

**Project :** The Construction of Dressing Room (Phase 2) for National Center of Excellence in Football, At Rajarhat, Kolkata, WB, India.

**SUMMARY OF COST**

SL NO.	DESCRIPTION	AMOUNT (RS.)
	<b>DRESSING ROOM</b>	
<b>A</b>	<b>STRUCTURE WORK</b>	
I	SITE WORK	₹ -
II	CONCRETE WORK	₹ -
III	RCC WORK	₹ -
IV	PILING WORK	₹ -
V	FORM WORK	₹ -
VI	EXPANSION JOINT	₹ -
VII	BRICK WORK IN FOUNDATION	₹ -
<b>B</b>	<b>ARCHITECTURAL &amp; CIVIL WORK</b>	
VIII	MASONRY WORK	₹ -
IX	FINISHING WORK	₹ -
X	FLOORING WORK	₹ -
XI	WATERPROOFING WORK	₹ -
XII	FALSE CEILING WORK	₹ -
XIII	WOOD WORK	₹ -
XIV	MISCELLANEOUS WORK	₹ -
XV	ROOFING & CLADDING WORKS	₹ -
XVI	GLAZING & RAILING WORK	₹ -
<b>C</b>	<b>MEP WORKS</b>	
XVII	HVAC WORK	₹ -
XVIII	PLUMBING WORK	₹ -
XIX	ELECTRICAL WORK	₹ -
XX	ELEVATORS	₹ -
XXI	FIRE FIGHTING WORK	₹ -
XXII	FAPA SYSTEM	₹ -
	<b>TOTAL COST</b>	₹ -

**BILL OF QUANTITIES FOR STRUCTURE WORK**

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>A</b>		<b>SUB HEAD: I : SITE WORK</b>				
1		Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (not exceeding 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.				
a	2.6.1	All kinds of soil	Cum	1,822		₹ -
2	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead upto 50 meter and lift upto 1.5 meter.	Cum	857		₹ -
3	FMR	Supplying & filling with excavated earth earth brought from outside	Cum	4,230		₹ -
4	2.27	Supplying & filling in plinth with soling under floors, including watering, ramming, consolidating and dressing complete.Moorum/Hard Copra	Cum	342		₹ -
5	2.34	Supplying chemical emulsion in sealed container including delivery as specified.				
		Chlorpyriphus / Lindane emulsifiable concentrate of 20%	Ltrs	240		₹ -
6	2.35	Diluting and injecting chemical emulsion for Pre-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :				
		With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration.(Plinth Area calculation)	Sqmt	1,800		₹ -
7	1.1.2	Loading and unloading of excavated earth. (Placing tipper at loading point, loading with front end loader, dumping, turning for return trip, excluding time for haulage and return trip) upto a lead upto 10 kms	Cum	965		₹ -
						₹ -
<b>B</b>		<b>SUB HEAD: II: CONCRETE WORK</b>				
1	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto plinth level.				
	4.1.4	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 40mm nominal size).	Cum	206		₹ -
2	4.17	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm bed by dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqmt	300		₹ -
						₹ -
<b>C</b>		<b>SUB HEAD: III: RCC WORK</b>				

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	5.33	Providing and laying in position ready mixed M25 grade concrete for reinforced cement concrete work, using cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixers for all leads, having continuous agitated mixer, manufactured as per mix design of specified grade of reinforced cement concrete work, including pumping of RMC concrete from transit mixer to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportions as per IS:9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer				
		Note :- The Cement content considered in this item is @ 330 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately.				
a		All works upto plinth level	Cum	794		₹ -
b		All works above plinth level upto level V level.	Cum	751		₹ -
2	5.22	Steel reinforcement work for RCC including straightening, cutting, bending, placing in position and binding all complete upto plinth level and above plinth level.				
		Thermo mechanically Treated bars of grade Fe 500 or more.	Kgs	1,55,000		₹ -
						₹ -
<b>D</b>		<b>SUB HEAD: IV: PILING WORK</b>				
1	20.2A	Boring, providing and installing bored cast-in-situ reinforced cement concrete pile of specified diameter and length below the pile cap M 25 in cement concrete, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with, bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by crawler mounted, telescopic boom hydraulic piling rig all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap).				
		750 mm dia. Piles, approximately 20.0 M long with cut off level as mentioned in drawings.	Rmt	2,640		₹ -
		Note : Rate shall also include for providing the concrete in pile upto a minimum depth of 900 mm above the cut off level so that 75mm of concrete above cut off level shall be embedded in the pile cap, and the remaining length of the concrete to be dismantled upto cut-off level, filling the good river sand in the empty bore above this level upto the natural ground level, disposing the debris from the site etc. complete and as directed. Collection of samples at founding strata for all piles and must be preserved till the end of handing over the site to the General Builders. Further include dewatering, placing concrete, compacting of concrete, withdrawal of temporary steel casing if provided and disposal of bored/muck material outside the site & cleaning etc.				
2	5.22	Steel reinforcement work for RCC including straightening, cutting, bending, placing in position and binding all complete upto plinth level and above plinth level.-Piling				
		Thermo mechanically Treated bars of grade Fe 500 or more.	Kgs	69,561		₹ -
3		Conducting Lateral load testing of single pile in accordance with IS Code of practice IS : 2911 (Part IV) for determining safe allowable lateral load on pile :				

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Above 50 tonne and upto 100 tonne capacity pile	Each	2		₹ -
4		Conducting Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.				
a		Initial test (Test Load 2.5 times the Safe capacity) - Test Load - 225 tonne)	Each	2		₹ -
b		Routine test (Test Load 1.5 times the Safe capacity) - Test Load - 135 tonne)	Each	2		₹ -
5		Integrity testing of Pile using Low Strain/ Sonic Integrity Test/ Sonic Echo Test method in accordance with IS 14893 including surface preparation of pile top by removing soil, mud, dust & chipping lean concrete lumps etc. and use of computerised equipment and high skill trained personal for conducting the test & submission of results, all complete as per direction of Engineer-in-charge.	Each	120		₹ -
						₹ -
<b>E</b>		<b>SUB HEAD: V: FORM WORK</b>				
1	5.9	Centering and shuttering including strutting, propping etc and removal of forms of all heights.				
a		Foundations, footings, bases of columns, etc for mass concrete.	Sqmt	2,161		₹ -
b		Walls (of any thickness) including attached plasters, buttresses, plinth and string courses etc.	Sqmt	173		₹ -
c		Suspended floors, roofs, landings, balconies and access platforms.	Sqmt	1,662		₹ -
d		Lintels, Beams, plinth beams , girders , bressumers, cantilevers.	Sqmt	3,854		₹ -
e		Columns, Pillars, Piers, Abutments, Posts and Struts.	Sqmt	936		₹ -
f		Stair (excluding landing) except spiral stair.	Sqmt	269		₹ -
g		Weather shade, chajjas etc. including edges	Sqmt	120		₹ -
2	5.11	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.50 meter for every additional height of 1 meter or part thereof (Plan area to be measured).				
		Suspended floors, roofs, landings, beams and balconies (Plan area to be measured).	Sqm	2,520		₹ -
						₹ -
<b>F</b>		<b>SUB HEAD: VI: EXPANSION JOINT</b>				

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	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 aluminium 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 location in load application areas that accommodates multi directional seismic movement without stress to its components. System shall consist of metal profiles with a universal. Aluminium 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 movements and loading requirements and secured to base members by utilizing manufacturers pre-engineered self centering arrangement that freely rotates/ moves in all directions. The Self-centering arrangement shall exhibit circular sphere ends that lock and slideign and manufacturer's specification shall be welded on the structural as per approved design and manufacturer's specification. grease, etc., applying one or more coat of low VOC epoxy shop primer (VOC less than 250 gm/ltr) of approved make, , all complete as per direction of Engineer in Charge. The rate shall be inclusive of fabrication of all members				
i)		Floor joint 50mm gap	Rmt	9		₹ -
2	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 aluminium base members, self aligning/ self centering arrangement and support plates etc. 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 aluminium profiles exhibiting minimal exposed aliminium surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063).				
i)		Wall joint 50mm gap	Rmt	14		₹ -
						₹ -
<b>G</b>		<b>SUB HEAD: VII: BRICK WORK</b>				
1	6.1	Brick work with common burnt clay modular bricks of class designation 7.5 in foundation and plinth.				
		Cement mortar 1:6 (1 cement : 6 coarse sand).	Cum	116		₹ -
						₹ -

**BILL OF QUANTITIES FOR ARCHITECTURAL & CIVIL WORK**

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>H</b>		<b>SUB HEAD: VIII: MASONRY WORK</b>				
1	6.47	Providing and laying autoclaved aerated cement blocks masonry with 100mm/125mm/ 150mm/230mm/300 mm thick AAC blocks in super structure above plinth level up to floor V level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineerin- Charge. (The payment of RCC band and reinforcement shall be made for seperately).	Cum	553		₹ -
2	6.15	Providing and placing in position 2 Nos. 6 mm dia M.S. bars at every third course of 100mm thick AAC block masonry	Sqm	2,763		₹ -
						₹ -
<b>I</b>		<b>SUB HEAD: IX:FINISHING WORK</b>				
1	13.4	Providing and applying in one coat, 12mm thick Plaster on Internal surfaces of RCC/ brick/block walls in cement mortar 1:6, finished smooth with extra cement finishing, with cement not less than 2.2 kg per Sqm. Rate shall include for scaffolding, grooves, sills, pattas, curing, surface preparation before the application of plaster, providing GI Chicken mesh as mentioned in the notes above to a width of 150mm at the junctions of masonry and concrete works including tying in position by using suitable nails / clamps / screws and as directed etc. complete at all levels. The contractor shall make good the grooves, pockets etc. after the scaffolding is removed.	Sqm	3,696		₹ -
2	FMR	Providing and applying Plaster of Paris punning average 12-13mm thick over the newly plastered surface or wherever specified to prepare the surface even and smooth and in proper plumb including all leads and lifts, surface preparation, with all incidentals, making grooves 6mm wide in the POP at the junction/end of walls or as directed, pattas, sills, etc. complete. etc complete as directed by the Engineer. The surface punned to be kept ready to take on paint/wall paper.	Sqm	2,518		₹ -
3	13.5	Providing and applying in one coat, 12mm thick plaster on internal surfaces of RCC / brick/block walls in cement mortar 1:6, finished rough and ready to take on POP punning. Rate shall include for scaffolding , grooves, sills, pattas, curing, surface preparation before the application of plaster, providing GI chicken mesh as mentioned above to a width of 150mm at the junctions of masonry and concrete works including tying in position by using suitable nails / clamps / screws and as directed etc. complete at all levels. The contractor shall make good the grooves, pockets etc. after the scaffolding is removed.	Sqm	1,433		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3	13.11	Providing and applying 25mm thick External Smooth Plaster in two coats for external surfaces of masonry, RCC. pergola, Chajja etc. with a base coat of 15mm thick in cement mortar 1:4 with the addition of water proofing compound of approved make and 100% virgin polypropylene fibres as mentioned in the notes above and finishing or final coat of 10mm thick in cement mortar 1:5 after roughening the surface of first coat in green condition with a wire brush and clearing of loose particles. The rate to be inclusive of sponge finish by taking out grains, all complete as per specification and as directed. The rate should also be inclusive of all scaffolding for single as well as double/multiple height areas, surface preparation, curing both the coats, sills, pattas, grooves, providing GI chicken mesh as mentioned in the notes above to a width of 150mm at the junctions of masonry and concrete works including tying in position by using suitable nails / clamps / screws and as directed etc. complete at all levels.	Sqm	2,616		₹ -
4	13.26	Providing and applying plaster of putty 2mm thickness over the plastered surface to prepare the surface even and smooth complete	Sqm	308		₹ -
5	14.53	Providing and applying two coats of plastic Emulsion paint of approved colour and shade to internal walls / ceiling / RCC surface / any other surface as desired by the EIC after thoroughly sand papering surfaces to remove dust, dirt etc. and repairing dents, cracks, holes with POP to achieve level surface and finishing with two coats of primer, putty and three coats of paint including cost of material, labour, scaffolding etc. all complete as directed by the Engineer in charge. Rate to include application at all heights and levels, surfaces and textures. Engineer in charges' approval required after each coat. Tenderer to submit sample to the Engineer in charges for approval.	Sqm	3,393		₹ -
6	13.37	Providing and applying three coats of white washing to walls new plastered or masonry surfaces or cement sheet with pure shell lime or fat lime conforming to IS-712 all as per Specification and as directed. The rate to be inclusive of scaffolding and preparing the surface by brushing and brooming down complete.	Sqm	1,065		₹ -
7	FMR	Providing and applying two coats pigmented surface texture of desired shade at all heights to give an even and uniform shade as per manufacturers specification from approved make or its equivalent. Rate shall include preparation of base surface, watering before and after application, scaffolding, tools and plants etc., complete as directed.	Sqm	2,617		₹ -
8	13.5	Applying priming coat :				
a		With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/steel works	Sqm	RO		

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
b		With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel work (second coat)	Sqm	RO		
9	13.52	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.				
		On steel work	Sqm	2,000		₹ -
						₹ -
<b>J</b>		<b>SUB HEAD: X:FLOORING WORK</b>				
1	11.4	Kota stone slab 25mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4 (minimum size of kota stone 0.25 sqm)	Sqm	330		₹ -
2	11.36	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (6 to 7mm thick) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in- Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.Basic Rate-Rs.60/sft	Sqm	702		₹ -
3	11.41	Providing and laying Anti Skid Vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including grouting the joints with white cement and matching pigments etc., complete. Basic Rate-Rs.80/sft	Sqm	1,291		₹ -
4	8.12	Providing and laying Flamed finish Granite flooring in required design and pattern, in linear as well as curvilinear portion of the building ,all complete as per the architecture drawings with 18mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 laid and jointed cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc .all completeas specified and as directed by the Engineer-in-Charge.Basic Rate-Rs.175/sft	Sqm	986		₹ -



SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5		Providing and fixing 18 mm thick gang saw cut, mirror polished, remoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.				
a	8.2.2.1	Granite of any colour and shade ( Area of slab upto 0.50 sqm)	Sqm	RO		
b	8.2.2.2	Granite of any colour and shade (Area of slab over 0.5 sqm. )	Sqm	29		₹ -
6	8.3.2	Extra for providing full edge moulding to 16mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer- in- Charge.				
		Granite work.	Rmt	67		₹ -
7	11.24	Extra for pre finished nosing to treads of steps of Marble/Granite stone.	Rmt	RO		
8	8.4	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	Rmt	67		₹ -
9	11.48	Grouting the joints of flooring/Walls tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg), including filling / grouting and finishing complete as per direction of Engineer-in-charge.	Sqm	RO		
10	8.5	Extra for providing opening of required size & shape for wash basins / kitchen sink in kitchen platform, vanity counters and similar location in marble / stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	Each Opening	27		₹ -
11	8.11	Granite stone of specified thickness in Dado/Riser/skirting laid on 12mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs,including rubbing mirror polishing complete.				
		18mm thick	Sqm	130		₹ -
12	8.1	Providing and fixing stone slab with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.				
		Granite Stone of approved shade	Sqm	15		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13	FMR	Supply and installtion spike resistance rubber flooring for Locker room it consist of Black rubber granules and 30% synthetic EPDM granules floor should be Environmental friendly, non-toxic, Recycled , non-polluted, anti-slip and anti-fatigue Laid with adhesive as per manufacturer's instruction over existing leveled surface with following Technical specification.500x500 tile Density (kg/m):1250/1400 Hardness (Shore a):65 Length (m):not less than 10 mtr Width (m):not less than 1 mtr Thickness (mm): 20mm (tolarence in thickness not less than ±0.3mm) Tensile Strength ASTM D41206A(2013) :- not less than 2MPa Tear strength ASTM D62400 (2012) :- not less than 10 kn/m Compression set ASTM D395-03(2008) Method B:-not less than 12%	Sqm	469		₹ -
14	FMR	Providing and laying GERFLOR or Equivalent Ceation Clic 6 mm thick synthetic, decorative, flexible, antistatic, abrasion group floor covering available in planks 17.2cm x 100cm with bevelled edges. ( wooden Look) made up of transparent wear layer 0.7mm thick, a design film, a compact reinforced under layer compressed and grained at high pressure etc complete as directed by Engineer.	Sqm	233		₹ -
						₹ -
<b>J</b>		<b>SUB HEAD: X:WATERPROOFING WORK</b>				
1	22.3	Providing and laying water proofing treatment in sunken protion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The arte includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	Sqm	738		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2	22.7	Providing and laying Waterproofing on horizontal areas by cleaning the surface and check for the structural cracks if any and repair them by using PU sealent material . The construction joint to be treated with cut open the groove & fill the same with PU sealent materials , the surface should be grinded to remove the loose laitence and then primed as per manufacturers recomendation followed by pouring or spraying of the PU waterproofing material forming the integral layer with the concrete surface (as per manufacturer's specification). The junctions to be provided with fillet using PU sealent as per manufacturer's specification . All the junctions around the services pipes to be treated propperly as per manufacturers specifications prior to application of the watreproofing treatment Testing of the waterproofing by filling in water for 48 hours for identifying any leakage. In case of leakage the same to be recitified & retested. Providing & Laying 150 gsm geo textile flollowed by screed ( avg 75mm ) for slope as desired .with Providing and laying 150 GSM geotextile as a seperation layer on top of the PU coating before placement of screed concrete and slope making part consists of providing and laying of 75 mm average thick screed concrete of M20 in slope as per manufacturers specification.	Sqm	893		₹ -
						₹ -
<b>L</b>		<b>SUB HEAD: XII :FALSE CEILING</b>				
1	12.45	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the				

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	12.45.2	12.5mm thick tapered edge gypsum fire resistance board conforming to IS :2095-Part I	Sqmt	1,811		₹ -
2	26.22	<p>Providing and fixing false ceiling at all heights with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS:476 (part-4), fire performance as per BS:476 (part 6 &amp;7), humidity resistance of 100%, thermal conductivity &lt; 0.043 W/m K as per ASTM 518:1991, in true horizontal level suspended on interlocking metal T-Grid of hot dipped galvanised iron section of 0.33mm thick (galvanized @ 120 grams per sqm including both sides) comprising of main-T runners of size 24x38 mm of length 3000mm, cross - T of size 24x32 mm of length 1200 mm and secondary intermediate cross-T of size 24x32 mm of length 600mm to form grid module of size 600 x 600 mm, suspended from ceiling using galvanised mild steel items (galvanizing @ 80 grams per sqm) i.e.</p> <p>50 mm long, 8 mm outer diameter M-6 dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x25x2 mm. Galvanised iron perimeter wall angle of size 24x24x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450mm center to center and 40 mm long dry wall S.S screws. The work shall be carried out as per specifications, drawing and as per directions of Engineer-in-Charge.</p>				
	26.22.1	With 15 mm thick tegular edged light weight calcium silicate false ceiling tiles.	Sqmt	469		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3	FMR	<p>Providing and Fixing Aluminium Perforated Metal Ceiling Torsion spring Customized Perforated Woodgrain Finish Plank Ceiling System, comprising of Plank of 600mm wide and 1200mm long manufactured out of 0.9mm thick Aluminium Alloy 3105 perforated 2.5mm dia 5.5mm c/c. With 16% open area. The metal ceiling panels shall be downward accessible with a minimum of four torsion springs per panel. Torsion Spring panel with two side legs die formed and two end legs die formed and punched to receive torsion springs (min two springs each end or side) for secure engagement into Tee Grid main runners which are factory punched to receive torsion springs. Planks will be square edged. The metal ceiling panels shall be downward accessible with a minimum of four torsion springs per panel. The Plank shall be Polyester powder coated in white colour. Main Runners: 24mm deep, inverted "Tee" sections, 3m long, with factory punched flanges to receive torsion spring assembly. Main Tee on center spacing to match panel length.</p> <p>Cross Runners: 24 mm deep, inverted "Tee" sections designed to interlock in to web of main tee section on designated spacing. Cross tee length to match panel length. Cross tees are spaced spacing 1200mm on center maximum. Suspension System: As per manufacturer standard considering type of plenum and its height.</p> <p>Paint finish – The panels will be pre treated in electro statically powder coated and cured with gas catalytic technology. (Wood grain Finish) Acoustic Felt: Non-woven felt made of glass-reinforced fiber glued over the perforation for sound absorption. NRC- 0.7</p>	Sqmt	1,125		₹ -
						₹ -
<b>M</b>		<b>SUB HEAD: XIII :WOOD WORK</b>				
1	FMR	<p>Providing and fixing solid flush door in single leaf 38 mm thick as per detailed drawings, approved face MDF on both sides with PU paint and Vision Panel and venetians, all necessary beads, moulding and lipping, brass oxidised fixtures. chromium plated handles on both sides and finishing etc. complete with frame.Door to be mounted on aproved make floor spring / Concealed Door closer ,Hinges - 4 Nos per shutter,Handles,Floor mounted Door Stopper,Lock with all hardwares complete.(1200x2250)</p>	Nos	12		₹ -
2	FMR	<p>Providing and fixing solid flush door in single leaf 38 mm thick as per detailed drawings, approved face with Laminates on both sides without vision panel and venetians, all necessary beads, moulding and lipping, brass oxidised fixtures. chromium plated handles on both sides and finishing etc. complete with frame.Door to be mounted on aproved make floor spring / Concealed Door closer ,Hinges - 4 Nos per shutter,Handles,Floor mounted Door Stopper,Lock with all hardwares complete.(1200x2250)</p>	Nos	11		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3	FMR	Providing and fixing of fully insulated 50 mm thick wooden fire / smoke check door sliding shutter using 31mm thick FR insulation with internal facia of 9mm thick calcium silicate board having density not less then 950 Kg/cum on both sides and faced with 4mm thick commercial ply facing including 15X55 mm size hardwood beading with fire and smoke seal of size 10 X4 mm fitted along vertical and horizontal edges of the shutter .The complete door system should be capable to achieve Two hour fire rating in accordance with BS:476 Part 20and IS:3614 part II.Rate to include 150x75mm Hardwood door frame duly embedded with Promseal Intumscent Smoke Strip as per manufacturer's specification all complete . The door shutter shall also have a vision panel 6mm thk,200mm x 300mm / 300mm x 300mm fire rated glass ( includes panic bar), surrounded with fire proof treated teakwood beading, all around complete in all respects as per manufactures specifications and direction of the Engineer-In-Charge.(FD1)with all hardwares complete.(1000x2250)	Nos	3		₹ -
4	FMR	Providing and fixing fire doors with 2 hour fire rating conforming to IS: 3614 (Part 2), BS 476 (Parts 20 & 22), ISO 834 ; 45 mm thick fully flush, double skin door shell with lock seam joints at stile edges made from 1.25 mm thick galvanized steel sheet including door frames made from 1.6 mm thick galvanized steel sheet formed to double rebate profile of size 143 mm x 57mm as per manufacturer's instructions, door frames and shutter primed with Zinc Phosphate stoving Primer and finished with Polyurethane Aliphatic grade or epoxy paint including ironmongery consisting of stainless steel ball bearing butt hinges 3 mm thick fixed flush to the frame and shutter,with all necessary fixtures and fasteners(Fire rated) & Hardwares etc. complete.with all hardwares complete.(FHC)	Nos	4		₹ -
5	FMR	Providing and fixing solid flush door in single leaf 38 mm thick as per detailed drawings, approved face with Laminates on both sides without vision panel and venetians, all necessary beads, moulding and lipping, brass oxidised fixtures. chromium plated handles on both sides and finishing etc. complete with frame.Door to be mounted on aproved make floor spring / Concealed Door closer ,Hinges - 4 Nos per shutter,Handles,Floor mounted Door Stopper,Lock with all hardwares complete.(Shaft Door-Flush Door)	Nos	6		₹ -
						₹ -
<b>N</b>		<b>SUB HEAD: XIV: MISCELLANEOUS WORK</b>				
1	FMR	Providing and placing FRP Panelled water storage tank, IS: 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet,outlet and overflow pipes but without fittings and the base support for tank.	Ltrs	20,000		₹ -
		Rectangular tank				

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2	FMR	Supply and Installation of WC Cubicle with Door, made of 12mm thick solid compact laminate (phenolic core board) based on thermosetting resins, homogenously reinforced with cellulose fibres and laminates both sides to desired colour and texture, all as per manufacturer's specifications. Doors shall be 12mm thick with edges chamfered. Standard Dimensions: Standard Overall Height of Cubicle : 1980mm Standard Ground Clearance : 150mm Standard Width of Cubicle : 1000mm - 1200mm Standard Width of Door : 600mm	Each	61		₹ -
		Accessories Grade of all stainless steel ironmongery shall be Grade 304 Satin Finish. Each Restroom compartment is equipped with: • Stainless Steel Latch cum Occupancy Indicator or SS Privacy Thumbturn with Indicator • Stainless Steel Grade 304 Door Knob of 30mm diameter • Zinc based Coat Hook • Stainless Steel Grade 304 Hinges with Cover Plates • Rubber Strip for the groove in the pilaster for reducing the noise levels of door closing.				
3	10.25	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				
a		In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	Kgs	250		₹ -
4	9.48	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete Fixed to openings /wooden frames with rawl plugs screws etc				
		M.S.grill work for windows and ventilators weighing 21 kg/sqm using M.S. flats, or M.S. square rods, For all sizes and floors	Kgs	RO		
						₹ -
<b>O</b>		<b>SUB HEAD: XV: ROOFING &amp; CLADDING WORKS</b>				

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	FMR	<p>Design, fabrication, supply, installation,testing, protection, cleaning &amp; handover of Aluminium Fins system custom designed to withstand the design wind pressure confirming to IS -875 part III. (The system must pass the proof test at 1.5 times design wind pressure without any failure).</p> <p>Aluminum fins shall be made out of 100mm x 100mm x 2 mm thk. of " Rectangle " shape fins spaced at equivalent distance support to Aluminium grid work of 158mm x 38 x 3mm thickness. fins profile shall be fixed on the 2.5mm thick Al Plate to form a frame. The fins frame is supported on the aluminium grid mullions with necessary fasteners in SS 316 &amp; MS / Aluminium alloy brackets with provision to accommodate movement at all floor levels. The bracketing system with Aluminium Alloy of 6005 T5 / MS HDG with built in serration &amp; serrated washers. Flasing / Trim / Floor Closure at Parapet level, floor level, beam bottom level and required flashings shall be provided continuously with required GI / Aluminium sheet. Internal &amp; External cancelled Flashings shall be 1.0mm thk GI sheet. External exposed flashing shall be 3mm thk. Aluminium sheet with PVDF coated matching with external Aluminium profiles. Internal exposed flashing shall be 2mm thk. Aluminium sheet with powder coated matching with internal aluminium profiles.All shade approval shall be as per Architect's Approval.</p>	Rmt	1,109		₹ -
2	FMR	<p>KALZIP/EQUIVALENT FC FAÇADE (FLAT PANELS) FOR VERTICAL FAÇADE</p> <p>Designing, providing and fixing of FC façade system comprising of followings layers            Outer Layer : KALZIP® Facade System FC 30/300 in 1mm thickness with PVDF2 finish and in EN AW 3004 aluminum alloy AlMn1Mg1 in accord with manufacturer's standard to suit forming operations.            Thickness: 1 mm            Panel Width: 300mm.            Load-bearing capacity values are based on Eurocode 9 and DIN18807 in accordance with building authority approval no. Z-14.1-581 issued by the German Institute of Building. The panels shall be fixed to specially designed Modular Aluminum Rails supplied from Panel Manufacturer along with panels and to be supported on Aluminium brackets. Item to include designing, supplying, installation and fixing profiled aluminium facades Including SE rails and other accessories, fasteners etc. The installation shall be carried out by an approved agency as approved by the architect</p>	Sqmt	1,350		₹ -



SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3	FMR	Providing and laying through specialized agency authorized by the roofing system manufacturer double skin insulated roofing system at all levels in roof structure consisting of 0.5-0.6 mm TCT colour coated galvalum steel sheets with top Skin element to be supplied in single length with no laps with a sheet element cover width of 400mm and a standing seam height of 65mm. The sheet shall be made from high tensile steel not less than 245 Mpa yield strength, having hot dipped metallurgical coating of 150 gms per sqm of aluminium and zinc alloy (both sides inclusive) comprising of 55% aluminium + 43.5% zinc + 1.5% silicon as per AS 1397-1993 / ASTM A446 Grade-E & A-792 with XRW/SDP Paint finish. The paint will have a total coating thickness of 35 micron, comprising of nominal 20 micron exterior coat on top surface and nominal 5 micron reverse coat on back surface over nominal 5 micron primer coat on both surfaces of approved colour shade. The Specially designed aluminium T- roof clips shall be provided to hold roof panels to the supporting structural members. The clips shall be extruded from structural grade Aluminum. The head of the clip shall accurately match with the roof panel corrugations to ensure the sheets slide freely during thermal expansion and contraction. The Clips shall have Thermal pad at the bottom of the clip to reduce thermal ridging effects. Panel side laps shall be field-seamed by portable seaming machine to make it leak proof with male and female components snugly anchored on to clip heads and clips & fixed to structural members by self drilling screws. The bottom sheet shall be perforated Colour Coated steel of nominal 0.45-0.55 mm total coated thickness (TCT) & with profile sheet of	Sqm	1,160		₹ -
4	10.16	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.				
		Hot finished welded type tubes	Kgs	54,000		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5	FMR	Supply & Fixing of Flashings, Ridges, Barge Capping etc Up to 600 mm girth with 0.45-0.55 mm TCT colour coated galvalum steel sheets of approved profile. The sheet shall be made from high tensile steel not less than 245 Mpa yield strength, having hot dipped metallurgical coating of 150 gms per sqm of aluminium and zinc alloy (both sides inclusive) comprising of 55% aluminium + 43.5% zinc + 1.5% silicon as per AS 1397-1993 / ASTM A446 Grade-E & A-792 with XRW/SDP Paint finish. The paint will have a total coating thickness of 35 micron, comprising of nominal 20 micron exterior coat on top surface and nominal 5 micron reverse coat on back surface over nominal 5 micron primer coat on both surfaces of approved colour shade. The flashing, ridges, barge cappings etc shall be installed in shape as per site requirement to suite shop drawing fixed with self tapping screws of size 10- 12 x 14 mm with EPDM washers including all necessary foam fillers and accessories to be used at Eaves, Ridges and Gable as per the manufacturers recommendation to form a complete roofing system and as per the direction of Engineer. NOTE:- Measurement shall be as on laid area.	Rmt	197		₹ -
6	FMR	Gutters -Supply and Fixing of 2 mm thick Aluminium Gutter up to 1000mm Girth along with Aluminium Expansion joints @ every 15 mtrs.	Rmt	197		₹ -
						₹ -
<b>P</b>		<b>SUBHEAD:XVI: GLASS &amp; RAILING WORK</b>				
1	FMR	Frameless "U" Channel Glazing : Design, fabrication, supply, installation, testing, protection, cleaning & handover of Frameless glazing system with Aluminium "U" Channel custom designed to withstand the design wind pressure confirming to IS -875 part III. (The system must pass the proof test at 1.5 times design wind pressure without any failure). The system shall be support the glass at bottom and wind resistance at top by means of continuous U channel concealed at the finished floor level and vertically butt glazed with non staining sealant joint between glass to glass. The weather sealant of approved make, baker rod, SS 316 grade fastners & hard setting blocks of EPDM, all in complete required to perform as per specification and drawing in conjunction with BOQ. Complete system shall be warranteed for minimum 10 yrs against design & workmanship defects. The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. All visible surfaces shall have Anodized finish with minimum 22 micron. All shade approval shall be as per Architect's Approval. The quote rate shall include all design, engineering & shop drawing approval from architect & consultant.				
1a		Providing & fixing the SGU in the U channel system with Glass Glass : 12mm clear FT Heat Soaked	Sqmt	608		₹ -
		<b>Patch Fitting Doors</b>				
1b		Quote rate for complete system as mentioned above Double Swing with Double Leaf	Nos	5		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1c		Quote rate for complete system as mentioned above Single Swing with Single Leaf	Nos	5		₹ -
2	FMR	Design, fabrication, supply, installation,testing, protection, cleaning & handover Single & Double shutter aluminium framed door/window designed to withstand the design wind pressure. The system shall have two barrier gasket system for weather sealing & provision for aluminium thrash hold at bottom . The profile system shall be of 140mm x 50mm in total for outer and shutter frame assembly with minimum of 2.5mm thickness. Door/window shutter shall have crimped corner at top and SS tie rod at bottom for rigid connection.The system shall have necessary arrangement, Three leaf projected type hinges of approved make , Microwave cured EPDM gaskets .Door /window shutter profile to accommodate the 12mm clear FT glass, weather sealants, SS 316 grade screws and fasteners of approved make, all in complete required to perform as per specification and drawing in conjunction with BOQ. The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. The structural profiles shall have minimum 2.5mm wall thickness. All the internal visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating of 60 - 80 micron confirming to AAMA 2604 & all externally visible surfaces shall have PVDF finish with minimum 35 micron confirming to AAMA 2605. The non visible aluminium surfaces shall have minimum chromatizing treatment. Quote rate for complete system as mentioned above with fittings including 12mm clear FT (Heat Soaked)	Sqmt	191		₹ -
3	FMR	Supply & Installation of Profiled Aluminium Louvers				
		Louvers as per drawing wide fixed system with end cups to the supporting framework of aluminium. The louvers roll formed from Aluzinc Az 150 an alloy containing 55% aluminium,44% Zinc and 1% silica,manufactured under ASTMA -792 norms,shall be clipped horizontally along its length to the support vertically, provided in varying length as per site required subject. The supporting profile shall be mechanically fixed to aluminium, supporting structure 75x35x2.8mm spaced 150mm from panel edges and a given distance in drawing. Panels to be fixed in a module. The supporting aluminium structure shall be bracketed to the bracking concrete wall/brickwall with Aluminium brackets to align the erection substructure within the tolerance of +-span of plumb line and level with a non cumulative tolerance of a maximum of 2mm. Aluminium alloy for substructure shall comply with ISO 6063. The louver and shall be finished with end cups/plate which shall be injected aluminium section.The louvers blades and components are finished in silicon polymer/PVDF finished with the paint systems based on ployster and suitable for exterior application.The supporting framework of aluminium shall be anodised to 15-20 microns.	Sqmt	19		₹ -

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4	FMR	Seamless Glass Railing:Design, fabrication, supply, installation,testing, protection, cleaning & handover of Seamless Railing system custom designed to withstand the design wind load & Live load confirming to IS -875 (The system must pass the proof test at 1.5 times design wind pressure without any failure).Railing system shall be made out of the Aluminium U Channel with Anodized finish of 22 micron fixed to the floor level with required SS Fastners. The glass shall be insert in the U channel with ABS (Acrylonitrile Butadiene Styrene), weather sealant, Setting blocks, necessary fittings for support & arrangement as per the design drgs. Glass shall be covered with SS handrail on top of the glass all in complete required to perform as per specification and drawing in conjunction with BOQ.				
		Complete system shall be warranteed for minimum 10 yrs against design & workmanship defects.The system shall be designed of floor height units spanning between the floors with Dead load & wind load brackets with provision to accommodate movement at all floor levels and at every grid panels horizontally. The system shall be designed to accommodate 24mm IGU in vision area. System shall accomodate openable panel as per architectural requirment in the system . All fix vision glass and openable shall look similar in the elevation. Aluminium Edge Guard with Black Anodized shall be fixed at all vertial & Horizontal grooves. Each glass panel shall be supported for dead load at the bottom of glass with black anodised glass retainers two per panel. The three barrier gasket system consists of 1st Barrier of Silicon gasket and 2nd & 3rd barrier of EPDM gaskets to achieve the required compression & seal in the system. EPDM Gaskets shall be of micro cured (Online Curing) with shore A hardness of 60-65.Flasing / Trim / Floor Closure at Parapet level, floor level, beam bottom level and required flashings shall be provided continueously with required GI / Aluminium sheet.				
		Internal & External cancelled Flashings shall be 1.0mm thk GI sheet. External exposed flashing shall be 3mm thk. Aluminium sheet with PVDF coated matching with external Aluminium profiles. Internal exposed flashing shall be 2mm thk. Aluminium sheet with powder coated matching with internal aluminium profiles.The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. The structural profiles shall have minimum 2.5mm wall thickness. All the internal visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating of 60 - 80 micron confirming to AAMA 2604 & all externally visible surfaces shall have PVDF finish with minimum 35 micron confirming to AAMA 2605. The non visible aluminium surfaces shall have minimum chromatizing treatment.				
4a		Quote rate for complete system as mentioned above under (2) Glass : 13.52mm Laminated glass (6mm clear HS + 1.52mm PVB + 6mm clear HS)Providing & fixing the laminated glass in the railing system	Rmt	183	₹	-

SL. NO	DSR 2016	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5	10.28	Providing and fixing stainless steel ( Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, ( for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	Kgs	2,277		₹ -
						₹ -

**BILL OF QUANTITIES FOR HVAC WORK**

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>1.0</b>	<b>VRF Outdoor units</b>				
1.1	Supply,Installation,Testing & Commissioning of Compact Inverter Air Cooled type outdoor units of VRF system having hermetically sealed scroll type compressors & separate 1# inverter compressor, condenser coil fabricated from Seamless Copper tube & Plate type Al. Fins of Multi Row with "Anti Corrosive" treatment , Axial Flow, upward throw condenser fan, Condenser fan - motor unit, insulated refrigeration piping, power / control wiring from ELCB/MCB to Unit, and earthing, external wiring between Indoor & Outdoor units, all system controls-safety,External Control Adaptor. The outdoor unit shall be pre charged with first charge of R 410A refrigerant. etc. complete as per Technical Specifications and drawing.Each Outdoor units with High Pressure switch, Fan driver overload protector, Over current relay, Inverter Overload Protector & Fusible Plug. The unit shall be suitable for 415 ± 10 % volts, 50 Hz, 3 phase AC supply, and IP 55 protection.MS Stand & Other accessories like Antivibration Pads shall be included.Bypass Control Module shall be included to avoid the failure of other Units due to One IDU.				
	Note : Fins and copper tubes of Air Cooled Condenser alongwith copper tubing / piping with all joints and U-Bends exposed to coastal areas corrosive atmosphere / aggressive ambient, shall				
1.1.1	24 HP ODU	Nos.	RO		-
1.1.2	18 HP ODU	Nos.	1	₹	-
1.1.3	12 HP ODU	Nos.	1	₹	-
1.1.4	10 HP ODU	Nos.	2	₹	-
1.1.5	8 HP ODU	Nos.	1	₹	-
	<b>Note : Vendor shall submit the Energy simulation Curves along with Commercial Bid.</b>				
<b>2.0</b>	<b>VRF Indoor units</b>				
2.1	Supply, installation, testing and commissioning of VRF based indoor units complete with Corded/Cordless remote & all necessary accessories, Vibration isolators & supports.				
2.1.1	<b>4 Way flow Cassette</b> type indoor units with in built Automatic drain-up pump decorative panel, electronic expansion valves, high efficiency filters,6Amps/15 Amps Socket,Cablling from Socket to Unit & other accessories etc with following approximate capacities :				
2.1.1.1	3.2 TR / 1000 cfm	Nos	RO		-
2.1.1.2	1.5 TR / 550 cfm	Nos	14	₹	-
2.1.1.3	1 TR / 350 cfm	Nos	4	₹	-
3.1.2	<del>Ceiling concealed ductable type indoor unit</del> with in built Automatic drain-up pump decorative panel, electronic expansion valves, high efficiency filters,6Amps/15 Amps Socket,Cablling from Socket to Unit & other accessories etc having following approximate capacities				
3.1.2.1	6.5 TR - 2100 CFM	Nos.	4	₹	-

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.2	Digital Central remote Controller Integratable upto 70 remote controller groups & 70 indoor units can be controlled. In addition to basic controls such as settings for peration/stop,the operation mode & temperature,the air quantity and auto louver can be set.If a problem occurs, an alarm code immediately shows the details of the problem.AN external input terminal is provided as standard.Ext ernal signals enable the following function: central operation/stop,demand control,emergency stop,central operation output,& central alarm output.Sequential controlling,Scheduling,Energy Navigation,Power Proportional Distribution features shall be included. <b>Note : Manufacturer shall provide Technical details along with commercials.</b>	Nos	1		₹ -
3.3	Supply, installation, testing and commissioning of refrigerant liquid & gas piping using eddy current tested Copper pipes and fittings like elbows, couplers, tee joints, brass fittings, "U" loops, expansion loops,Refnets etc. Supports consisting of GI box / "C" sections & female anchor fasteners with full threaded GI rods, insulation of pipes using 19 mm thick elastomeric closed cell Nitrile Rubber insulation material having class "O" for fire properties, structural clamps with hard PVC pipe sleeves under the clamps to protect insulation at supports, tagging to enable tracing connectivity to respective units as per shop drawings to be generated by contractor and approved by consultant. Submission of test reports in approved format forms a part of this item scope. Making up of any leakages occuring during testing / commissioning / first calender year from handing over, including supply, labour, consumables, refrigerant top up, oil top up and incidental expenses also forms a part of the scope covered under this item.				
3.3.1	6.4mm dia	Rmt.	80		₹ -
3.3.2	9.5mm dia	Rmt.	65		₹ -
3.3.3	12.7mm dia	Rmt.	120		₹ -
3.3.4	15.9mm dia	Rmt.	115		₹ -
3.3.5	19.1mm dia	Rmt.	80		₹ -
3.3.6	22.2mm dia	Rmt.	80		₹ -
3.3.7	28.6mm dia	Rmt.	75		₹ -
3.3.8	34.9mm dia	Rmt.	45		₹ -
3.3.9	41.3mm dia	Rmt.	15		₹ -
3.3.10	46.8mm dia	Rmt.	15		₹ -
3.4	GI ladder type cable tray 450 mm wide for supporting refrigerant piping in shafts / terrace, complete with supports.	Rmt.	40		₹ -
3.5	GI ladder type cable tray 300mm wide wih Top Cover for supporting refrigerant piping in shafts / terrace, complete with supports.	Rmt.	120		₹ -
3.6	Supply,Installation, testing and commissioning of rigid heavy class PVC Piping complete with fittings,supports & duly insulated with 6mm thick closed cell crosslinked polythene (XLPE) tubular insulation				
3.6.1	25 mm dia	Rmt.	25		₹ -
3.6.2	40 mm dia	Rmt.	80		₹ -
3.7	63 Amp TPN, Isolator + Immunized ELCB (100mA)- for ODU's with with Weather proof box (IP 67)	Nos.	7		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.8	Supply & installation of corded remote controller for above	Nos	22		₹ -
3.9	Supply & installation of Shielded Communication/Control Cabling 2c x 1.5 Sq.mm with 25 Dia PVC Conduit	Rmt.	300		₹ -
3.10	Supply, fabrication, installation and at the proposed location of GI base frame /platform for outdoor units as mentioned above complete with vibration isolation pads, supports, hangers, railing, brackets etc. Construction as approved by Architect / Consultant. Apply 2 coats of paint Finish painting to be as approved by Architect. Outdoor unit structure to be provided by A.C contractor	Nos.	6		₹ -
<b>4.0</b>	<b>Ventilation fans</b>				
4.1	Supplying, installing, testing and commissioning of <b>INLINE FANS</b> suitable for installing in any position in vertical or horizontal ducts. The casing shall be double skin, internally acoustically lined and constructed of galvanised steel. The fan shall be DIDW with forward curve impeller fitted with maintenance free external rotor motor. The motor shall be suitable for 220±10% volt single phase 50 cycles AC supply. All units shall be complete with duct flexible connector and volume control damper. The fan shall have low sound level exceeding not more than 40 DBA at three metre distance. Quoted cost shall include control & starter panel, OLP, SPP, ON/OFF push buttons with ON indications, 2nos. non polarised NO-NC contacts for 3 phase fans and switch socket MCB and power cabling for single phase fans.( Single phase Fans shall be with MCB Only,) Cabling: Power cabling of copper armoured cable from control panel to motor with double compression gland. Cabling and earthing limited to 10 RMT max				
4.1.1	Inline fan with 900 cfm, 15mm static pressure for toilet 01 exhaust	Nos.	2		₹ -
4.1.2	Inline fan with 600 cfm, 15mm static pressure for toilet 02 exhaust	Nos.	4		₹ -
4.1.3	Inline fan with 300 cfm, 15mm static pressure for toilet 02 exhaust	Nos.	4		₹ -
<b>5.0</b>	<b>DUCTING &amp; AIR DISTRIBUTION PRODUCTS</b>				
5.1	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/ round ducting as per "SMACNA" standards & specifications, complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports, angle frames etc.as per approved drawings and specifications of following sheet thickness complete as per specifications, requirement, standard and drawings.				
5.1.1	24 SWG - GSS (0.63mm)	Sqm	50		₹ -
5.1.2	22 SWG - GSS (0.80mm)	Sqm	100		₹ -
5.1.3	20 SWG - GSS (1.00mm)	Sqm	20		₹ -
5.1.4	18 SWG - GSS (1.25mm)	Sqm	0		₹ -



S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.2	Supply, installation, testing and balancing of powder coated Extruded Aluminium <b>Continuous Grilles</b> with 4 side Flanges in accordance with the approved shop drawings and specifications.				
5.2.1	150 MM	RM	150		₹ -
5.2.2	100 MM	RM	25		₹ -
5.3	Supply, installation, testing and balancing of Powder coated extruded aluminium construction square shape ceiling <b>Supply air diffusers</b> with removable core & anti smudge ring & volume control dampers as per approved drawings and specifications. Supply Air diffuser with damper flush type shall be 600 x 600 panel size with active section of sizes given below. Diffuser shall Have Round Inlet connection of required quantity of air with 20 Gauge GSS & 10 mm Open cell Nitrile rubber Insulation				
5.3.1	450 x 450	No	5		₹ -
5.3.2	375 x 375	No	10		₹ -
5.3.3	300 x 300	No	30		₹ -
5.3.4	225 X 225	No	2		₹ -
5.3.5	300 Dia. Round diffuser	No	0		₹ -
5.4	Supply, installation, testing and balancing of Powder coated extruded aluminium square shape <b>return air diffusers</b> with removable core, antismudge ring & without volume control damper as per specifications. (Suitable for 600 X 600 Grid Ceiling )	No.	2		₹ -
5.5	Supply, installation, testing and balancing of Powder Coated Extruded Aluminium <b>Linear supply Air 3 Slot Diffuser</b> complete with air pattern controllers & Hit & Miss volume control damper with acoustically line 22 G G.I plenum as per specifications and approved drawings.	Rm	5		₹ -
5.6	Supply, installation, testing and commissioning of Powder Coated Extruded Aluminium <b>Multi Slot return Air Diffuser</b> with air pattern controller as per specification and approved drawings.	Rm	5		₹ -
5.7	Supplying & fixing of opposed blade <b>volume control dampers</b> in supply air duct collars as per approved drawings and specifications. Damper shall be with 18G GSS body and blades shall be with aluminium airfoil construction.	Sqm	5		₹ -
5.8	Supply, installation, testing and balancing of Power coated extruded aluminium, <b>fresh air inlet louvers</b> with bird screen and	Sqm	2		₹ -
5.9	Supply, installation , testing and commissioning Powder Coated Extruded Aluminium Air transfer <b>door grilles</b> with rear side frame as per approved shop drawings.	Sqm	1		₹ -
5.10	Supply, Installation, Testing and Commissioning of <b>insulated flexible ducts</b> . The insulated flexible duct shall have inner core made of double lamination of metalized polyester film permanently bonded to a coated spring steel wire helix.				
	Fibreglass insulation of minimum 14 kg.cu.m. density having a R value $4.2^{\circ}\text{F-Ft}^2\text{-hr/btu}$ and 25 mm thk shall be wrapped over the inner core and covered with stronger outer jacket cum vapor barrier made of fibreglass reinforced metalized polyester film laminate.				

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.10.1	Insulated Flexible ducts of 300 mm dia	Rm	40		₹ -
5.10.2	Insulated Flexible ducts of 250 mm dia	Rm	10		₹ -
5.10.3	Insulated Flexible ducts of 200 mm dia	Rm	5		₹ -
5.10.4	Insulated Flexible ducts of 150 mm dia	Rm	0		₹ -
5.10.5	Insulated Flexible ducts of 100 mm dia	Rm	0		₹ -
5.11	Supply, installation and adjusting of <b>disc valves</b> suitable for exhausting toilet foul air ,comprising of an adjustable centre cone and coupling sleeve made of Aluminum sheet duly epoxy painted with approved color. The disc valve shall be fitted with a galvanised steel installation frame and the sleeve shall incorporate a foam-rubber gasket for airtight sealing. The centre cone should be adjustable for balancing and with a locking arrangement to maintain the desired flow rate.				
5.11.1	150mm Dia	Nos	55		₹ -
5.12	Supply, installation, testing and commissioning of motorised combined <b>smoke &amp; fire damper UL 555-S listed</b> complete with control panel, inter connecting wiring at locations shown in approved shop drawings and as per specifications.				
5.12.1	Smoke & Fire Dampers.	sq.m	0		₹ -
5.12.2	Motorized Actuators (10 NM) & Control Panel	Nos.	0		₹ -
5.12.3	Power & Control Cabling for Operation Of Dampers.	Lot	0		₹ -
5.13	Supply, installation, testing and balancing of Collar Dampers.	Sq.m	7		₹ -
5.14	Supply, installation, testing and commissioning of Silicon Bulb Type <b>Constant Air Flow Regulator</b> 50 Cfm Capacity with Necessary Accessories	Nos	40		₹ -
5.15	Supply, installation, testing & commissioning of Preinsulated Ducts UL-181 certified phenolic sandwich panel comprise with fibre free high performance rigid thermoset insulation core, faces on both sides 80/80 microns embossed aluminium foil. Aluminium foil lacquered with corrosion resistant polymer varnish. Core manufactured with CFC/HCFC free blowing agent. Density of panels 60/65 kg./m <sup>3</sup> +/-5. Thermal conductivity 0.0285 W/mK at 10 Degree C. Suitable for 1" WG internal positive pressure. Vendor to include in his scope all accessories, fittings, hangars, supports, joining & rigging accessories & all other items as per the manufacturers specifications necessary to bring the system to satisfactory working condition.				
7.3.1	20 mm thick	Sqm	0		₹ -
<b>6.0</b>	<b>INSULATION</b>				
6.1	Supply, and fixing of Acoustic insulation with 15mm thick open cell nitrile rubber with Micro-bial coating - Class 1 fixed with manufactures recommended Adhesives (Density 160 Kg/m <sup>3</sup> )..	Sqm	20		₹ -
6.2	Supplying, of <b>acoustic lining</b> on wall and ceiling of <b>AHU rooms</b> with 25mm thick Rigid Board of Glasswool one side aluminum faced and other side black glass cloth lamination, density 70 to 80 kg/cu.m has to be fitted directly on the wall of the room with the help of screw (2 inch) and GI washers (3 inch x 3 inch)/PVC Gitti (1 inch). If the acoustic board is placed with the help of GI washer, it has to be painted in black color to	Sqm	0		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6.3	Supplying and fixing of following thickness closed cell Nitrile rubber (Class "O") insulation on existing duct after applying Manufacturers recommended adhesive for Nitrile rubber. The joints shall be sealed with 50 mm wide and 3 mm				
6.3.1	19 mm thick	Sqm	0		₹ -
6.3.2	13 mm thick	Sqm	170		₹ -
<b>ANNUAL MAINTAINANCE CONTRACT:</b>					
1	AMC on comprehensive basis including cost of labor, components, refrigerant, oil, belts, electrical / electronic parts, compressor, coils, filters, motors etc., consumables, refrigerant, transport and taxes, for <b>year 1</b> from date of completion of DLP - quantity & configuration of units as quoted by you in VRF equipment section	Job	L.S.		
2	AMC on comprehensive basis including cost of labor, components, refrigerant, oil, belts, electrical / electronic parts, compressor, coils, filters, motors etc., consumables, refrigerant, transport and taxes, for <b>year 2</b> from date of completion of DLP - quantity & configuration of units as quoted by you in VRF equipment section	Job	L.S.		
3	AMC on comprehensive basis including cost of labor, components, refrigerant, oil, belts, electrical / electronic parts, compressor, coils, filters, motors etc., consumables, refrigerant, transport and taxes, for <b>year 3</b> from date of completion of DLP - quantity & configuration of units as quoted by you in VRF equipment section	Job	L.S.		
<b>Total</b>					₹ -

## BILL OF QUANTITIES FOR PLUMBING WORK

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>A 1</b>	<b>Internal water supply</b>				
<b>A 1.1</b>	Supply, Installation, testing and commissioning of the following <b>CPVC pressure Pipes as per ASTM D 2846 (SDR 11.5 below 2" and schedule 80 for 2" and above)</b> .Cut to required lengths including all necessary fittings and specials such as bends, tees, unions, reducers, flanges and plugs etc. The pipes & fittings shall be <b>tested to a pressure of 15 Kg/Sq.cm</b> . Fixing at wall/ ceiling level supported by clamps, hangers etc. as per specification and Cutting hole in wall / floor / slab and making good the same <b>with 1:1 Geru mixed cement mortar complete</b> as required. PVC / G.I. heavy class pipe sleeve of larger diameter shall be provided wherever the pipes crossing the walls/floor slab and sealing the sleeves as per consultants requirement, jointing & making proper connections. <b>( Concealed piping in toilets for Domestic &amp; Flushing water)</b>				
<b>a</b>	40mm NB	7	RM		₹ -
<b>b</b>	32mm NB	29	RM		₹ -
<b>c</b>	25mm NB	84	RM		₹ -
<b>d</b>	20mm NB	100	RM		₹ -
<b>e</b>	15mm NB	483	RM		₹ -
<b>A 1.2</b>	Supply, Installation, testing and commissioning of the following <b>CPVC pressure Pipes as per ASTM D 2846 (SDR 11.5 below 2" and schedule 80 for 2" and above)</b> .Cut to required lengths including all necessary fittings and specials such as bends, tees, unions, reducers, flanges and plugs etc. The pipes & fittings shall be <b>tested to a pressure of 15 Kg/Sq.cm</b> . Fixing at wall/ ceiling level supported by clamps, hangers etc. as per specification and . Cutting hole in wall / floor / slab and making good the same <b>with 1:1 Geru mixed cement mortar complete</b> as required. PVC / G.I. heavy class pipe sleeve of larger diameter shall be provided wherever the pipes crossing the walls/floor slab and sealing the sleeves as per consultants requirement, jointing & making proper connections. <b>(Vertical down take in Shaft) (Domestic &amp; Flushing)</b>				
<b>a</b>	50mm NB	QRO	RM		
<b>b</b>	40mm NB	47	RM		₹ -
<b>A 1.3</b>	Providing, fixing, jointing & testing of full way lever operated <b>forged brass ball valve</b> of brass body with forged brass hard chromeplated steel ball tested to a pressure not less than 20 Kg / sqcm with threaded / flanged joints complete with G.I. flanges, G.I. nut bolts, G.I. washers etc.				
<b>a</b>	40 mm NB	8	Nos		₹ -
<b>b</b>	32mm NB	12	Nos		₹ -

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
c	25mm NB	12	Nos		₹ -
	<b>TOTAL OF 'A'</b>				₹ -

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>B</b>	<b>Soil,Waste, Vent and Rain Water</b>				
<b>B1</b>	<b>Internal drainage</b>				
<b>B 1.1</b>	Providing, fixing, jointing & testing of <b>UPVC pipe Type-B</b> for Soil, Waste upto 160mm dia. confirming to IS 13592 cut to required lengths including all necessary fittings and specials such as as 45 or 90 deg. bends, Tee's, Y's, access pipe with <b>solvent cement jointing</b> . Setting the pipes in cement concrete M-15 as per specifications after testing of pipes. <b>(For Pipes buried in flooring)</b>				
<b>a</b>	160 mm NB	QRO	RM		
<b>b</b>	110 mm NB	64	RM		₹ -
<b>c</b>	75 mm NB	185	RM		₹ -
<b>B 1.2</b>	Providing, fixing, jointing & testing of uPVC agricultural (6kgf/cm <sup>2</sup> ) grade pipes and fittings conforming to IS 4985 - 2000 complete with <b>solvent cement jointing</b> with testing of pipes and making the joints leak proof. <b>(For Pipes Buried in Toilets from Wash Basin etc to Main Drain)</b>				
<b>a</b>	50 mm NB	23	RM		₹ -
<b>b</b>	40 mm NB	23	RM		₹ -
<b>c</b>	32 mm NB	QRO	RM		
<b>B 1.3</b>	Providing, fixing, jointing, testing and commissioning of <b>UPVC pipe Type-A</b> for vent and Type-B for Soil, Waste drains upto 160mm dia. confirming to IS 13592 cut to required lengths including all necessary fittings and specials such as as 45 or 90 deg. bends, Tee's, Y's, access pipe with <b>rubber ring jointing</b> . Fixing at wall / ceiling level supported by galvanized brackets & pvc coated clamps & hangers etc. <b>(For Soil, Waste, Vent pipes in shaft etc.)</b>				
<b>a</b>	110 mm NB (Type B)	10	RM		₹ -
<b>b</b>	75 mm NB (Type B)	10	RM		₹ -
<b>c</b>	50 mm NB (Type A) (Vent )	QRO	RM		
<b>B 1.4</b>	Providing, fixing, jointing & testing in position <b>UPVC floor trap (plain / multi) with 50 mm water seal</b> (IS 14735-99) of following sizes for the embedded areas. Making proper connection, cutting chase / hole in floors /slabs and bringing the same in proper condition and shape after placing the trap in right position complete as required with encasing in CC M-15.				
<b>a</b>	50 mm inlet and 75 mm outlet. (UPVC)	72	Nos		₹ -
<b>B 1.5</b>	Providing & fixing in position 80mm NB "P" type FCO trap of self cleaning type ( <b>inlet to "P" trap to be 100mm dia</b> ) including brass 125mm dia CP grating, lead jointing embedding in concrete etc. all complete.	8	Nos		₹ -
<b>B2</b>	<b>Rain Water Drainage</b>				

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>B 2.1</b>	Providing, fixing, jointing, testing and commissioning of UPVC pipe Type-A for R.W. upto 110mm dia. confirming to IS 13592 & AGRI for R.W. above 110 mm dia confirming to IS:4985 cut to required lengths including all necessary fittings and specials such as 45 or 90 deg. bends, Tee's, Y's, access pipe with <u>rubber ring jointing</u> and fixing of required size C.I. Grating on terrace. Fixing at wall / basement ceiling level supported by galvanized brackets & pvc coated clamps & hangers etc. Complete. <b>(For Vertical &amp; Horizontal Rain Water Pipes)</b>				
<b>c</b>	160 mm NB (Agri. 6kg/cm2)	43	RM		₹ -
<b>B 2.2</b>	Providing & Fixing Heavy <b>CI Grating</b> at The Collection Point of Rainwater Pipe On Terrace of approved design. <b>(Rain water Khurra)</b>				
<b>b</b>	300 mm dia; or 300 x 300 square	6	Nos.		₹ -
<b>TOTAL OF " B "</b>					₹ -

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>C</b>	<b>Sanitary fixtures &amp; fittings (installation)</b>				
	<b>Note - The contractor shall supply all fixing / supporting / accessories, devices, nuts, bolts, screws, hangers, C.P. connector, male / female elbows, C.P./S.S Extension Pieces &amp; flanges, C.P. bottle traps,Waste coupling,Rubber bush,Teflon tape,flexible pipe,chain plug, C.I. chair bracket for W.C/Wash Basin as required and install the fixture / fitting in a neat workman like manner.</b>				
<b>C 1</b>	Supply,Fixing, testing and commissioning of the following items in position in a complete working order.				
<b>C 1.1</b>	Supply,Fixing, testing and commissioning of white vitreous china <b>Wall Mounted European water closet</b> with C.P. bolts, nuts, supporting arrangements, bakelite seat & cover with C.P. hinges & rubber buffers, complete with all accessories. Including cutting & making good the walls & floors wherever required	17	Nos		₹ -
	<b>Consealed Flushing Cistern with mounting bracket</b>				
<b>C 1.2</b>	Supply,Fixing, testing and commissioning of vitreous china Under/Over counter type wall hung <b>wash basin</b> with C.I./M.S. brackets duly painted, C.P. brass waste, C.P. brass chain with rubber plug, 32 mm diameter C.P. cast brass bottle trap with extension piece, wall flange and union complete, including cutting and making good the walls/floors wherever required.	26	Nos		₹ -
<b>C 1.3</b>	Supply,Fixing, testing and commissioning of white viterous china large <b>flat back urinal</b> supported by CI / MS bracket duly painted, including CP brass waste with dome type grating, CP cast brass bottle trap with extension piece, wall flanges complete with all accessories.	20	Nos		₹ -
<b>C 1.4</b>	Supply,Fixing, testing and commissioning of automatic flushing systems for urinal to ensure flushing only immediately after use, comprising of all plumbing, electronic and electrical items. CP brass flush pipe with CP brass elbow, CP brass spreader, CP wall flange, infrared photo cells, eyes electrically operated solenoid valve, step down transformer / equipment and any other item required to provide satisfactory functioning. Including necessary wall cutting / chasing and making good, as required.	20	Nos		₹ -
<b>C 1.5</b>	Supply,Providing & fixing 600mm x 450mm x 6mm thick frameless <b>plate glass mirrors</b> with hard PVC sheet backing, PVC beading, fixed on PVC/rubber bushes, complete.	20	Nos		₹ -
	<b>TOTAL OF " C "</b>				₹ -



S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>D</b>	<b>CP fittings (installation)</b>				
D 1	Supply,Fixing, testing and commissioning of the following items in position in a complete working order.				
A.2.1	Supply,Fixing of C.P. Wall Divertor with provision for <b>Overhead Shower</b> with 115mm Long Bend , including provision of Shower Arm 190 mm Long Heavy Casted Body with along with spout and head of approved make & model.	46	Nos		₹ -
A.2.2	Supply,Fixing, testing and commissioning storage type <b>50 Litres Water gyser</b> with all nessasary control afty provision heating alumate anode rod thermal cutout. Gyser shall be three star rated approved make & model	7	Nos		₹ -
D 2.3	Supply,Fixing, testing & commissioning of <b>Health Faucet</b> consisting of jet spray, triangular spacer attached with toilet seat hinges, C.P. brass angle valve with filter & C.P brass flexible pipe, wall flange complete as required.	17	Nos		₹ -
D 2.4	Supply,Fixing, testing and commissioning of C.P. brass <b>single hole basin mixer or pillar cock</b> of approved make & model <b>"including providing &amp; fixing connector"</b> complete as required.	20	Nos		₹ -
D 2.5	Supply,Fixing, testing and commissioning of roll type <b>Toilet paper holder</b> of approved make & model	17	Nos		₹ -
D 2.6	Supply,Fixing,testing and commissioning heavy quality chromium plated <b>liquid soap dispenser</b> fixed with brass CP screws to wall etc. all complete of approved make & model	14	Nos		₹ -
D 2.8	Supply,Fixing, testing and commissioning of 15 mm dia C.P. brass <b>2 way bib cock</b> with C.P. wall flange of approved make & model	17	Nos		₹ -
D 2.9	Supply,Fixing, testing and commissioning of 15 mm dia C.P. brass <b>bib cock</b> with C.P. wall flange of approved make & model	60	Nos		₹ -
D 3.0	Supply,Fixing, testing and commissioning <b>stainless steel sink with CI bracket for supporting</b> , 12mm NB CP waste coupling with brass CP chain & rubber plug, brass CP trap with CP wall cap etc. complete of approved make & model.	1	Nos		₹ -
	Size upto 600 x 600 single bowl without drain board				
D 4.0	Supply,Fixing, testing and commissioning of <b>Long body bib cock</b> with C.P. wall flange of approved make & model.	20	Nos		₹ -

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
D 5.0	Supply,Fixing, testing and commissioning of C.P. brass <b>angle valve</b> with C.P. wall flange, Nut and Washer etc. complete as required of approved make & model.(For Gevser & WB)	66	Nos		₹ -
D 6.0	Supply,Fixing, testing and commissioning of S.S. 125mm dia. <b>Round jali</b> for <b>floor traps</b> etc. complete as required of approved make & model.	79	Nos		₹ -
D 7.0	Supply,Fixing of <b>Coat Hook</b> with brass CP Screw on Wall/Door of approved make & model	60	Nos		₹ -
D 8.0	Supply,Fixing of <b>Hand Dryer</b> with all required accessories of approved make & model	6	Nos		₹ -
	<b>TOTAL OF " D "</b>				₹ -

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>E</b>	<b>COLD WATER SUPPLY ( EXTERNAL )</b>				
	<b>Underground Piping</b>				
<b>E 1</b>	Supplying & fixing in position in complete working order of the following items.				
<b>E 1.1</b>	Providing, fixing, jointing, Testing & Commissioning of <b>uPVC ASTM Schedule 80 pipes as per ASTM D 1785 with GI fittings</b> as per specifications and complete with fittings such as sockets, unions, reducers long or short bends, elbows, nipples flanges, checknuts, clamps etc. <b>Pressure testing of piping and Providing protection to embedded G.I. fittings by wrapping hasson cloth over two coats of bitumen, encasing of pipes with CC M-15 &amp; back filling of trench complete as required. (For under ground piping Domestic &amp; External)</b>				
<b>a</b>	80 mm NB (sch. 80)	240	Mtr		₹ -
<b>b</b>	65 mm NB (sch. 80)	QRO	Mtr		
<b>c</b>	50 mm NB (sch. 80)	QRO	Mtr		
<b>d</b>	40 mm NB (sch. 80)	84	Mtr		₹ -
<b>e</b>	32 mm NB (sch. 80)	36	Mtr		₹ -
<b>E 1.2</b>	Providing, fixing, jointing & testing of full way lever operated <b>forged brass ball valve</b> of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 20 Kg / sqcm with threaded / flanged joints complete with G.I. flanges, G.I. nut bolts, G.I. washers etc.				
<b>a</b>	40 mm NB	8	Nos		₹ -
<b>b</b>	32mm NB	4	Nos		₹ -
<b>E 1.3</b>	Providing, fixing, jointing & testing of <b>butterfly valve</b> (upto 150mm dia with hand lever operation & above with gear box operation). Tested to a pressure not less than 16 Kg/Sq.cm. Including rubber gasket, G.I. flanges, G.I. nut bolts, G.I. washers & painting complete as required.				
<b>a</b>	80 mm NB	2	Nos		₹ -
<b>E 1.4</b>	Constructing <b>block masonry chamber</b> (for housing valves, Meters etc.) of block work with cement mortar 1:5 (1 cement:5 fine sand) plastering internal face with cement mortar 1:3 (1 cement: 3 fine sand and rough plaster on outer face with a floating coat of neat cement with light duty FRP / GRP manhole cover and frame Including excavation, dewatering, refilling, watering, ramming and removing the surplus excavated material complete as required. (All sizes are clear internal sizes).				
<b>a</b>	Size 600 x 600 x 900 mm deep with 600 x 600 Medium duty GRP / FRP frame and cover.	1	Nos		₹ -
	<b>TOTAL OF " E "</b>				₹ -

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>F1</b>	<b>External Sewer and Storm drainage</b>				
<b>F 1.1</b>	Supply, Installation, testing and commissioning in position the following <b>U-PVC pressure threaded Pipes as per ASTM D 1785</b> and threads conforming to IS:554. sch - 80. / sch -120. Cut to required lengths including all necessary fittings and specials such as bends, tees, unions, reducers, flanges and plugs etc in G.I. Jointing with Hold tite & teflon tape. Fixing at wall/ ceiling level supported by clamps, hangers etc. as per specification. Cutting hole in wall and making good the same with cement concrete M-15 complete as required. pvc pipe sleeve of larger diameter shall be provided wherever the pipes crossing the walls / floor slab and sealing the sleeves as per consultants requirement. Threading, jointing & making proper connections. For suspended piping support, Split Clamp with rubber lining shall be used as per required spacing. <b>(For external sewage line)</b>				
<b>a</b>	200mm NB	39	RM		₹ -
<b>b</b>	150mm NB	149	RM		₹ -
<b>c</b>	110mm NB	13	Nos		₹ -
<b>F 1.2</b>	Providing & fixing <b>uPVC pipes Class 5(PN) confirming to IS 4985</b> and fittings <b>on the external of the building</b> with cement joint. complete All required fittings such as bends, tees, offsets with cleaments, shoes, etc. to be included in the rates including MS angle, plate, pipe supports with anchor fasteners, GI "U" clamps, GI washers, GI nuts of adequate size and at adequate distance as required including painting of pipes and supports, all complete. (rates should be inclusive of encasing the pipes with 1:2:4 concrete around the pipe as per standard procedure) <b>(Rain water pipe)</b>				
<b>a</b>	150mm NB				
<b>b</b>	200 mm NB	8	Nos		₹ -
<b>F.3</b>	Supplying & fixing stoneware glazed <b>Gully Trap</b> in 1:1 cement sand joint & constructing <b>300 X 300 mm (12" X 12")</b> brick masonry chamber of 150 mm (6") thick brick masonry in 1:5 cement sand mortar 20 mm (3/4") thick 1:3 water proof cement plaster smooth inside & rough outside 100 mm (4") thick 1:2:4 PCC curb, C.I. frame & cover 7.5 KG.				
<b>F.4</b>	Providing and constructing B.B. Masonry chamber of suitable size including excavation, cement concrete bedding 150 mm thick in cement mortar outside the B.B. masonry (230 mm) in cement mortar 1:6 and benching from inside with 1:2:4 C.C. and plastering with cement mortar 1:3 from inside and outside and fixing air tight RCC covers of following sizes including curing etc suitable for following sizes of <b>inspection chambers.</b>				
<b>a</b>	900 X 600 mm	18	Nos.		₹ -
<b>F.5</b>	<b>Storm Water Drain</b>				

S.NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
<b>F.2</b>	Providing and constructing B.B. Masonry chamber of suitable size including excavation, cement concrete bedding 150 mm thick in cement mortar outside the B.B. masonry (230 mm) in cement mortar 1:6 and benching from inside with 1:2:4 Cement Concreat and plastering with cement mortar 1:3 from inside and outside and fixing RCC covers of following sizes including curing etc suitable for following sizes of <b>catch Basin</b> .				
<b>F.2.1</b>	450 mm x 450 mm	15	Nos.		₹ -
	<b>TOTAL OF " F "</b>				₹ -
	<b>TOTAL "A" to " F "</b>				₹ -

BILL OF QUANTITIES FOR ELECTRICAL WORK					
S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>PANEL &amp; DBs</b>				
1	Supply, Installation, Testing & Commissioning of Following Panels Refer SLD. Ref no :- 00/ELEC/5F/SLD				
a	DRESSING BLOCK MAIN PANEL	No	1		
2	Supply, Installation, Testing & Commissioning of Following MCCB with CBCT & EFR with all standard accessories in MS fabricated enclosure. It should have termination box of appropriate size to termination of requires cables on both the sides. Sets of Phase Indicating Lamps to be provided wherever specified.				
a	100A, 25KA, TPN , MCCB with ELR Metal Enclosure Box.	No	qro		
b	Supply, installation, testing & commissioning of 40 A FP MCB in IP43 Enclosure.	No	qro		
c	Supply, installation, testing & commissioning of 80 Amp FP MCCB with MS Enclosure.	No	qro		
d	Supply, installation, testing & commissioning of 63 Amp FP RCBO 300 mA in IP55 Enclosure.	No	qro		
a	Supply, installation, testing & commissioning of 40Amp FP RCBO 300 mA in IP55 Enclosure.	No	9		₹ -
f	Supply, installation, testing & commissioning of 32Amp FP RCCB 300 mA in IP55 Enclosure.	No	qro		₹ -
g	Supply, installation, testing & commissioning of 25Amp FP RCCB 300 mA in IP55 Enclosure.	No	qro		₹ -
h	Supply, installation, testing & commissioning of 16 Amp DP RCCB 300 mA in IP55 Enclosure.	No	qro		₹ -
i	Supply, installation, testing & commissioning of 40 Amp DP MCB in in IP43 Enclosure.	No	3		₹ -
j	Supply, installation, testing & commissioning of 25 Amp DP MCB in in IP43 Enclosure.	No	qro		₹ -
k	Supply, installation, testing & commissioning of 16 Amp DP MCB in in IP43 Enclosure.	No	2		₹ -
3	Supply, Installation, Testing & Commissioning of Distribution Boards complete with MCBs/Isolators/ Bus bars and interconnections. No fabricated DBs shall be allowed. Only DBs of specified makes as per list of materials shall be used all MCB 10 kA				₹ -
a	TPN as follows (LDB)	each	4		₹ -
	Incomer 40A FP TPN MCB- 1 No.				₹ -
	Sub Incomer for each phase 32Amp DP RCCB with 30 mamps tripping current				₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Outgoing 10A DP MCBs -24 Nos.				₹ -
					₹ -
b	TPN as follows (RPDB)	each	4		₹ -
	Incomer 40A FP TPN MCB- 1 No.				₹ -
	Sub Incomer for each phase 32Amp DP RCCB with 30 mamps tripping current				₹ -
	Outgoing 10A SP MCBs -24 Nos.				₹ -
					₹ -
b	TPN as follows (HVAC IDU DB)	each	2		₹ -
	Incomer 40A FP TPN MCB- 1 No.				₹ -
	Sub Incomer for each phase 32Amp DP RCCB with 30 mamps tripping current				₹ -
	Outgoing 10A SP MCBs -12 Nos.				₹ -
					₹ -
d	SPN as follows ( ELDB)	each	1		₹ -
	Incomer 16A DP RCCB,30 mA, - 1 No.				₹ -
	Outgoing 10 A SP MCBs -8 Nos.				₹ -
					₹ -
					₹ -
	1.All ELCBs will be of 30 mA unless specified separately				₹ -
	2.All MCB 10 kA				₹ -
	3. Base frame made up of suitable size of channel/Angles of 600mm height to be considered for all panels.				₹ -
	<b>TOTAL</b>				₹ -
<b>B</b>	<b>CABLE &amp; WIRING</b>				
1	Supply & Laying of Aluminum / Copper armoured XLPE ,FRLS Insulated cables as per IS 1554 to be fixed to walls, ceilings, on trays with suitable GI clamp at every 450 mm or to be laid in ready-made trench.				
a	4 Core 50 sq. mm. A2XFY.	mtr	qro		₹ -
b	4 Core 35 sq. mm. A2XFY.	mtr	qro		₹ -
c	4 Core 25 sq. mm.A2XFY	mtr	100		₹ -
d	4 Core 16 sq. mm. A2XFY	mtr	150		₹ -
e	4 Core 10 sq. mm. A2XFY	mtr	400		₹ -
f	4 Core 6 sq. mm. A2XFY	mtr	qro		₹ -
g	4 Core 25sq. mm. 2XFY	mtr	100		₹ -
h	4 Core 16 sq. mm. 2XFY .	mtr	100		₹ -
i	4 Core 10 sq. mm. 2XFY.	mtr	150		₹ -
j	4 Core 6 sq. mm 2XFY	mtr	100		₹ -
k	4 Core 4 sq. mm 2XFY	mtr	100		₹ -
l	4 Core 2.5 sq mm 2XFY	mtr	100		₹ -
m	4core 1.5 sq mm 2XFY	mtr	qro		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
n	3 Core 10sq. mm 2XFY	mtr	75		₹ -
o	3 Core 6sq. mm 2XFY	mtr	75		₹ -
p	3 Core 4sq. mm 2XFY	mtr	100		₹ -
q	3 Core 2.5sq. mm 2XFY	mtr	125		₹ -
2	Supply & laying of CU conductor , PVC insulated FRLS flexible cable (Y or YY) leads thro' already laid cable trays or conduit or raceways etc.				
a	One no of 25sqmm	mtr	qro		₹ -
b	One no of 16 sqmm	mtr	qro		₹ -
c	One no of 10 sqmm	mtr	100		₹ -
d	One no of 6 sqmm	mtr	150		₹ -
e	One no of 4 sqmm	mtr	100		₹ -
f	One no of 2.5 sqmm	mtr	175		₹ -
3	Termination of cables with Heavy duty Cu. Lugs & Brass cable glands. All Cable should be Double compression gland. The glands should be earthed along with brass clips for Earthing. <b>Bimetallic lugs are to be utilise for Aluminium cables for terminations.</b>				
a	4 Core 50 sq. mm. A2XFY.	nos	qro		₹ -
b	4 Core 35 sq. mm. A2XFY.	nos	qro		₹ -
c	4 Core 25 sq. mm.A2XFY	nos	qro		₹ -
d	4 Core 16 sq. mm. A2XFY	nos	10		₹ -
e	4 Core 10 sq. mm. A2XFY	nos	40		₹ -
f	4 Core 6 sq. mm. A2XFY	nos	qro		₹ -
g	4 Core 25sq. mm. 2XFY	nos	15		₹ -
h	4 Core 16 sq. mm. 2XFY .	nos	15		₹ -
i	4 Core 10 sq. mm. 2XFY.	nos	15		₹ -
j	4 Core 6 sq. mm 2XFY	nos	10		₹ -
k	4 Core 4sq. mm 2XFY	nos	15		₹ -
l	4 Core 2.5 sq mm 2XFY	nos	15		₹ -
m	4core 1.5 sq mm 2XFY	nos	qro		₹ -
n	3 Core 10sq. mm 2XFY	nos	10		₹ -
o	3 Core 6 sq. mm 2XFY	nos	10		₹ -
p	3 Core 4sq. mm 2XFY	nos	10		₹ -
q	3 Core 2.5sq. mm 2XFY	nos	10		₹ -
4	Termination of CU conductor , PVC insulated flexible cable (Y or YY) with Heavy duty Cu. Lugs & PVC glands of suitable size.				
a	One no of 50sqmm	nos	qro		₹ -
b	One no of 35sqmm	nos	qro		₹ -
c	One no of 25sqmm	nos	qro		₹ -
d	One no of 16 sqmm	nos	qro		₹ -
e	One no of 10 sqmm	nos	15		₹ -
f	One no of 6 sqmm	nos	15		₹ -
g	One no of 4 sqmm	nos	15		₹ -



S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
h	One no of 2.5 sqmm	nos	10		₹ -
5	Supplying & fixing of 2mm thick GI Perforated type cable Trays of cable tray shall be fixed to the ceiling/ wall with suitable size of GI clamp, appropriate dia threaded rod & 35mmx2mm thick GI slotted 'C' channel Patti OR suitable size of MS angle support (MS support to be painted with two coats of red oxide & two coats of enamelled paint ).Supports to be provided at an interval of 1 meter or lesser depending upon the location.				
a	Cable Tray = 150 mm wide x 50 mm height.	mtr	75		₹ -
b	Cable Tray = 300 mm wide x 50 mm height.	mtr	50		₹ -
c	Cable Tray = 450 mm wide x 50 mm height.	mtr	qro		₹ -
d	Cable Tray = 600 mm wide x 75mm height.	mtr	qro		₹ -
6	Supplying & fixing of 2mm thick GI Ladder type cable Trays cable tray shall be fixed to the ceiling/ wall with suitable size of GI clamp, appropriate dia threaded rod & 35mmx2mm thick GI slotted 'C' channel Patti OR suitable size of MS angle support (MS support to be painted with two coats of red oxide & two coats of enamelled paint) .Supports to be provided at an interval of 1 meter or lesser depending upon the location.				
a	Cable Tray = 150 mm wide x 50 mm height.	mtr	qro		₹ -
b	Cable Tray = 300 mm wide x 50 mm height.	mtr	qro		₹ -
c	Cable Tray = 450 mm wide x 50 mm height.	mtr	qro		₹ -
d	Cable Tray = 600 mm wide x 75mm height.	mtr	qro		₹ -
e	Cable Tray = 750 mm wide x 75mm height.	mtr	qro		₹ -
7	Supplying & fixing of 2mm thick GI Cable Tray with cover for following sizes of perforated cable trays with GI thread rods & clampms				
a	Cable Tray = 150 mm wide x 50 mm height.	mtr	qro		₹ -
b	Cable Tray = 300 mm wide x 50 mm height.	mtr	qro		₹ -
c	Cable Tray = 450 mm wide x 50 mm height.	mtr	qro		₹ -
d	Cable Tray = 600 mm wide x 50mm height.	mtr	qro		₹ -
8	Supply & Installation of 300mmx 75mm GI Trunking 2mm thick with cover to be used for running the wires/cables. Trunking to be fixed on celing or flooring with suitable size of GI clamp, appropriate dia threaded rod & 35mmx2mm thick GI slotted 'C' channel Patti OR suitable size of MS angle support (MS support to be painted with two coats of red oxide & two coats of enamelled paint ). The rate shall include the cost of Supports . Trunking should have knock outs on both side at each 600mm distance.	mtr	qro		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9	Supply & Installation of 200mmx 75mm GI Trunking 2mm thick with cover to be used for running the wires/cables. Trunking to be fixed on ceiling or flooring with suitable size of GI clamp, appropriate dia threaded rod & 35mmx2mm thick GI slotted 'C' channel Patti OR suitable size of MS angle support (MS support to be painted with two coats of red oxide & two coats of enamelled paint ). The rate shall include the cost of Supports . Trunking should have knock outs on both side at each 600mm distance.	mtr	50		₹ -
10	Supply & Installation of 100mmx 75mm GI Trunking 2mm thick with cover to be used for running the wires/cables. Trunking to be fixed on ceiling or flooring with suitable size of GI clamp, appropriate dia threaded rod & 35mmx2mm thick GI slotted 'C' channel Patti OR suitable size of MS angle support (MS support to be painted with two coats of red oxide & two coats of enamelled paint ). The rate shall include the cost of Supports . Trunking should have knock outs on both side at each 600mm distance.	mtr	75		₹ -
11	Supply & Installation of 50mmx 75mm GI Trunking 2mm thick with cover to be used for running the wires/cables. Trunking to be fixed on ceiling or flooring with suitable size of GI clamp, appropriate dia threaded rod & 35mmx2mm thick GI slotted 'C' channel Patti OR suitable size of MS angle support (MS support to be painted with two coats of red oxide & two coats of enamelled paint ). The rate shall include the cost of Supports . Trunking should have knock outs on both side at each 600mm distance.	mtr	75		₹ -
12	Fabrication in MS .The rate shall include the cost for painting with 3 Coats of enameled / metal applied after rust treatment of two coats of red oxide. The colour of the paint & cable trays shall be as approved by Architect.	Kgs	250		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13	Point wiring through 20/25 mm HMS GI conduit with all required accessories with 2 Nos of 1.5 sqmm & 1 no of 2.5 sqmm ( for earth) PVC insulated Copper FRLS wires with Modular type switches complete with all accessories as detailed in the specifications. The switch boxes shall be flush mounted with partition works or as directed by the architects and shall be done in co-ordination with interior furniture works. Primary point & rate shall include for secondary point circuit wiring from 1st Light point to other light point .The rate shall include circuit wiring from LDB to Switchboard Box & Switchboard Box to Switchboard & from Switch Board to Switch Board of 2 Nos of 2.5 sqmm & 1 no of 2.5 sqmm ( for earth) Copper conductor PVC insulated FRLS Wire. Conduit shall be fixed on wall / trays or ceiling with spacers & saddles. The wires will be terminated in a separate connector before fixtures.( COLOR approved by Architects & Client.)				
a	Primary light points	Nos	115		₹ -
b	Secondary light points (Loop points after primary points)	Nos	550		₹ -
c	DB controlled primary point with 2 Nos of 1.5 sqmm & 1 no of 2.5 sqmm ( for earth) PVC insulated Copper FRLS wires. Following to be included in to the cost of DB controlled point. a. 6 amp modular switch mounted in suitable size of 14SWG sheet steel powder coated box .This box will be mounted adjacent to LDB. b. Wiring with 2x1.5 & 1x2.5 sqmm PVC insulated Copper conductor FRLS wires from MCB to the switch through GI Conduit / GI Trunking.	Nos	20		₹ -
d	Emergency Light point with 3 nos of 1.5 sqmm PVC insulated , CU conductor wires inside GI conduit from DB to the first point .This GI conduit to be painted intermittently for identification perspective.	Nos	20		₹ -
e	Emergency Light point with 3 nos of 1.5 sqmm PVC insulated , CU conductor wires inside GI conduit from first point to further loop point & ON.This PVC conduit to be painted intermittently for identification perspective.	Nos	20		₹ -
f	Loop point in side the coffer with 2 Nos of 1.5 sqmm & 1 no of 2.5 sqmm ( for earth) PVC insulated Copper FRLS wires. for a distance of 2 Mtr max.with flexible GI conduit.	Nos	15		₹ -
	<b>TOTAL</b>				₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>C</b>	<b>POWER OUTLETS</b>				
1	Supply, Installation , Testing & Commissioning of following Power Sockets mounted with specified switchgear inside the specified enclosure confirming to (IEC 60309-1/60309-2) .The rate to include termination of incoming wires/cables with appropriate size of lugs & applicable PVC/Brass cable glands				
a	20Amps two Pin & Earth ,Single phase IP 44 socket mounted inside enclosure	Nos	5		₹ -
b	32Amps two Pin & Earth ,Single phase IP 44 socket	Nos	5		₹ -
c	20Amps three Pin + Neutral+Earth ,three phase IP 44 socket mounted inside enclosure	Nos	qro		₹ -
d	32Amps three Pin + Neutral+Earth ,three phase IP 44 socket mounted inside enclosure	Nos	5		₹ -
e	63Amps three Pin + Neutral+Earth ,three phase IP 67 surface socket mounted inside encloser	Nos	5		₹ -
f	32Amps two Pin & Earth ,Single phase IP 44 socket mounted inside IP21encloser	Nos	qro		₹ -
2	Supply and fixing of modular type shuttered power sockets, data-outlets, telephone sockets complete with chrome-plated mounting box. The switch box shall be fixed in partition works. The rate shall be inclusive of connecting of switches / sockets.				
a	4 No. of 6A INTEL socket controlled by 1 no of 16 A switch	Nos	qro		₹ -
b	3 No. of 6A INTEL socket controlled by 1 no of 16 A switch	Nos	qro		₹ -
c	2 No. of 6A INTEL socket controlled by 1 no of 16 A switch (Raw Power)	Nos	qro		₹ -
	2 No. of 6A INTEL socket controlled by 1 no of 16 A switch (Raw Power)	Nos	qro		₹ -
d	1 No. of 6A UNIVERSAL socket controlled by 1 no of 6 A switch	Nos	10		₹ -
e	1No. of 6A UNIVERSAL Switch socket combine	Nos	5		₹ -
f	1 Nos of round sockets 16A 3pin controlled by 16A switch Power Switch Socket combine with indicator Complete with G.I. mounting box for Convenience sockets-Black colour.	set	50		₹ -
g	1No. of 6A UNIVERSAL socket controlled by 1 no of 6 A switch combine with indicator Complete with G.I. mounting for VAV/VRV,Low voltage equipments,Cafeteria,Kitchen, Fitness centre.	set	35		₹ -
h	1No. of 6A Switch & round socket combine with IP 65 enclosure ( terrace)	set	15		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
i	UPS POWER for BMS equipment - S & I of 13A unswitched fuse connection unit for FAS/PAS/CCTV/BMS etc equipment as per requirements.	set	qro		₹ -
					₹ -
3	Following configuration of NET BOXES on modular table.				₹ -
a	NETBOX for meeting room table AXIAL 5 GANG, COMPRISING	set	1		₹ -
	i) Male GST 18/3 Connector				₹ -
	ii) 13Amps Universal Socket 3 Nos.				₹ -
	iii) 13 A Switch - 1 No.				₹ -
	iv) 2 Blanking Plate for 3 Data/Voice I/Os.				₹ -
	v) Wieland Female GST Connector				₹ -
					₹ -
b	NETBOX for training room table ( two nos per table) AXIAL 4 GANG, COMPRISING	set	1		₹ -
	i) Male GST 18/3 Connector				₹ -
	ii) 13Amps Universal Socket 3 Nos.				₹ -
	iii) 13 A Switch - 1 No.				₹ -
	iv) 1 Blanking Plate for 2Data/Voice I/Os.				₹ -
	v) Wieland Female GST Connector				₹ -
	vi) Wieland Female GST Connector				₹ -
					₹ -
4	Back boxes required for data voice outlets boxes	set	10		₹ -
					₹ -
5	1 No of Socket 16A controlled by 16A Switch with Flush Mounting Pop Up Boxes suitable for Flooring System in Stainless Steel.	set	qro		₹ -
					₹ -
6	Supply fixing of modular type Under floor modular boxes of 300mm x 300mm x 65mm with double door of Top cover will be hinged cover with minimum depth of 70 mm with 2nos 15 Amp Swith Socket 2 nos Data Point	Nos	qro		₹ -
					₹ -
7	Supply & fixing of 1 No. of RG 6 socket outlet in modular box with 1 modular plate & GI box	Nos	25		₹ -
					₹ -
8	Supply & Laying Circuit Mains for Power sockets / DBs through 20/25 mm 16 SWG GI Conduit as follows: (The rate shall include the cost of conduits & all accessories)				₹ -
a	3 Nos of 4 sq.mm. Cu conductor PVC insulated FRLS for Kitchen Equipements.	mtr	450		₹ -
b	3 Nos of 2.5 sq.mm. Cu conductor PVC insulated FRLS for AV Power, Hvac Power ,Convenience sockets & Raw Power.	mtr	800		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
c	6 Nos of 2.5 sq.mm. Cu conductor PVC insulated FRLS for AV Cassette Power Power.	mtr	150		₹ -
d	3 Nos of 1.5 sq.mm. Cu conductor PVC insulated FRLS WIRE.	mtr	350		₹ -
e	6 Nos of 1.5 sq.mm. Cu conductor PVC insulated FRLS for AV Cassette Power Power.	mtr	150		₹ -
					₹ -
g	Supply and laying of PVC insulated copper conductors through already laid Raceways for workstations Power /raw power .The rate shall be inclusive of connecting of switches / sockets & workstations Flexible PVC conduits.				₹ -
a	3 core 2.5 sq.mm. Cu conductor PVC insulated PVC sheathed FRLS cable for UPS power.( White Colour)	mtr	50		₹ -
b	3 core 2.5 sq.mm. Cu conductor PVC insulated PVC sheathed FRLS cable for Raw power.( black Colour)	mtr	75		₹ -
c	3 core 16 sq.mm.YY PVC insulated FRLS cable	mtr	75		₹ -
d	3 core 6 sq.mm.YY PVC insulated FRLS cable	mtr	75		₹ -
e	3 core 4sq.mm.YY PVC insulated FRLS cable	mtr	75		₹ -
					₹ -
10	Supply & Laying sensor control through 20/25 mm16 SWG GI Conduit, as follows: (The rate shall include the cost of conduits & all accessories)				₹ -
a	2c x 1.5 sq.mm. Cu conductor PVC insulated FRLS for sensor control	mtr	25		₹ -
b	2c x 1.0 sq.mm. Cu conductor PVC insulated FRLS for sensor control	mtr	25		₹ -
					₹ -
	<b>TOTAL</b>				₹ -
					₹ -
<b>D</b>	<b>LIGHT FIXTURES</b>				
	Supply, Installation, Testing & Commissioning of the following fixtures and fans complete with all tubes, lamps, HF electronic ballast with THD less than 10%, , fixing arrangements ball and sockets and suspension conduits connections, earthing complete with all hardware, clamps, etc as per specification.				
1	Recessed Mounted 15W LED Downlighter	Nos	225		₹ -
					₹ -
2	Recessed Mounted 11W LED Downlighter	Nos	125		₹ -
					₹ -
3	2X2 Recess mounted 36W LED luminaire with complete di	Nos	150		₹ -
					₹ -
4	18W 4 FT LED batten Light	Nos	5		₹ -
					₹ -
5	Surface/ Pendend 4 feet 39W LED fitting	Nos	5		₹ -
					₹ -
6	80W Led Floodlight Luminaire	Nos	20		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					₹ -
7	SITC of electronic type step regulator for ceiling fan 600/ 900/ 1200/ 1400 mm. sweep, complete erected on provided switch board.	Nos	25		₹ -
					₹ -
8	SITC of regular/ standard model Ceiling fan of 1400mm. sweep complete erected in position as per specification.	Nos	10		₹ -
	All above lighting fixtures will have minimum five years of Gaurantee				
	<b>TOTAL</b>				₹ -
<b>E</b>	<b>MISCELLENOUS WORK</b>				
1	Supply, Installation, Testing and commissioning - Maintenance Free Electrode of 20 mm diameter Low Carbon Steel with 250 micron Molecular Copper Bonded Earthing Rod of 3 Mts Length along with Carbon Based environment friendly back fill Ground Enhancing compound required to fill up the excavated earth with min. 25 kg of earth enhancing material . Rate to be inclusive of necessary accessories like nuts and bolts, test link, insulators, Under Floor Inspection Pit ( FRP ) of 330 mm x 330 mm x 250 mm ( L x W x H ) etc. This item includes 100 mm dia drill in ground 3 meter depth, installation of earth electrode, connection of earth strip from electrode to test link, testing and connection complete. (Electrode type) (Necessary Permission of statutory authorities to be obtained if required).	Nos	4		₹ -
	Cost to include replacement of soil with high conductivity upto the depth of 3 meters for size of 1 meter x 1 meter for each earth pit.				
2	Supply and laying of 50mm x 6mm thick G.I. earthing strip from earthing chamber to the main power panel and it's termination. The portion of the strip under ground shall be laid to a depth of at least 75cms. The portion on building wall upto the main panel shall be laid on cable trays or to be saddled to the wall as per the site conditions.	mtr	125		₹ -
3	Supply and laying of 32mm x 6mm thick G.I. earthing strip from the GI earthing grid inside the panel room to the body earth connections of the individual panels.	mtr	80		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4	Supply and laying of 25mm x 6mm thick G.I. earthing strip from the GI earthing grid inside the panel room to the body earth connections of the individual panels.	mtrs	150		₹ -
5	Supply and laying of 50mm x 6mm thick Copper earthing strip for interconnecting the earth pits. The portion of the strip under ground shall be laid to a depth of at least 600mm.	mtr	qro		₹ -
6	Supply and laying of 25mm x 6mm thick Copper earthing strip for interconnecting the earth pits.For tech room application to be installed on floor with saddles .	mtr	25		₹ -
7	This item is inclusive of making necessary temporary arrangement for one Floors for lighting with fixtures to attain a minimum 100Lux lighting level for area of 24000 Sqft of two Floors & provision of substantial number of power points for carpenters, electricians & other fellow contractors. The supply should be routed through MCB DB having ELCB of suitable rating. Cost of energy meter at main incoming to be considered .Contractor to provide multiple DBs & services being multiple services. This items includes cost of supply & installations of main panel with energy meter,DBs at each levels, Its cabling,Temp wiring for Lighting fixtures & Power sockets. Lighting Fixtures, Power sockets ,required hardware & associated material.Contractor to carry out temporary wiring & Power sockets for construction office as directed. Exclusive electricaian should be deputed through out the construction period for maintenance of construction power & Lighting at site. 2 floors	Job	1		₹ -



S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8	Electrical Inspector/Power Supply company liasing charges to santioned entire Electrical installation & Electrical load for 24000 SqFt .The job involves submission of application, test report & other relevant documents as may be required to EI & EB, follow up with EI & EB, collection of FQ, making necessary application payment to EI & EB (DD for the same shall be given by client), coordination with EI & EB project team & getting the relevant work done from EI & EB at site for obtaining power supply. This being a time bound job, the meter connection work should be carried out within the time frame mentioned in tender.(This is to be noted that this work include liasoning with EI & EB) & Electrical Inspector charges to approve entire Electrical installation Work .The job involves submission of drawings ,test report, arranging visit of electrical Inspector at site , Approval of Electrical Inspector on drawing Layout. This being a time bound job, Vendor should ensure that they should get permission of Electrical Inspector in time .All official charges will be reimbursed by CLIENT.	Job	1		₹ -
12	Supply and laying of 1Cx 16 sq mm COPPER flexible cable for earth in 16 SWG PVC Conduit.	mtrs	125		₹ -
13	Supply and laying of 1Cx 10 sq mm COPPER flexible cable for earth in 16 SWG PVC Conduit.	mtrs	125		₹ -
14	Supply and laying of 1Cx 6 sq mm COPPER flexible cable for earth along with the supply cable in 20mm 16 SWG PVC Conduit .	mtrs	125		₹ -
15	Supply and laying of 1C x 4 sq mm COPPER flexible XLPE cable in 20mm flexible 16 SWG GI Conduit for earth along with brass clips	mtrs	125		₹ -
16	Supply and laying of 1C x 2.5 sq mm COPPER flexible cable with for earth along with brass clips	mtrs	200		₹ -
	<b>Item no.9 to 16 The rate shall inclusive of Termination at Both Ends &amp; respective sizes of GI conduits with saddles &amp; spacers</b>				
17	Supply,installation,testing & commissioning of GI earth bus of size 50 mm x6mmx 600 mm ( WxBxL) mounted on insulators , Driectly on wall or channel or flooring as directed Bus should have 10 nos of holes with GI nut bolts of suitable size	No	2		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
18	Supply,installation,testing & commissioning of copper earth bus of size 50 mm x6mmx 600 mm ( WxBxL) mounted on insulators ,in suitable size MS Powder Coated box ( Acrylic to be provided on front cover to view termination ). Bus should have 10 nos of holes with brass nut bolts of suitable size	No	2		₹ -
19	Supply & Installation of Metallic caution boards of voltage grade as given below with red colour base & white painted in English, Hindi & local language. Grade Caution Boards.				
	a. 415 V	No	1		₹ -
20	Supply & Installation of rubber mats of 1000 mm. width & thickness of 2mm as per latest IS 15652.				
	1.1 KV Voltage grade.	Mtrs	5		₹ -
21	Supply & Installation of shock treatment chart in English & local language. Shock treatment chart to be printed & framed.	No	1		₹ -
22	Supply & Installation of first aid kit with wall mounting wooden stand.	No	1		₹ -
23	Supply & Installation of portable CO2 fire Extinguisher of 4.5 Kg. Capacity of Fire Guard or Monsher make	No	1		₹ -
24	Supply and laying of Following sizes of Earthing bare conductor wires with clamps,/saddles /brass clips etc.				
	8 SWG GI Wire	mtrs	100		₹ -
	12 SWG CU Wire	mtrs	100		₹ -
25	Supply & Installation of 3 KVA off line Inverter with 90 min battery backup.	no	1		₹ -
	Input voltage : single Phase & Neutral ,230V, +/- 10%				
	Output voltage : single Phase & Neutral ,230V, +/- 2%				
	<b>TOTAL</b>				₹ -
<b>F</b>	<b>RACEWAYS &amp; WIRING</b>				
1	Supply and laying Raceways / Conduits on flooring. Raceways / conduits shall be fixed to the flooring with GI clamps for finished levels as per the site conditions or through partitions with all accessories.				
a	100mm x 40mm Aluminium raceways, 2mm thick with couplers	mtr	25		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
b	82mm x 38mm Aluminium raceways, 2 mm thick with couplers	mtr	25		₹ -
c	63mm x 38mm Aluminium raceways, 2 mm thick with couplers	mtr	qro		₹ -
d	20mm 16 SWG HMS PVC conduit with accessories	mtr	50		₹ -
e	25mm 16 SWG HMS PVC conduit with accessories	mtr	250		₹ -
f	32mm 16 SWG GI conduit with accessories	mtr	75		₹ -
g	25mm Flexible GI conduits & brass gland suitable for flexible cable	mtrs	100		₹ -
2	Supplying and fixing of follow sizes of Junction boxes made out of 2mm thick GI sheet with top cover. The junction boxes shall have knock-outs on all sides suitable for Raceways/conduits. With Plate The knock out shall be removed at site as per requirements. (Refer the typical drawing .)				
a	550 mm x 550 mm x50mm	Nos	qro		₹ -
b	450 mm x 450 mm x50mm	Nos	qro		₹ -
c	400/350 mm x 400/350 mm x50mm deep	Nos	qro		₹ -
d	300/250 mm x 300/250 mm x50mm deep	Nos	qro		₹ -
e	200 mm x 200 mm x50mm deep	Nos	qro		₹ -
3	Supply & installations of GI Conduits saddled to cable trays/Ceiling etc with 1.0mm thk G.I. saddles, inclusive of coupling, bends etc.				
a	40mm dia medium gauge	mtr	qro		₹ -
b	50mm dia Medium gauge	mtr	qro		₹ -
c	32mm dia Medium gauge	mtr	25		₹ -
d	25mm dia Medium gauge	mtr	75		₹ -
4	Supply & Laying of RG6 Cable in 25/20 mm PVC Conduits on walls, ceiling or through partitions with spacers and saddles as per standard practice.(Conduit cost to be considered HMS Conduits)	mtr	200		₹ -
5	Supply & Fixing of 4way Splitter	Nos	2		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6	Supply & installations of MS Powder coated sheet steel, Raceways in red or blue in colour made of 2.0mm thk, with removable top cover & knock outs of 25dia mm at every 300mm for entry/exits of cables , complete with couplers, bends etc. The raceway shall be fixed to the flooring with 40 x 40 mm x 4mm GI angle bracket with required hard ware such as anchor fasteners threaded rods, clamps etc.This management should be sufficient enough to cater the fixing & removal force of 32amps IP 44 socket. Additional support for each socket to be considered in the rate.. The brackets/Straps shall be spaced at 500mm apart & on either sides of bends.				
a	300mm wide x 75mm ht 2 MM Thick with cover	mtr	qro		₹ -
b	200mm wide x 75mm ht 2 MM Thick with cover	mtr	25		₹ -
c	100mm wide x 75mm ht 2 MM Thick with cover	mtr	25		₹ -
d	75mm wide x 75mm ht 2 MM Thick with cover	mtr	qro		₹ -
7	Supply & installations of GI Basket Type open Cable trays 500 mm x100 mm, in Room, made of 6.0mm dia GI rods , with 100mm grid , bends, welding , Fixing Supports , all installation accessories etc. The rate to include fixing MS PAINTED SUPPORT bracket of 50 mm x 6.0mm.	mtr	qro		₹ -
	<b>TOTAL</b>				₹ -
	<b>TOTAL AMOUNT- ELECTRICAL WORK</b>				₹ -

**BILL OF QUANTITIES FOR FIRE FIGHTING WORK**

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1)	<b>FIRE FIGHTING SYSTEM</b>				
A	<b>INTERNAL HYDRANT SYSTEM</b>				
A.1	<b>Piping</b>				
	Supply, installation, testing and commissioning of Internal <b>fire hydrant G.I. pipe</b> as per IS 1239 "C" class, grooved edge ERW of following sizes conforming to IS 1239 & IS 3589 with all accessories like all fittings (standard MS fitting with Hot Dip galvanising with welded joint shall be used on the pipes of 50mm and above) including tees, elbows, reducers, union, flanges, rubber gaskets, GI / SS nuts bolts, washer including supporting / fixing the pipe on floor / wall / ceiling with clamps, hangers (using anchor fastners) as per specification and drawing				
	<b>All hangers, clamps, brackets etc. shall be of galvanized iron unless specified otherwise and then supply of the same shall also be included for rates under this head. Welding of any kind on the galvanized support / hanger shall not be permitted.</b>				
	Scope includes providing two coats of synthetic enamel paint of approved shade over a coat of zinc phosphate. Prior to application of primer the surface should be cleaned for any dirt, rust, rough substance etc. Include painting of legends, direction arrows as per the approval of the Project Manager (refer detailed painting procedure in specifications)				
a	150 mm dia.	Mtr	11		₹ -
A.2	<b>Butterfly valve</b>				
	Providing & fixing of butterfly valve (suitable for PN 16) with GI flanges, GI nut bolts, gaskets and necessary pad locking arrangement complete required. As per technical specification and drawing				
a	150 mm dia.	Nos.	2		₹ -
b	100 mm dia.	Nos.	QRO		
c	80 mm dia.	Nos.	QRO		
A.3	<b>Hydrant Valve</b>				
	Providing, fixing, testing and commissioning of S.S. fire hydrant single headed landing valve with 80 mm N.B. flanged inlet, ss spindle controlled 63mm dia female instantaneous outlet type. S.S. coupling, blank cap, chain, twists release type lug & all accessories Conforming to IS : 5290:1983 . Including fixing with SS nut-bolt & washers flanged tapping from ring main complete as required with 6mm thk. SS / Brass orifice plate. (orifice plate outer dia is of 140 mm & inner dia. suitable to reduce the pressure between 3.2 kg/cm <sup>2</sup> to 5.5 kg/cm <sup>2</sup> at every hydrant valve, complete as required. )As per technical specification	Sets	4		₹ -
A.4	<b>Hose Pipe</b>				
	Providing & fixing non-percolating, rubber reinforced lined fire hose pipe (as per IS : 636) of 63 mm dia x15m long. The hose shall be rated for burst pressure of 35.7 Kg/sqcm. Hose shall be complete with ISI marked SS male & female coupling (IS:903) bound & rivetted to hose pipe with copper rivets & 1.5 mm copper wire. Hose and branch pipe shall be fixed on wall bracket in Fire Shaft.)As per technical specification	Sets	4		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>A.5</b>	<b>Hexagonal Nozzle / Branch pipe</b>				
	Supply, installation, testing and commissioning of 63 mm dia instantaneous pattern branch short SS pipe, 20 mm dia nozzle conforming to IS 903, suitable for inter connection to hose pipe coupling complete as required.)As per technical specification	Set	4		₹ -
<b>A.6</b>	<b>FRP Hose Box / Cabinets</b>				
	Providing and fixing weather proof lockable cabinet of made out of Fibre Glass sheet having central opening and 4 mm thick glazed glass doors (Two nos.) suitably marked on the outside with the letters "FIRE HOSE" including necessary locking arrangement and shall be painted as per approved shade. The cabinet shall be suitable to accommodate 2 nos. 15 mtr long Hose pipe & 1 Nos branch pipe nozzle. It shall be mounted on wall with anchor fastener or on Angle frame where wall is not available. The sign, "YARD HYDRANT" BRIGADE INLET" etc. shall be painted in "CAPITAL LETTERS in white synthetic paint.As per technical specification and NBC 2005				
	Size - 750 x 600 x 250 (For Yard Hydrant)	Sets	4		₹ -
<b>A.7</b>	<b>First Aid Hose Reel Drum</b>				
	Providing, fixing, testing and commissioning of Swing type manual Hose Reel, 25mm inlet & 19mm outlet consist of a manual inlet stop valve, a semi rigid hose 30 mtr. Hose clip, shut off nozzle, hose guide & all required accessories, socket for tap-off, drum and bracket (including painting) for fixing on wall with anchor fastner, bolts & nuts complete as required. (CONNECTION - Cost includes P & F connection with WET RISER with 25 dia. G.I. pipe, union etc. complete as a set) Brand as per list of materials. as per technical specification	Set	4		₹ -
<b>A.8</b>	Providing & fixing Auto Air vent for risers, suitable for pressure not less than 10 Kg/Sq.cm.				
<b>a</b>	25mm dia	Nos.	2		₹ -
	<b>Total : "A" (A.1 to A.8)</b>				₹ -
<b>B</b>	<b>SPRINKLERS SYSTEM</b>				
<b>B.1</b>	Providing, laying, jointing, testing and commissioning of G.I. pipes ('C' Class) grooved edge conforming to IS-1239 & IS-3589 with all accessories like all fittings ( for pipes upto 50mm dia threaded forged steel or DI fittings and standard MS fitting with Hot Dip galvanising with welded joint shall be used on the pipes of 65mm and above) including tees, elbows, reducers, union, flanges, rubber gaskets, GI / SS nuts bolts, washer including supporting / fixing the pipe on floor / wall /ceiling with clamps, hangers (using anchor fastners) as per specification.				
	<b>All hangers, clamps, brackets etc. shall be of galvanized iron unless specified otherwire and then supply of the same shall also be included for rates under this head. Welding of any kind on the galvanized support / hanger shall not be permitted.</b>				

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Scope includes providing two coats of synthetic enamel paint of approved shade over a coat of zinc phosphate. Prior to application of primer the surface should be cleaned for any dirt, rust, rough substance etc. Include painting of legends, direction arrows as per the approval of the Project Manager (refer detailed painting procedure in specifications)				
a	150 NB	Mtr	11		₹ -
b	100 NB	Mtr	80		₹ -
c	80 NB	Mtr	65		₹ -
d	65 NB	Mtr	62		₹ -
e	50 NB	Mtr	30		₹ -
f	40 NB	Mtr	75		₹ -
g	32 NB	Mtr	48		₹ -
h	25 NB	Mtr	450		₹ -
<b>B.2</b>	<b>Butterfly Valve</b>				
	Providing & fixing of butterfly valve (suitable for working pressure of 16 kg / sqcm) with GI flanges, GI nut bolts, gaskets and necessary pad locking arrangement complete required. As per technical specification				
b	100 NB	Nos.	2		₹ -
<b>B.3</b>	<b>Ball Valve(Drain)</b>				
	Providing and fixing forged brass ball valve with forged brass ball (suitable for working pressure of 16 kg / sq.cm. (Cost shall be inclusive of providing necessary union / flange connection).as per technical specification				
d	25 NB	Nos.	2		₹ -

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>B.4</b>	<b>Air Release Valve</b>				
	Providing & fixing Auto Air vent for risers, suitable for pressure not less than 10 Kg/Sq.cm.As per technical specification				
<b>a</b>	25mm dia	Nos.	1		₹ -
<b>B.5</b>	Providing, fixing, testing and commissioning of U.L.listed/ FM approved /local norms 15mm dia. <b>Quartzoid bulb type sprinkler</b> with temperature rating at 68°/79°C made out of forged brass and in nickel chrome finish. ( <b>Pendent /conventional type</b> )				
<b>a</b>	Pendant type	Nos.	219		₹ -
<b>b</b>	Supply only of spare sprinklers individually packed in polythene bags (pendant)	Nos.	6		₹ -
<b>B.6</b>	Providing and fixing electrically operated water flow switches (Vane type) with accessories, complete with tap off socket arrangement as required, with potential free contact with 2 Nos. NONC.				
<b>a</b>	100 NB	Nos.	2		₹ -
<b>Total : "B" (B.1 to B.6)</b>					₹ -
<b>C</b>	<b>Terrace System</b>				
<b>C.1</b>	<b>Booster Pump</b>				
	Supply, installation, testing and commissioning of Booster pump centrifugal horizontal type of capacity <b>450 LPM @ 35 M</b> head The pump shall be of end suction top discharge type running at 2900 RPM, with CI body, bronze impeller, bronze working parts SS shaft, directly coupled to totally enclosed Fan cooled (TEFC) squirrel cage AC induction motor of capacity to operator on 3 Ph , 415 V 50 cycle AC with B/F class insulation both the pump and motor are to be erected on common MS base plate of required size with foundation bolts with matching suction and discharge side flanges, coupling guards and anti vibration rubber pads etc.	Nos.	1		₹ -
<b>C.2</b>	<b>Terrace Piping</b>				
	Supply, installation, testing and commissioning of above ground G.I. Pipe "C" class ERW of following sizes conforming to IS 1239 & IS 3589 with all accessories like all fittings (standard MS fitting with Hot Dip galvanising with welded joint shall be used on the pipes of 50mm and above) including tees, elbows, reducers, union, flanges, rubber gaskets, GI / SS nuts bolts, washer including supporting / fixing the pipe on floor / wall /ceiling with clamps, hangers (using anchor fastners) as per specification.				
<b>a</b>	100 mm dia.	Mtr	10		₹ -
<b>C.3</b>	<b>Pressure Gauge</b>				
	Providing & fixing dial type (100 mm) pressure gauge with isolation ball valve suitable for working pressure mentioned. Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required. (PN-16)	Nos.	1		₹ -
<b>C.4</b>	<b>Butterfly valve</b>				
	Providing & fixing of butterfly valve (suitable for working pressure of PN-16) with GI flanges, GI / SS nut bolts, gaskets and necessary pad locking arrangement complete required.				



S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
a	100 mm dia.	Nos.	2		₹ -
<b>C.5</b>	<b>Non Return Valves</b>				
	Providing and fixing of C.I. wafer type dual plate check valve (suitable for working pressure of 0-21kg / sqm) approved quality conforming to IS:5312 with GI flanges, GI / SS Nut, bolts, washers & rubber gasket etc. Complete as required.				
a	100 mm dia.	Nos.	1		₹ -
<b>C.6</b>	Providing and fixing C.I. 'Y' strainer with bronze or SS strainer / mesh (suitable for working pressure of PN-16) with GI flanges, SS Nut, bolts, washers & rubber gasket etc. Complete as required.				
a	100 mm dia.	No.	1		₹ -
<b>C.7</b>	Supply & fixing of Booster pump On-Off switches including all necessary fixing accessories, enclosure, earthing, gland nut etc. (terrace floor & Ground)	Nos.	2		₹ -
	<b>Total : "C" (C.1 to C.7)</b>				₹ -
<b>D</b>	<b>PORTABLE FIRE EXTINGUISHERS</b>				
<b>D.1</b>	Supplying and installing at approved location approved make fire buckets of 24 gauge galvanized steel sheet, standard 9 litre capacity and of round bottom shape, painted white inside and red outside and black on the bottom, inscribed with letters "FIRE" in black and gold. Cost shall be inclusive of providing MS stand duly painted over a coat of primer.	Nos.	2		₹ -
<b>D.2</b>	Supply, installation, testing and commissioning <b>Co2 Type 4.5 kgs capacity Fire Extinguisher</b> , assembled from brand new explosive approved cylinders, complete with screw-down type valve, internal discharge tube, one metre high pressure rayon braided hose, discharge horn bearing ISI Mark IS: 2878 Co2 Cylinder as per IS:15222, internal discharge tube is:738. Discharge duration 10-18 sec Filled weight of extinguisher ,17 kgs. Tested to 250 kg/cm2.	Nos.	2		₹ -
<b>D.3</b>	Supply, installation, testing and commissioning <b>Dry Chemical Power (ABC) type Fire Extinguisher</b> , complete with forged brass cap ,bracket and initial charge of 5 kgs. sodium bicarbonate base Dry Chemical powder and fully charged 120gms Co2 Gas cartridge ,fitted with 55 gms long discharge hose with open type nozzle ,Bearing ISI mark , IS:2171 Dry Powder bearing ISI mark ,IS:4308, Gas cartridge Bearing ISI mark IS:4947, MS body fabricated from 1.6 mm sheets as per IS:513. Forged brass cap as per IS:6912 . MS syphon tube as per IS:3601, filled weight of extinguisher 9.5 kgs approximately.				
a	6 kgs capacity	Nos	12		₹ -
	<b>Total : "D" (D.1 to D.3)</b>				-
	<b>GRAND TOTAL ( A + B + C + D )</b>				-

**BILL OF QUANTITIES FOR FAPA SYSTEM**

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>A</b>	<b>FIRE ALARM SYSTEM</b>				
1	Supply, Installation Testing & commissioning of Microprocessor based <b>Eight Zone(8)</b> conventional type fire alarm control panel with Power supply & 2 hours battery backup in alarm condition, complete as per following features:	Nos	1		
	LED Zonal Display				
	RTC : Real Time Clock (with battery backup).				
	Events : Nonvolatile data storage for upto Events 100 events				
	Isolation : Zone & Sounder with voltage cutoff , Auxiliary out put				
	Panel shall have common fire alarm Potential free contact				
	The Panel Shall have 4 Programmable Outputs.				
2	SITC of Conventional type Optical Smoke detector with base & MS Powder coated Junction Box	Nos	81		
3	SITC of Conventional type Optical Multi Sensor detector with base & MS Powder coated Junction Box	Nos	7		
4	SITC of Conventional type Heat Detector with base & MS Powder coated Junction Box	Nos	5		
5	Supply installation Testing & commissioning of Conventional Ceiling / Wall mounted Hooter. The Hooter cum Strobes shall be made of ABS plastic and have the Db level of 90dbs at 10ft and a multi tone facility	Nos	6		
6	SITC of Conventional Manual call point with ABS Plastic and mounting accessories.	Nos	6		
7	SITC of Response Indicator indicator having twin LED flush mounted on false ceiling/wall	Nos	RO		
8	SITC of 1.5 KVA UPS with battery which shall have backup of minimum 15 min for FAS and CCTV System. The UPS shall be with all accessories (Rack / Angles, etc.) complete with switch socket box ( 4 Switch & 4 Socket)	Nos	RO		
9	Supply installation of 2 Core x 1.5 mm <sup>2</sup> , Multistranded AT Copper, FRLS Armoured cable, <b>RED</b> in Colour. The cable shall be laid on surface for horizontal run with GI saddle-spacers every 0.3 meters and supported & tide on Z angle on all vertical runs. Complete with GI Junction Box, lugs, cable compression glands, cable tags and Ferruling, etc.	Mtr.	2300		
	<b>SUB TOTAL -FIRE ALARM SYSTEM</b>				
<b>B</b>	<b>PA SYSTEM</b>				

S. NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	SITC of Dual Tone Ceiling mounted speaker with all requisite mouting accessories to mount the speaker on False Ceiling / True Ceiling including Mounting enclosure as required.				
1.a	6 Watts Speakers ceiling mount	Nos	81		
1.b	6 Watts Output Box Speaker, Back box shall be powder coated	Nos	12		
2a	SITC of PA Console with 8/6 zones selector, with Inbuilt message manager, complete with interconnecting Cables,with Rack as required for Complet Project	Nos	1		
3a	SITC of Voice Alarm Call station with 8/6 zones selector.	Nos	1		
4	SITC of Booster Amplifier				
a	480 Watt	Nos	2		
5	SITC of Background music source CD / AM-FM Tuner (BGM Source)	Nos	0		
5	Supply installation of ISI Marked 2 core x 1.5 mm <sup>2</sup> , Multistrand Copper, FRLS Armoured cable,laid on surface with GI saddle-spacers every 0.3 meters. Complete with GI Junction Box, lugs, cable compression glands, cable tags and Ferruling.	Mtrs	2000		
6	HMS PVC Conduit, Heavy Duty, 50mm, ISI Marked	Mtrs	RO		
	<b>SUB TOTAL -PA SYSTEM</b>				
	<b>TOTAL -FAPA SYSTEM</b>				

<b>(I) BILL OF QUANTITIES FOR ELECTRICAL WORKS</b>					
<b>SL NO</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>RATE</b>	<b>AMOUNT</b>
<b>B</b>	<b>LT ELECTRICAL WORK</b>				
1	Design, manufacture, supply, installation, testing and commissioning of following Utility panels suitable for 415 V, 3 phase, 4 wire, 50 Hz power distribution system. The panel shall be Indoor, free standing, floor mounting, sheet metal clad, cubicle, dead front, dust and vermin proof type compartmentalised design fabricated out of 2mm thick CRCA sheet steel for Load bearing members and 1.6 mm thick for non-load bearing members, complete with colour coded, heat shrinkable PVC insulated, aluminium bus bars and separate earth bus bar of adequate cross section through out the length of the panel. The incoming and outgoing feeders shall be accommodated in a fully segregated, modular multitier arrangement with adequate size and distinct cable alley, bus bar alley/chamber (form-3b Construction). The panel shall be complete with name plate, earthing, numbering, danger plate etc. as required and as per specifications and drawings. The panel shall withstand the fault level of as indicated elsewhere or shown in Single Line Diagrams.Suitable for IP 55 Rating				
	Refer SLD for description.				
a	MAIN LT PANEL	1	Nos.		0
b	PUMP PANEL	1	Nos.		0
c	800A FIXED TYPE ACB IP43 ENCLOSURE	1	Nos.		0
2	Supply, Installation, Testing & Commissioning of Following MCCB with CBCT & EFR with all standard accessories in MS fabricated enclosure. It should have termination box of appropriate size to termination of requires cables on both the sides. Sets Of Phase Indicating Lamps to be provided wherever specified.				
a	160A, 25KA, TPN , MCCB	qro	Nos.		
b	125A, 25KA, TPN , MCCB	qro	Nos.		
c	100A, 25KA, TPN , MCCB	qro	Nos.		
d	63A, 25KA, TPN , MCCB	4	Nos.		0
3	Supply, Laying & Testing of Aluminum / Copper Armoured / Un Armoured XLPE Insulated cables fixed to walls, ceilings, on trays or laid in ready-made trench as follows: FRLS insulated, Armored Cable 1100V as per IS 7098,Part I 1988 with GI saddle spacers / Clamp at every 0.3 mtrs.				
a	3.5 Core 300 sq. mm. A2XFY FRLS Cable.	120	mtr		0
b	3.5 Core 240 sq. mm. A2XFY FRLS Cable.	qro	mtr		
c	3.5 Core 185 sq. mm. A2XFY FRLS Cable.	qro	mtr		
d	3.5 Core 150 sq. mm. A2XFY FRLS Cable.	qro	mtr		
e	3.5 Core 120 sq. mm. A2XFY FRLS Cable.	150	mtr		0
f	3.5 Core 95 sq. mm. A2XFY FRLS Cable.	qro	mtr		
g	3.5 Core 70 sq. mm. A2XFY FRLS Cable.	60	mtr		0
h	3.5 Core 50 sq. mm. A2XFY FRLS Cable.	qro	mtr		
i	4 Core 35 sq. mm. A2XFY FRLS Cable.	qro	mtr		
j	3.5 Core 35 sq. mm. A2XFY FRLS Cable.	70	mtr		0
k	4 Core 25 sq. mm.A2XFY FRLS Cable.	50	mtr		0
l	3 Core 4sq. mm 2XFY FRLS Cable.	20	mtr		0
m	3 Core 2.5sq. mm 2XFY FRLS Cable.	100	mtr		0
4	Supply & laying of CU conductor , PVC insulated flexible cable (Y or YY) FRLS leads through already laid Trenches, cable trays or conduit or raceways etc.				
a	One no of 240sqmm	qro	mtr		
b	One no of 50sqmm	qro	mtr		
c	One no of 35sqmm	qro	mtr		
d	One no of 25sqmm	qro	mtr		
e	One no of 16 sqmm	50	mtr		0
f	One no of 10 sqmm	50	mtr		0
g	One no of 6 sqmm	50	mtr		0

SL NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
h	One no of 4 sqmm	50	mtr		0
i	One no of 2.5 sqmm	50	mtr		0
5	Termination of cables with Heavy duty Cu. Lugs & Brass cable glands. All Cable should be Double compression gland.The glands should be earthed along with brass clips for Earthing.Bimetallic lugs are to be utilise for Aluminium cables for terminations.				
a	3.5 Core 300 sq. mm. A2XFY FRLS Cable.	10	Nos.		0
b	3.5 Core 240 sq. mm. A2XFY FRLS Cable.	qro	Nos.		
c	3.5 Core 185 sq. mm. A2XFY FRLS Cable.	qro	Nos.		
d	3.5 Core 150 sq. mm. A2XFY FRLS Cable.	qro	Nos.		
e	3.5 Core 120 sq. mm. A2XFY FRLS Cable.	6	Nos.		0
f	3.5 Core 95 sq. mm. A2XFY FRLS Cable.	qro	Nos.		
g	3.5 Core 70 sq. mm. A2XFY FRLS Cable.	8	Nos.		0
h	3.5 Core 50 sq. mm. A2XFY FRLS Cable.	qro	Nos.		
i	4 Core 35 sq. mm. A2XFY FRLS Cable.	qro	Nos.		
j	3.5 Core 35 sq. mm. A2XFY FRLS Cable.	10	Nos.		0
k	4 Core 25 sq. mm.A2XFY FRLS Cable.	10	Nos.		0
l	3 Core 4sq. mm 2XFY FRLS Cable.	30	Nos.		0
m	3 Core 2.5sq. mm 2XFY FRLS Cable.	20	Nos.		0
6	Termination of CU conductor , PVC insulated flexible cable (Y or YY) with Heavy duty Cu. Lugs & PVC glands of suitable size.				
a	One no of 240sqmm	qro	Nos.		
b	One no of 50sqmm	qro	Nos.		
c	One no of 35sqmm	qro	Nos.		
d	One no of 25sqmm	qro	Nos.		
e	One no of 16 sqmm	10	Nos.		0
f	One no of 10 sqmm	10	Nos.		0
g	One no of 6 sqmm	10	Nos.		0
h	One no of 4 sqmm	10	Nos.		0
i	One no of 2.5 sqmm	10	Nos.		0
7	Supply, Installation, Testing and commissioning of Maintenance Free Electrode of 20 mm diameter Low Carbon Steel with 250 micron Molecular Copper Bonded Earthing Rod of 3 Mts Length along with Carbon Based environment friendly back fill Ground Enhancing compound required to fill up the excavated earth with min. 25 kg of earth enhancing material . Rate to be inclusive of necessary accessories like nuts and bolts, test link, insulators, Under Floor Inspection Pit ( FRP ) of 330 mm x 330 mm x 250 mm ( L x W x H ) etc. This item includes 100 mm dia drill in ground 3 meter depth, installation of earth electrode, connection of earth strip from electrode to test link, testing and connection complete. (Electrode type) (Necessary Permission of statutory authorities to be obtained if required).	32	Nos		0
	Cost to include replacement of soil with high conductivity upto the depth of 3 meters for size of 1 meter x 1 meter for each earth pit.				
8	Supply and laying of 50mm x 6mm thick G.I. earthing strip from earthing chamber to the main power panel and it's termination. The portion of the strip under ground shall be laid to a depth of at least 75cms. The portion on building wall upto the main panel shall be laid on cable trays or to be saddled to the wall as per the site conditions.	100	mtr		0
9	Supply and laying of 32mm x 6mm thick G.I. earthing strip from the GI earthing grid inside the panel room to the body earth connections of the individual panels.	100	mtr		0
10	Supply and laying of 25mm x 6mm thick G.I. earthing strip from the GI earthing grid inside the panel room to the body earth connections of the individual panels.	500	mtr		0

SL NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
11	Supply and laying of 50mm x 6mm thick Copper earthing strip for interconnecting the earth pits. The portion of the strip under ground shall be laid to a depth of at least 600mm.	100	mtr		0
12	Supply and laying of 25mm x 3mm thick Copper earthing strip for interconnecting the earth pits.For tech room application to be installed on floor with saddles .	100	mtr		0
13	Supply,installation,testing & commissioning of GI earth bus of size 50 mm x6mmx 600 mm ( WxBxL) mounted on insulators , Driectly on wall or channel or flooring as directed Bus should have 10 nos of holes with GI nut bolts of suitable size	2	Nos.		0
14	Supply,installation,testing & commissioning of copper earth bus of size 50 mm x6mmx 600 mm ( WxBxL) mounted on insulators ,in suitable size MS Powder Coated box ( Acrylic to be provided on front cover to view termination ). Bus should have 10 nos of holes with brass nut bolts of suitable size	2	Nos.		0
15	Supply & Installation of Metallic caution boards of voltage grade as given below with red colour base & white painted in English, Hindi & local language. Grade Caution Boards.				
	a. 415 V	1	Nos.		0
	b. 11kV/415V	1	Nos.		0
16	Supply & Installation of rubber mats of 1000 mm. width & thickness of 10mm/40mm as per IS 15652.				
	1.1 KV Voltage grade.	10	mtr		0
	11 KV Voltage grade.	10	mtr		0
17	Supply & Installation of shock treatment chart in English & local language. Shock treatment chart to be printed & framed.	2	Nos.		0
18	Supply & Installation of first aid kit with wall mounting wooden stand.	2	Nos.		0
19	Supply & Installation of portable CO2 fire Extinguisher of 4.5 Kg. Capacity of Fire Guard or Monsher make.	2	Nos.		0
20	Supply and laying of Following sizes of Earthing bare conductor wires with clamps./saddles /brass clips etc.				
	10 SWG GI Wire	200	mtr		0
	12 SWG CU Wire	200	mtr		0
	<b>TOTAL COST OF LT ELECTRICAL WORK</b>				<b>0</b>
<b>C</b>	<b>HT ELECTRICAL WORK</b>				
1	Supply ,loading & unloading at site, Installation, Testing and commissioning of outdoor type of Dry type transformer of 500 KVA, 11KV / 0.433 KV, Dyn11, Air Natural, Cu Wound Cast Resin Transformers with Off circuit Tap links., with following specifications.as per technical parameters & bog	1	Nos.		0
	<b>Specifications:-</b>				
	DESCRIPTION				
	Transformer compartment-IP55				
	Output-500KVA				
	No Load Voltage Ratio at rated voltage & Frequency-11 / 0.433 KV				
	Cooling-Dry Type				
	Type of Tap Changer -OFF LOAD-Off circuit Tap Links				
	Tap Range and Step (PLUS / MINUS / STEP)-5% / -5% / 2.5% On HV for HV variation				
	Vector Group-Dyn 11				

SL NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Temp. rise at rated load over an ambient of 50 Deg C-90 Deg C				
	Paint Shade to IS : 5 (Epoxy)-632				
	Insulation Class- ' F '				
	Dimensions Transformer :				
	L X B X H ( in mm ) :-				
	Weight Of Transformer :-				
	Efficiency At :-				
	20% Load				
	40% Load				
	60% Load				
	80% Load				
	100% Load				
	Max. Efficiency at what % of Load :-				
	Following Fittings and Accessories are Required.				
	Rating and Diagram Plate				
	Earthing Terminals - 2 nos.				
	Lifting Lugs - 2 nos				
	Off Circuit Tap Links on the H.V. Side				
	Winding Temperature Scanner ( ANALOGUE Output OF 4 mA - 20 mA ) - 1no.				
	Terminal Arrangement :				
	HV Side : Integrated type cable box XLPE termination suitable for 1 No 3 core 240 sq.mm AL CABLE-CABLE BOX				
	NO LOAD LOSS :--- KW , LOAD LOSS : ---- KW & IMPEDENCE ----%.				
	Neutral shall be brought out for connecting earthing conductor in addition to neutral terminal in cable box.				
	<b>Tests :</b>				
	The transformer shall be tested for routine tests as per relevant Indian Standards. The type test certificate shall be furnished along with routine test certificate with offer.				
	Factory Testing of Transformer:				
	a) Physical Inspection & Dimension Check				
	b) Polarity Test/Phasing Test.				
	c) Voltage Ratio Test with tapping changing.				
	d) Winding Resistance Measurement.				
	e) No Load Test & No Load Losses.				
	f) Short Circuit Test & Full load losses.				
	g) High Voltage Test.				
	h) Insulation Resistance Test.				
	i) Voltage Regulation Test.				
	j) Percentage Impedance Test.				
	k) Winding Temperature, Alarm & Trip Test.				
	l) Polarisation Index				
	Site Testing of Transformer:				
	a) Physical Inspection & Dimension Check				
	b) Polarity Test/Phasing Test.				
	c) Voltage Ratio Test with tapping changing.				
	d) Winding Resistance Measurement.				
	e) Insulation Resistance Test.				
	f) Voltage Regulation Test.				
	g) Polarisation Index				
	h) Magnetic Balance Test				
	i) dB Level Measurement				
	(Approval of consultants to be obtained before ordering the unit).				
	Electrical Contractor to include the Cost for Travelling of two person to Factory , for witnessing Factory Testing				

SL NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
2	Supply ,loading & unloading at site, Installation, Testing and commissioning of 630 Amps 11 kV HT Breaker motorised VCB type with following specifications.as per technical parameters & boq	1	Nos.		0
	11kV/1.732/110V/1.732 ,Potential transformer ,100VA,class 1,Three phase star /star connection, epoxy insulated with 3 nos. of HT fuses 3.15 A with mounting base-1 Set				
	11kV, 150 / 1 Amps , dual core CTs core 1 - Class 0.5,5 VA,core 2 Class 5p10 , 10 VA = 3 Nos				
	Insulation level of CT & PT				
	All other accessories necessary for Control to be considered				
	Energy meter indicating three voltages, three currents , three PF , Kw , KVAR , KVA , KWH , KVARH , KVAH , THD , MD , 16x1 LCD display, MODBUS 485 of Schneider (PM 5110) / Socomec (DIRIS A40)				
	50 - 51 RYB N relay LNT / Schneider / ABB make				
	630 A CU bus rated for 11kv				
	Indication Lamps for ON,OFF,SPRING CHARGED,AUTO TRIP , TRIP CKT HEALTHY, ETC				
	Back up to provide for minimum two nos of ON-OFF operations & to withstand the power for 24 Hours after the failure of grid supply.				
	Lockout Relay				
	Indication Lamps for ON,OFF,SPRING CHARGED,AUTO TRIP , TRIP CKT HEALTHY, ETC				
	<b>Following parameters to be filled in by vendor-Minimum Required</b>				
	Rated Voltage-11kV				
	Basic Insulation Level Kv rms/kvp				
	Rated Frequency-50 Hz				
	Rated Bus current-800 Amps				
	Short time current rating-21 kA / 1 Sec				
	Degree of Protection-IP55				
	<b>Specs for Breaker</b>				
	Rated Voltage-11KV				
	Insulation Level-45 Kv				
	Rated Current-800 Amps				
	Breaking Capacity-21kA				
	Making Capacity				
	Short time current-21 kA / 1 Sec				
	Operating sequence-O - 3 min - CO - 3 min - CO				
	Auxiliary switch contacts-8 NO & 8 NC				
	Spring Charging Motor Power-110 V AC				
	Spring Charging motor voltage-110 V AC				
	Closing tripping coil power-110 V AC				
	Closing tripping coil voltage-110 V AC				
	Weight				
	<b>Factory test report to be submitted for despatch clearance .</b>				
	<b>Following Testing To be Conducted At Site</b>				
	Breaker operations at the test / service position.				
	Operation of the safety shutter in test /isolated position.				
	Mechanical operation of the spring changing mechanism.				
3	Supply ,loading & unloading at site, Installation, Testing and commissioning of 800Amps 415 Volts MDO LT Breaker panel with following specifications.as per technical parameters & boq	1	Nos.		0
i)	800 Amp ACB,50kA-1Nos. MDO 3 pole + 100% Neutral with electronic release for Overcurrent , Short Circuit & earthfault				
vi)	1000 A 50 kA ,CU busbar rated for 433V,50 Hz.				
v)	Indication Lamps for ON,OFF,SPRING CHARGED,AUTO TRIP ETC - One sets				
vi)	20 kvar APP capacitor bank - 1nos				
vii)	Current Transformers : 600 / 1 Amps , dual core CTs core 1 - Class 1,10 VA,core 2 Class 5p10 , 10 VA = 3nos				



SL NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Energy meter indicating three voltages, three currents , three PF , Kw , KVAR , KVA , KWH , KVARH , KVAH , THD , MD , 16x1 LCD display, MODBUS 485 of Schneider / Socomec make				
4	Supply ,loading & unloading at site, Installation, Testing and commissioning of outdoor type of 11kV CTPT Metering unit duly tested from local EB & approved by them suitable for 500 kVA demand load	1	Nos.		0
5	Supply & Installation Transportation, Testing & Commissioning of 11kV , IP55 Encloser,Outdoor non extensible free standing metal clad RMU type Ringmaster comprising of four numbers 800A fault making/ load breaking switches circuit breaker complete with all accessories with two isolator as incomer & two isolator as outgoing.Each isoltaor to have 2NO + 2 NC as auxilary contacts, complete with all standard accessories .	qro	Nos.		
	The Ring Switches and Tee-Off Circuit Breaker are provided with Integrated Earthing Switches with Making Capacity				
	· Live cable indicator for ring switches				
	· SF6 Gas pressure indicator				
	· Padlocking facility				
6	Supply & Installation Providing, installing, testing & commissioning of 11 kV Earthed system, 3 core, XLPE insulated , Aluminium conductor , wire drawn , annealed , stranded conductors of 240 mm sq with extruded inner sheath , steel wire armoured with outer sheathing of extruded .in existing cable trench , hume pipes , cable trays as directed.	400	mtr		0
7	Supply & Installation Outdoor cable termination for 3core 240mm sq 11 KV XLPE, Aluminium conductor, armoured cables with pushon / heat shrinkable termination Kit. Make M Seal / Raychem	1	Nos.		0
8	Supply & Installation indoor cable termination for 3core 240mm sq 11 KV XLPE, Aluminium conductor, armoured cables with pushon / heat shrinkable termination Kit. Make M Seal / Raychem	4	Nos.		0
9	Supply, Installation, Testing and commissioning of Maintenance Free Electrode of 20 mm diameter Low Carbon Steel with 250 micron Molecular Copper Bonded Earthing Rod of 3 Mts Length along with Carbon Based environment friendly back fill Ground Enhancing compound required to fill up the excavated earth with min. 25 kg of earth enhancing material . Rate to be inclusive of necessary accessories like nuts and bolts, test link, insulators, Under Floor Inspection Pit ( FRP ) of 330 mm x 330 mm x 250 mm ( L x W x H ) etc. This item includes 100 mm dia drill in ground 3 meter depth, installation of earth electrode, connection of earth strip from electrode to test link, testing and connection complete. (Electrode type) (Necessary Permission of statutory authorities to be obtained if required). Minimum 10yrs warranty	24	Nos.		0
10	Supply & laying of 32mm x 6mm Copper Earthing strips. The rate include necessary excavation to a depth of 300mm wherever required & back filling or fixed to walls / ceiling fixed by M.S spacers & saddles. The joints shall be of welded type.	200	mtr		0
11	Supply & laying of 50mm x 6mm hot dipped GI Earthing strips. The rate include necessary excavation to a depth of 300mm wherever required & back filling or fixed to walls / ceiling fixed by M.S spacers & saddles. The joints shall be of welded type.	200	mtr		0

SL NO	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
12	Supply & laying of 32mm x 6mm hot dipped GI Earthing strips. The rate include necessary excavation to a depth of 300mm wherever required & back filling or fixed to walls / ceiling fixed by M.S spacers & saddles. The joints shall be of welded type.	400	mtr		0
13	<b>MISCELLANEOUS WORK</b>				
a	Supply & Installation of rubber mats of 1000 mm. width & thickness of 2 mm				
i	1.1 KV Voltage grade.	10	mtr		0
ii	11 KV Voltage grade.	15	mtr		0
b	Supply & Installation of shock treatment chart in English & local language. Shock treatment chart to be printed & framed.	2	Nos.		0
c	Supply & Installation of Sand Buckets with Sand & free standing bracket - 3nos	2	Set		0
d	Supply & Installation of first aid kit with wall mounting wooden stand.	2	Nos.		0
e	Supply & Installation of portable CO2 fire Extinguisher of 4.5 Kg. Capacity of Fire Guard or Monsher make	3	Nos.		0
f	Supply & Installation of Metallic caution boards of voltage grade as given below with red colour base & white painted in English, Hindi & local language. Grade Caution Boards.				
a.	415 V	4	Nos.		0
b.	11 KV	2	Nos.		0
g	Supply & lying of RCC Hume pipe with collar, sealing ,cementing etc.				
1	300 mm dia	15	mtr		0
2	150 mm dia	10	mtr		0
h	Excavation / reinstatement as detailed below & disposal of extra earth material from plot site .				
1	Excavation in soft soil / Soft murum etc., with backfilling & reinstatement to it's original state.	50	Cu Mtr		0
2	Excavation in Tar road / Hard strata / pavement etc., with backfilling & reinstatement to it's original state.	50	Cu Mtr		0
k	Supply & lying of sand & bricks for forming sand bed & for protection of underground cables	400	mtr		0
l	Supply & installation of HDPE 6 KG class,300mm dia pipes laid underground to a depth of 600mm. The rate to include of excavation, back filling & redoing the surface to original level.	10	mtr		0
m	Electrical Inspector(PWD) & Local Electrical Power Supply Company Liason charges to obtain HT services. The job involves submission of application, test report & other relevant documents as may be required , follow up , collection of Estimate, making necessary application to Local Electrical Power Supply Company .The existing load also needs to be enhanced .	1	Job		0
n	Supply, installation, testing & commissioning of Minilec make 230 Volt ,16window annunciator panel with flashing lights ,accept/reset PBs & buzzer & power pack with back up of 15Minutes	1	Nos.		0
o	Fabrication of supports with MS Angle and channels with two coats of the red oxide paint and two coats of Enmalled finished colour as per site instruction.	1500	Kgs		0

<b>SL NO</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>RATE</b>	<b>AMOUNT</b>
p	Supply & Installation of GI Chain Link Fencing complete with all Civil work	40	mtr		0
q	Supply & installation of 3.0 M wide gate inclusive of hinges, tower bolt for padlocking, etc.	1	Nos.		0
r	Supply & installation of 1.0 M wide gate inclusive of hinges, tower bolt for padlocking, etc.	1	Nos.		0
	<b>TOTAL COST OF HT ELECTRICAL WORK</b>				<b>0</b>
<b>C</b>	Civil Works For Temperory Station	1	L/S		<b>0</b>
	<b>TOTAL CARRIED TO SUMMARY OF COST</b>				<b>0</b>