	Fabrication				
2.1	Fabrication	m ²	1.76	300	528.00
	Fabrication Cost =				4495.56
	1% water charges				44.96
	Total				4540.51
	15% contractor profit and over head				681.08
	Cost for 1.76 sqm. of openable vent				5221.58
	Cost for 1.00 sqm. of openable vent				2966.81
	Say				2966.80

26.5 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 gm / sqm, made of randomly oriented glass fibres distributed in a binder by a wet-lay process including fixing 1.5 mm thick solid aluminum sheet backing using, 6 mm thick cement board including SS rivets, nuts, bolts, washers etc complete.

Analysis of rates

Width of the unit = 0.86 m

Height of the unit = 3.75 m

Area = 3.23 m²

Area including wastage @5 % 3.39

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Glass Wool				
1.1	Denisity 48 Kg / m3 with Black Glass Tissue (BGT)	m ²	3.39	230.00	779.70
2	GI / Aluminium Sheet				
2.1	0.8mm thk. GI Sheet	Kg	21.3	57.00	1214.10
3	Accessories, Fabrication, Instalation				
3.1	SS Screws - # 8 x 19	nos	32.00	10.00	320.00
3.2	Weather Sealant - DC 789	Catridge	2.00	135.00	270.00
3.3	Clip & Adhesive	nos	15.00	25.00	375.00
9999	Sundries	L.S.	56.82	1.49	84.66

SUB HEAD : 26 - STRUCTURAL GLAZING AND ALUMINIUM COMPOSITE PANEL

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
3.5	Fabrication	m ²	3.39	75.00	254.25
3.6	Installation	m ²	3.39	75.00	254.25
3.7	Cement Board	m ²	3.39	250.00	847.50
	Basic Cost = Rs.				4399.46
	1% water charges				43.99
					4443.45
	15% contractor profit and over head				666.52
	Cost for 3.23 sqm. of shadow box for spandrel area				5,109.97
	Cost for 1.00 sqm. of shadow box for spandrel area				1582.03
	Say				1582.05

26.6 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 sqm.(Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevent Item*).

(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, + 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.

Width of the unit = 0.86 m
Height of the unit = 3.75 m
Area = 3.23 m²
Area i/c wastage @ 5 % 3.39 m²

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Glass				
1.1	6mm thick High performance Glass	m ²	3.39	1,910	6,474.90
	Insurance charges @1%				64.75
	Total				6539.65
2	Fabrication charges including silicon sealant, baker rod, desecant etc.				
2.1	Fabrication charges including silicon sealant, baker rod, desecant etc.	m ²	3.39	300.00	1,017.00
2.2	Transportation including loading and unloading	m ²	3.39	64.87	219.91
	Material + Fabrication + Transport cost =				7776.56
	1% water charges				77.77
					7854.33
	15% contractor profit and over head				1178.15
	Rate for 3.23 sqm				9032.48
	Rate per Sqm				2796.43
	Say				2796.45

- 26.7 Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building, for all heights and all levels etc. including:
- Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design.
 - Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc.
 - The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing

The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation.

The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge.

However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. up to two decimal places

Width of the unit	1.6	m		
Height of the unit	4.2	m		
Area of Single Unit	6.72	m ²		
Total Area	6.72	m ²	No of Panels	1 no
Area i/c wastage @ 5%	7.06	m ²		
Aluminium Weight per m2	4.50	Kg/m ²	Vision Height	0.0 m
			Spandrel Height	0.0 m

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1	Material				
1.1	Weather Sealant - Non Staining	600ml	2	459.15	918.30
1.2	Weather Sealant - Normal	300ml	2	143.21	286.42
1.3	MS Brackets	Kg	10	100.00	1000.00
1.4	EPDM Gasket in Kg (Above 60 g / m)	Kg	0.7	163.98	114.79
1.5	Anchor Fastner - M10	nos	2	110.93	221.86
1.6	SS Bolt with Washer	nos	2	35.00	70.00
1.7	SS Screws	nos	49	5.00	245.00

S. No.	Description	Unit	Quantity	Rate ₹	Amount ₹
1.8	Protective Tape	m ²	7	2.50	17.50
1.9	Baker Rod	RMT	5	5.00	25.00
1.10	Gl flashing - 1.2mm Thk.	Kg	4.0	65.99	263.96
1.11	4mm Thk. ACP	m ²	7.06	1,200.0	8,472.00
9999	Sundries	L.S.	451.00	1.49	671.99
	Material Cost=				12,306.82
2	Fabrication / Installation / Transport / Scaffolding				
2.1	Fabrication	m ²	7.06	400.00	2824.00
2.2	Installation	m ²	7.06	400.00	2824.00
2.3	Transporation	m ²	7.06	100.00	706.00
2.4	Scaffolding / Loading / Unloading	m ²	7.06	127.10	897.33
	Material + Fabrication + Transport + Scaffolding Cost =				19558.15
3	Designing charges				
3.1	Designing charges	-	-	2.50%	488.95
					20047.10
	1% water charges				200.47
					20247.57
	15% contractor profit and over head				3037.14
	Total rate for 6.72 Sqm				23284.71
	Rate per Sqm				3464.99
	Say				3465.00