

***PART-D***  
***(Schedule of Civil & Electrical)***

### **Schedule of Quantity (Civil)**

Name of work	<b>Construction of Academic Building, Student hostel &amp; Electric Substation along with all necessary infrastructure facilities for IIT Vadodara at Dumad, Vadodara (SH: Execution of balance work at IIT Vadodara)</b>				
<b>SLNo</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>
<b>1</b>	<b>Carriage of Materials</b>				
1.1	By Mechanical Transport including loading,unloading and stacking				
1.1.1	Earth Lead - 1 km	160.00	cum	234.96	37594.00
<b>2</b>	<b>EARTH WORK</b>				
2.1	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and for all lift, as directed by Engineer-in-charge.				
2.1.1	All kinds of soil	1321.05	cum	191.71	253258.00
2.2	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, for all lift, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
2.2.1	All kinds of soil.	449.16	cum	281.13	126272.00
2.3	Excavating trenches by mechanical / manual means of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, for all depth, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:				
2.3.1	All kinds of soil				
2.3.1.1	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	135.80	metre	380.33	51649.00
2.3.1.2	Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	10.00	metre	593.75	5938.00
2.4	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 and for all lif.	581.25	cum	211.69	123045.00

<b>3</b>	<b>CEMENT CONCRETE (CAST IN SITU)</b>				
3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
3.1.1	1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	39.77	cum	8509.02	338404.00
3.2	Providing and laying in position ready mixed or site batched design mix cement concrete for plain cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana/ Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering and finishing as per direction of the engineer-in-charge; for the following grades of concrete. Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the minimum specified cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.				
3.2.1	All works upto plinth level :				
3.2.1.1	Concrete of M10 grade with minimum cement content of 220 kg /cum	196.74	cum	9542.23	1877338.00
<b>4</b>	<b>REINFORCED CEMENT CONCRETE</b>				
4.1	Centering and shuttering including strutting, propping etc. and removal of form for				
4.1.1	Foundations, footings, bases of columns, etc. for mass concrete	91.96	sqm	423.53	38948.00
4.1.2	Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.	231.02	sqm	909.93	210212.00
4.1.3	Suspended floors, roofs, landings, balconies and access platform	43.19	sqm	1001.46	43253.00
4.1.4	Shelves (Cast in situ)	6.68	sqm	1001.46	6690.00
4.1.5	Edges of slabs and breaks in floors and walls				
4.1.5.1	Under 20 cm wide	228.60	metre	225.24	51490.00
4.2	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height				

	<i>of 1 metre or part thereof (Plan area to be measured).</i>				
4.2.1	<i>Suspended floors, roofs, landings, beams and balconies (Plan area to be measured)</i>	50.00	<i>sqm</i>	415.06	20753.00
4.3	<i>Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.</i>				
4.3.1	<i>Thermo-Mechanically Treated bars of grade Fe-500D or more.</i>	7786.89	<i>kg</i>	116.48	907017.00
4.4	<i>Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.</i>				
4.4.1	<i>Thermo-Mechanically Treated bars of grade Fe-500D or more.</i>	931.00	<i>kg</i>	116.48	108443.00
4.5	<i>Smooth finishing of the exposed surface of R.C.C. work with 6 mm thick cement mortar 1:3 (1 Cement: 3 fine sand).</i>	10.00	<i>sqm</i>	324.50	3245.00
4.6	<i>Providing and laying in position ready mixed or site batched design mix cement concrete for reinforced cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana / Ordinary Portland /Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate / retard setting of concrete, to improve durability and workability without impairing strength; including pumping of concrete to site of laying, curing, carriage for all leads; but excluding the cost of centering, shuttering, finishing and reinforcement as per direction of the engineer-in-charge, for the following grades of concrete.: Note: Extra cement up to 10% of the minimum specified cement content in design mix shall be payable separately. In case the cement content in design mix is more than 110% of the specified minimum cement content, the contractor shall have discretion to either re-design the mix or bear the cost of extra cement.</i>				
4.6.1	<i>All works upto plinth level</i>				
4.6.1.1	<i>Concrete of M30 grade with minimum cement content of 350 kg /cum</i>	115.99	<i>cum</i>	10428.45	1209596.00
4.6.2	<i>All works above plinth level upto floor V level</i>				
4.6.2.1	<i>Concrete of M30 grade with minimum cement content of 350 kg /cum</i>	7.87	<i>cum</i>	10812.56	85095.00
4.7	<i>Add for using extra cement in the items of design mix over and above the specified cement content therein.</i>	32.66	<i>quintal</i>	792.20	25873.00

<b>5</b>	<b>MASONRY WORK</b>				
5.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
5.1.1	Cement mortar 1:6(1 cement :6 coarse sand)	78.78	cum	7703.04	606845.00
5.2	Extra for providing and placing in position 2 Nos 6 mm dia. M.S. bars at every third course of half brick masonry.	29.68	sqm	113.19	3359.00
5.3	Brick work with non modular fly ash bricks conforming to IS:12894, class designation 10 average compressive strength in super structure above plinth level up to floor V level in :				
5.3.1	Cement mortar 1:6 (1 cement: 6 Coarse sand)	10.00	cum	9453.02	94530.00
5.4	Half brick masonry with non modular fly ash bricks of class designation 10, conforming to IS :12894, in super structure above plinth upto floor V level.				
5.4.1	Cement mortar 1 : 4 (1 cement : 4 coarse sand)	29.68	sqm	1194.30	35447.00
<b>6</b>	<b>CLADDING WORK</b>				
6.1	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels.				
6.1.1	Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble				
6.1.1.1	Area of slab upto 0.50 sqm	25.20	sqm	3688.09	92940.00
6.1.1.2	Area of slab over 0.50 sqm	66.83	sqm	3324.76	222194.00
6.1.2	Granite stone slab of colour black, Cherry/Ruby red				
6.1.2.1	Area of slab upto 0.50 sqm	38.01	sqm	5846.74	222235.00
6.1.2.2	Area of slab over 0.50 sqm	100.40	sqm	5547.36	556955.00
6.2	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.	143.20	metre	614.05	87932.00
6.3	Extra for providing opening of required size & shape for wash basin/ kitchen sink in kitchen platform, vanity counter and similar location in marble/ Granite/ stone work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of	115.00	each	1057.03	121558.00

	<i>cut edges etc. complete.</i>				
6.4	<i>Providing and fixing expansion hold fasteners on C.C. /R.C.C./Brick masonry surface backing including drilling necessary holes and the cost of bolt etc complete.</i>				
6.4.1	<i>Wedge expansion type</i>				
6.4.1.1	<i>Fastener with threaded dia 10 mm</i>	50.00	each	43.20	2160.00
6.5	<i>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.</i>				
6.5.1	<i>Granite Stone of approved shade</i>	36.80	sqm	4376.12	161041.00
6.6	<i>Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3(1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.</i>	381.60	sqm	1369.42	522571.00
<b>7</b>	<b>WOOD AND P. V. C. WORK</b>				
7.1	<i>Extra for providing frosted glass panes 4 mm thick (weight not less than 10 kg per sqm) instead of ordinary float glass panes 4 mm thick (weight not less than 10 kg per sqm) in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).</i>	56.48	sqm	190.52	10761.00
7.2	<i>Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters:</i>				
7.2.1	<i>35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws</i>	39.20	sqm	2584.13	101298.00
7.3	<i>Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of flush door shutters (over all area</i>	19.20	sqm	499.35	9588.00

	<i>of door shutter to be measured).</i>				
7.4	<i>Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured):</i>				
7.4.1	<i>Rectangular or square</i>	32.00	sqm	215.09	6883.00
7.5	<i>Extra for cutting rebate in flush door shutters (Total area of the shutter to be measured).</i>	20.00	sqm	115.24	2305.00
7.6	<i>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.</i>				
7.6.1	<i>Fixed to openings /wooden frames with rawl plugs screws etc.</i>	31165.98	kg	257.43	8023058.00
7.7	<i>Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISi, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.</i>	6.00	each	1061.83	6371.00
7.8	<i>Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50 mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5</i>				

	<i>mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.</i>				
7.8.1	<i>75 mm overall thickness partition with 12.5 mm thick double skin tapered edged plain Gypsum plaster board conforming to IS: 2095: (part I): 2011 (Board with BIS certification marks</i>	190.00	sqm	1963.66	373095.00
7.9	<i>Providing and fixing magnetic catcher of approved quality in cupboard/ ward robe shutters, including fixing with necessary screws etc. complete.</i>				
7.9.1	<i>Double strip (horizontal type)</i>	456.00	each	42.88	19553.00
7.10	<i>Providing &amp; Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt/ suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S, including cost of adhesive of approved quality.</i>				
7.10.1	<i>1.0 mm thick</i>	294.41	sqm	969.11	285316.00
7.11	<i>Providing and fixing fly proof stainless steel grade 304 wire gauge, to windows and clerestory windows using wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.50 mm all complete.</i>				
7.11.1	<i>With aluminium beading of required shape and size as specified with 12 mm u beading</i>	126.48	sqm	1326.28	167748.00
7.12	<i>Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch &amp; Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.</i>	215.00	each	9035.69	1942673.00

7.13	<p><i>Providing and fixing 37 mm thick factory made PVC Door shutter, styles and rails made of PVC hollow extruded printed and laminated section having overall dimension 115 mm x 37 mm with wall thickness 2 mm (<math>\pm</math> 0.2 mm) with inbuilt beading on one side, the styles and rails mitred cut and joint at corners by inserting 2 nos PVC profile reinforcement of size 75 mm x 200 mm long with cross section size of 28 mm x 30 mm having wall thickness 2 mm (<math>\pm</math> 0.2 mm). Styles, rails and reinforcements to be fusion welded together. Only hinge side vertical style to be reinforced with PVC profile reinforcement in full length. Printed and laminated PVC lock rail of size 110 mm x 37 mm having wall thickness 2 mm (<math>\pm</math> 0.2 mm) to be welded horizontally with the vertical styles after inserting PVC profile reinforcement as in styles and rails, providing with PVC snap fit beading, panels of 100 x 20 mm printed &amp; laminated and inserting 2 nos 6 mm dia bright steel rod horizontally with both side threaded and tightened with check nuts and washers complete, all as per manufacturer's specification and direction of engineer-in-charge.</i></p>	462.07	sqm	4711.09	2176853.00
7.14	<p><i>Providing and fixing steel roller for aluminium sliding window with necessary screws etc. complete.</i></p>	1248.00	each	125.07	156087.00
7.15	<p><i>Providing and fixing fire resistant door frame of section 50 x 60 mm on horizontal side &amp; 35 x 60 mm on vertical sides having built in rebate made out of 1.6 mm thick GI sheet (Zinc coating not less than 120 gm/sqm) suitable for mounting 120 minutes Fire Rated Glazed Door Shutters. The frame shall be filled with mineral wool Insulation having density minimum 96Kg/sqnn. The frame will have a provision of G.I. anchor fastners 14 nos (5 each on vertical style &amp; 4 on horizontal style of size M10 x 80) suitable for fixing in the opening along with factory made template for SS ball bearing hinges of size 100x89x3 mm for fixing of fire rated glazed shutter. The frame shall be finished with an approved fire resistant primer or powder coating of not less than 30 micron in desired shade as per the directions of Engineer - in- Charge. (Cost of SS ball bearing hinges is excluded).</i></p>	387.00	metre	2379.20	920750.00

7.16	<p><i>Providing and fixing 60 mm thick glazed fire resistant door shutters of 120 minutes Fire rating conforming to IS:3614 (Part II) or EN1634-1:1999, tested and certified as per laboratory approved by Engineer-in-Charge, with suitable mounting on door frame, consisting of vertical styles, top rail &amp; side rail 60 mm x 60 mm wide and bottom rail of 110 mm x 60 mm made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled mineral wool insulation having density minimum 96 kg/ cum and fixing with necessary stainless steel ball bearing hinges of size 100x89x3 mm of approved make, including applying a coat of approved fire resistant primer or powder coating not less than 30 micron etc all complete as per direction of Engineer-in-Charge (panelling to be paid for seperately).</i></p>	246.50	sqm	12979.69	3199494.00
7.17	<p><i>Providing and fixing factory made 151 marked un-insulated metal fire rated doorset assembly for all non egress application areas like shafts etc. consisting galvanized iron steel frame and single leaf shutter including necessary hardware accessories conforming to FD 120 UD classification of IS 3614 :2021 with fire rating of 120 minutes integrity. The door frame and shutter shall be made out of minimum 1_20 mm thick GI Sheet with minimum 120 GSM Zinc coating as per IS: 277. The entire fire rated doorset assembly shall be tested in unlatched condition as per IS 17518 (Part -1): 2022 Frame The frame shall be of minimum size 90 x 60 mm with grooved profile to take appropriate fire rated smoke seal, having mitred cut joints (self tab/screwed assembled at site) and provided with appropriate reinforcement suitable for taking hardware and flush fixing as per IS: 4351. The smoke seal material shall be of EPDM tested in accordance with ASTM 84 of minimum size 10x4 mm, fixed within the inbuilt groove or stuck with adhesive on the entire perimeter of the frame. The door frame shall be fixed in all four sides to masonry wall opening with CSK/Hex headed fasteners of minimum 8 mm dia size and minimum 80 mm long with 8mm dia polyamide sleeves @ 4 number at each on vertical sides (up to 2100 mm height) and 2 numbers each on top and bottom sides_ Door shutter: The double skin single leaf door shutter shall be consisting of minimum 46 mm thick and having box like structure, slots cut</i></p>				

and holes punched, for fixing of hardwares with stiffeners as per IS: 16074 including Resin bonded honey comb paper core iMill material of density 5 kg/cum. The door shutter shall be mounted on the frame with SS 304 grade ball bearing butt hinges as per EN 1935 : 2002 or butt hinges as per IS 12817 both, of minimum size 100x75x3 mm @ minimum 4 numbers up to 2100 mm / 2400 mm height or as per test evidence, which ever is more, fixed with M6 25 screws. All doors shall be factory prepared for receiving appropriate hardware and provided with necessary reinforcement for hardware accessories. Hardware Accessories : Fire doorset assembly shall be provided with one number fire rated SS 304 shaft mortise dead lock, one number 50-80 mm Back Set with minimum 20 mm Square forend with alien key including S5304 dead strike plate conforming to IS: 16015:2022/EN 12209, one number recessed flush pull handle (SS304) of minimum size 40 mm x 120 mm, as approved by Engineer-in-Charge. Finishing: Both frame and door shutters shall be factory finished with polyester powder coating of minimum 50 microns thick and shall have passed salt spray test as per IS.13871 of approved colour and shade all complete as per manufacturers specifications and as per direction of the Engineer-in-charge. Installation: The hollow space in the door frame shall be filled & injected with fire rated self extinguishing type polyurethane foam (PUF) after installation at site of work. The rate shall be inclusive of complete fire rated door assembly, supply and installation by the approved manufacturer.

7.17.1	Single leaf un-insulated metal fire rated door and frame of FO 120 UD with 120 minutes integrity only as per IS 3614:2021 - For non egress application like area shafts etc.	29.25	sqm	12501.51	365669.00
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7.18

*Providing and fixing factory made IS! marked un-insulated metal fire rated doorset assembly for all egress applications areas like utility rooms and service areas consisting of galvanized iron steel frame and double leaf shutter including necessary hardware accessories, conforming to FD 120 UD classification of IS 3614 :2021 with fire rating of 120 minutes integrity. The door frame and shutter shall be made out of minimum 1.20 mm thick GI Sheet with minimum 120 GSM Zinc coating as per IS: 277. The entire fire rated doorset assembly shall be tested in unlatched condition as per IS 17518 (Part - 1): 2022 Frame , The frame shall be of minimum size 90 x 60 mm with grooved profile to take appropriate fire rated smoke seal, having mitred cut joints (self tab/screwed assembled at site) and provided with appropriate reinforcement suitable for taking hardware and flush fixing as per IS: 4351. The smoke seal material shall be of EPDM tested in accordance with ASTM E-84 of minimum size 10x4 mm, fixed within the inbuilt groove or stuck with adhesive on the entire perimeter of the frame. The door frame shall be fixed in all three sides to masonry wall opening with CSKJHex headed fasteners of minimum 8 mm dia size and minimum 80 mm long with 8mm dia polyamide sleeves @ 5 numbers at each on vertical side and 3 numbers on top side. Door shutter: The double skin double leaf door shutter shall be consisting of minimum 46 mm thick and having box like structure, slots cut and holes punched for fixing of hardware with stifener as per IS 16074 including Resin bonded honey comb paper core infill material of density 5 kg/cum. Each door leaf shall be provided with vision panel, having maximum area of 0.12 sqm, of 120 minute fire rated minimum 6 mm thick clear borosilicate glass pane fixed with clip-on arrangement and fire rated ceramic tape having minimum size 13x2mm to be fixed all around the glass on both the sides. Integral astragals to be provided for double leaf doors on the meeting style each on both active and inactive leaf. The door shutters shall be mounted on the frame with SS 304 grade ball bearing butt hinges as per EN 1935 : 2002 or butt hinges as per IS 12817 both, of minimum size 100x75x3 mm @ 5 numbers hinges per door leaf upto 2400 mm height or as per test evidence. which ever is*

more, fixed with M6 25 screws. All doors shall be factory prepared for receiving appropriate hardware and provided with necessary reinforcement for hardware accessories. Hardware Accessories: Fire doorset shall provided with one number fire rated SS 304 grade Mortise dead lock, 50-80 mm Back Set, minimum 20 mm Square forend with alien key Escutcheon of Stainless Steel, and 65/70 mm cylinder with both side key conforming to IS: 16015:2022/EN12209, two pair of D type Pull handle of SS 304 grade of minimum 22 mm dia Centre to centre distance of 300 mm back to back fixing with spindle, one number 300 mm long Concealed lever action flush bolt (Dye-Cast Stainless Steel Finish) at bottom with SS dust proof socket and one number 600 mm long Concealed lever action flush bolt (Dye-Cast Stainless Steel Finish) on top of inactive leaf of double door. Two number fire rated surface mounted heavy duty door closer of size EN 3-5 with standard arm, of desired finish conforming to IS 3564/EN 1154. Finishing: Both frame and door shutters shall be factory finished with polyester powder coating of minimum 50 microns thick and shall have passed salt spray test as per IS:13871 of approved colour and shade all complete as per manufacturer's specifications and as per direction of the Engineer-in-charge. Installation: The hollow space in the door frame shall be filled / injected with fire rated self extinguishing type polyurethane foam (PUF) after installation at site of work. The rate shall be inclusive of complete fire rated door assembly, supply and installation by the approved manufacturer.

7.18.1	Double leaf un-insulated metal fire rated doorset of FD 120 UD classification with 120 minutes integrity only as per IS 3614:2021 - For egress application like utility room and service area etc.	87.00	sqm	15743.87	1369717.00
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7.19	<p><i>Providing and fixing factory made ISI marked un-insulated metal fire rated doorset assembly, for all egress applications areas like utility rooms and service areas etc , consisting of galvanized iron steel frame and single leaf shutter including necessary hardware accessories conforming to FD 120 UD classification of IS. 3614:2021 with fire rating of 120 minutes integrity. The door frame and shutter shall be made out of minimum 1.20 mm thick GI Sheet with minimum 120 GSM Zinc coating as per IS: 277_ The entire fire rated doorset assembly shall be tested in unlatched condition as per IS 17518 (Part - 1). 2022 Frame : The frame shall be of minimum size 90 x 60 mm with grooved profile to take appropriate fire rated smoke seal, having mitred cut joints (self tab/screwed assembled at site and provided with appropriate reinforcement suitable for taking hardware and flush fixing as per IS. 4351. The smoke seal material shall be of EPDM tested in accordance with ASTIVI E-84 of minimum 10 x 4 mm, fixed within the inbuilt groove or stuck with adhesive on the entire perimeter of the frame. The door frame shall be fixed in all three sides to masonry wall opening with CSK/Hex headed fasteners of minimum 8 mm dia size and minimum 80 mm long with 8mm die polyamide sleeves @ 5 numbers at each on vertical side and 2 numbers on top side Door shutter: The double skinned single leaf door shutters shall be consisting of minimum 46 mm thick and having box like structure, slots cut and holes punched, for fixing of hardwares with stiffeners as per IS: 16074 including resin bonded honey comb paper core infill material of density 5 kg/curn. Door leaf shall be provided with vision panel, having maximum area of 0.12 sqm. of 120 minute fire rated minimum 6 mm thick clear borosilicate glass pane fixed with clip-on arrangement and fire rated ceramic tape having minimum size 13x2 mm to be fixed all around the glass on both the sides. The door shutter shall be mounted on the frame with SS 304 grade ball bearing butt hinges as per EN 1935 : 2002 or butt hinges as per IS 12817, of minimum size 100x75x3 mm @ 5 numbers hinges upto 2400mm height or as per test evidence, whichever is more, fixed with M6 25 screws. All doors shall be factory prepared for receiving appropriate hardware and provided with necessary</i></p>				
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	<p>reinforcement for hardware accessories.</p> <p><i>Accessories Hardware : Fire doorset shall be provided with one number fire rated SS 304 grade mortise dead lock, 50-80 mm backset with minimum 20 mm square forend with alien key including Escutcheon of stainless steel (SS304) with 65/70 mm cylinder both side key conforming to EN:12209 / IS 16015:2022, one pair of D type pull handle of stainless steel (5S304) of minimum 22 mm dia centre to centre distance of 300 mm back to back fixing with spindle, one number 120 minutes fire rated surface mounted heavy duty door closer of size EN 3-5 with standard arm of desired finish conforming to IS: 3564/EN1154 Finishing: Both frame and door shutters shall be factory finished with polyester powder coating of minimum 50 microns thick and shall have passed salt spray test as per IS!13871 of approved colour and shade all complete as per manufacturer's specifications and as per direction of the Engineer-in-charge. Installation: The hollow space in the door frame shall be filled / injected with fire rated self extinguishing type polyurethane foam (PUF) after installation at site of work. The rate shall be inclusive of complete fire rated door assembly, supply and installation by the approved manufacturer.</i></p>				
7.19.1	<p><i>Single leaf un-insulated metal fire rated doorset of FD 120 UD classification with 120 minutes integrity as per IS 3614.2021 For non egress applications like utility room and service area etc</i></p>	85.00	sqm	16489.95	1401646.00
7.20	<p><i>Providing and fixing non load bearing fixed frame for fire resistant glazed partition for 120 minutes fire rating, made out to a profile of dimension 60 mm x 70 mm of 1.6 mm thick galvanised steel sheet as per test evidence suitable for fixing fire rated glass for 120 minutes of both integrity &amp; radiation control (EW120) &amp; minimum 20 minutes of insulation (E120).The profile has to be fixed to the supporting construction by means of anchor fasteners of size M10 x 80, every 150 mm from the edges and every 500 mm (approx) c/c. Linear measurement of frame shall be measured for payment. The frame shall be filled with mineral wool insulation of density minimum 96kg/ cum and finished with a approved fire resistant primer or powder coating of not less than 30 micron in desired shade as per NBC 2016, IS 16231 (Part</i></p>	47.00	metre	2379.20	111822.00

	3):2016 and directions of Engineer - in-Charge.				
7.21	Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/sqm) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/ powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5 x 20 mm size etc complete in all respect as per NBC 2016, IS 16231 (Part 3):2016 and as per direction of Engineer-in-Charge with glass of required thickness having 120 minutes of fire resistance both integrity & radiation control (EW120) and minimum 20 minutes of insulation (E120). The manufacturer have to give test report/certification of fire glass and the glass should have the stamp showing the value of E, EW & EI. The glass shall be tested in approved NABL accredited lab or by any other accreditation body which operates in accordance with ISO/IEC 17011 and accredited labs as per ISO/IEC 17025 for testing and calibration scopes shall be eligible. The maximum glazing size shall not be more than 1100x2200 mm (w x h) or 2.42 sqm.	151.24	sqm	47173.17	7134470.00
7.22	Providing and fixing bright /matt finished Stainless Steel handles of approved quality & make with necessary screws etc all complete.				
7.22.1	100mm	2280.00	each	97.69	222733.00
<b>8</b>	<b>STEEL WORK</b>				
8.1	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	1576.96	kg	126.74	199864.00
8.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	11509.18	kg	144.40	1661926.00
8.3	Providing and fixing 1 mm thick M.S. sheet door with frame of 40x40x6 mm angle iron and 3 mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer.				
8.3.1	Using M.S. angels 40x40x6 mm for diagonal	4.20	sqm	6268.87	26329.00

	<i>braces</i>				
8.4	<i>Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.</i>				
8.4.1	<i>80x1.25 mm M.S. laths with 1.25 mm thick top cover</i>	58.52	<i>sqm</i>	3945.57	230895.00
8.5	<i>Providing and fixing ball bearing for rolling shutters.</i>	10.00	<i>each</i>	531.75	5318.00
8.6	<i>Extra for providing mechanical device chain and crank operation for operating rolling shutters.</i>				
8.6.1	<i>Exceeding 10.00 sqm and upto 16.80 sqm in the area</i>	49.02	<i>sqm</i>	1383.90	67839.00
8.7	<i>Extra for providing grilled rolling shutters manufactured out of 8 mm dia M.S. bar instead of laths as per design approved by Engineer-in-charge, (area of grill to be measured).</i>	17.56	<i>sqm</i>	829.73	14570.00
8.8	<i>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.</i>				
8.8.1	<i>Hot finished welded type tubes</i>	557.00	<i>kg</i>	209.96	116948.00
8.9	<i>Providing and fixing mild steel round holding down bolts with nuts and washer plates complete.</i>	50.00	<i>kg</i>	104.98	5249.00
8.10	<i>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.</i>				
8.10.1	<i>In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works</i>	10075.07	<i>kg</i>	186.41	1878094.00
8.11	<i>Providing and fixing carbon steel galvanised ( minimum coating 5 micron) dash fastener of 10 mm dia double threaded 6.8 grade (yield strength 480 N/mm<sup>2</sup>), counter sunk head, comprising of 10 mm dia polyamide PA 6 grade sleeve, including drilling of hole in frame , concrete/ masonry, etc. as per</i>				

	<i>direction of Engineer-in-charge.</i>				
8.11.1	10 x 60 mm	581.00	each	141.59	82264.00
8.11.2	10 x 120 mm	208.00	each	184.63	38403.00
8.12	<i>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 &amp; 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.).</i>	11634.14	kg	834.22	9705432.00
<b>9</b>	<b>FLOORING</b>				
9.1	<i>62 mm thick cement concrete flooring with concrete hardener topping, under layer 50 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate, 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacture's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.</i>	962.75	sqm	1140.67	1098180.00
9.2	<i>Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement: 3 coarse sand), finished with a floating coat of neat cement.</i>				
9.2.1	<i>18 mm thick</i>	99.88	sqm	715.03	71417.00
9.3	<i>Providing and fixing glass strips in joints of terrazo/ cement concrete floors.</i>				
9.3.1	<i>40 mm wide and 4 mm thick</i>	2.00	metre	99.09	198.00
9.4	<i>Chequered terrazo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including rubbing and polishing complete, on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :</i>				
9.4.1	<i>Light shade pigment using white cement</i>	425.00	sqm	1656.55	704034.00

9.5	Marble stone flooring with 18 mm thick marble stone, as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :				
9.5.1	Raj Nagar plain	35.10	sqm	2534.61	88965.00
9.6	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :				
9.6.1	25 mm thick	141.43	sqm	2104.17	297593.00
9.7	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	37.59	sqm	2543.15	95597.00
9.8	Extra for pre finished nosing in treads of steps of Kota stone/ sand stone slab.	55.00	metre	206.72	11370.00
9.9	Extra for Kota stone/ sand stone in treads of steps and risers using single length above normal size up to 2.00 metre.	13.00	sqm	47.68	620.00
9.10	Providing and laying rectified Glazed Ceramic floor tiles of size 300x300 mm or more (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	108.89	sqm	1436.44	156414.00
9.11	Providing and laying Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.				

9.11.1	Glazed vitrified floor tiles polished finish of size				
9.11.1.1	Size of Tile 600 x 600 mm	13.00	sqm	1623.02	21099.00
9.11.1.2	Size of Tile 800 x 800 mm	10.00	sqm	1867.16	18672.00
9.12	Providing and laying Vitrified tiles in diferent sizes (thickness to be specified by manufacturer), with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make, in all colours & shade, in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joint with white cement & matching pigments etc. complete.				
9.12.1	Size of Tile 600x600 mm	6.00	sqm	1752.94	10518.00
9.12.2	Size of Tile 800x800 mm	5.00	sqm	2115.18	10576.00
9.13	Grouting the joints of flooring tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg), including filling / grouting and finishing complete as per direction of Engineer-in-charge.				
9.13.1	Size of Tile 600x600 mm	255.07	sqm	333.78	85137.00
9.13.2	Size of Tile 800x800 mm	2000.00	sqm	264.34	528680.00
9.14	Providing and laying flamed finish Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge :				
9.14.1	Flamed finish granite stone slab Jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	40.88	sqm	3441.73	140698.00
9.15	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified				

	<i>and as directed by the Engineer-in-Charge.</i>				
9.15.1	<i>Polished Granite stone slab of colour Black, Cherry/Ruby Red or equivalent</i>	296.24	<i>sqm</i>	4839.94	1433784.00
<b>10</b>	<b>ROOFING</b>				
10.1	<i>Extra for providing and fixing wind ties of 40x 6 mm flat iron section.</i>	356.00	<i>metre</i>	211.25	75205.00
10.2	<i>Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.</i>	33.00	<i>each</i>	322.12	10630.00
10.3	<i>Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.</i>				
10.3.1	<i>110 mm diameter</i>	72.00	<i>metre</i>	407.60	29347.00
10.4	<i>Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS :5382, leaving 10 mm gap for thermal expansion.</i>				
10.4.1	<i>Coupler</i>				
10.4.1.1	<i>110 mm</i>	27.00	<i>each</i>	147.05	3970.00
10.4.2	<i>Bend 87.5°</i>				
10.4.2.1	<i>110 mm bend</i>	19.00	<i>each</i>	162.38	3085.00
10.4.3	<i>Shoe (Plain)</i>				
10.4.3.1	<i>110 mm Shoe</i>	17.00	<i>each</i>	142.40	2421.00
10.5	<i>Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.</i>	37.00	<i>each</i>	59.08	2186.00

10.6	<p><i>Providing and fixing false ceiling at all heights 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 50 mm long with 6 mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts &amp; 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 25 mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, difusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :</i></p>				
10.6.1	12.5 mm thick tapered edge gypsum moisture resistant board	1080.00	sqm	1651.47	1783588.00

10.7	<p><i>Providing and fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Rockwool conforming to IS: 8183, density 48 kg/ m3, 50 mm thick, wrapped in 200 G Virgin Polythene bags fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5 mm x 24 gauge wire mesh, for top most ceiling of building.</i></p>	3402.00	sqm	720.43	2450903.00
10.8	<p><i>Designing, providing and fixing multiwall three or more layered polycarbonate sheet panel co-extruded Ultra Violet (UV) protective coating on external surface with standing seam on both the running ends, sheet shall be connected using polycarbonate connectors having grip lock double tooth locking mechanism and provided with endcap at the ends to ensure water and air tightness. The light transmission from transparent or translucent or opaque or in combination polycarbonate sheet, varies from 15 to 85%, shall be decided by engineer in charge as per requirement. The polycarbonate sheet shall have Dart drop impact value more than 60 Joules as per IS14434:2023 and confirm either flame retardancy of class UL-9411B/94V-0 category as per IS14434:2023 or category VO &amp; 1113 as per ASTM D635-I8 or 13S I DO classification as per EN1350 I for fire safety The yellowness index tested as per ASTM E313 (D1925) or ASTM [313 (I)1925) shall be equal to or more than 10 unit or 6 units respectively on a sample after 5000 Hours of exposure of UV / sun light. The cross section ends of poly carbonate sheet shall be provided with self-adhesive aluminium impermeable tape at top and aluminium ventilated tape at bottom of the sheet and covered with polycarbonate / aluminium u-shaped protective profile. The poly carbonate sheet shall be held in position by using stainless steel (SS304 grade) trapezoidal cleat of 1 mm thick having minimum bottom width 35mm and top width 50mm or any other shape and size as per design requirement and manufacturer specification, cleat fixed with 2 or more stainless steel screws of 5 mm diameter with 25mm long with structural steel framework. The cleat shall be tested to withstand pull out force equal to wind speed of 50m/s as per IS: 875 and design test report shall be submitted to Engineer-in-charge for approval before use. The cost of ridge and gutters of pre-</i></p>				

	<i>coated galvanized iron sheet of approved specifications and structural steel framework of shall be paid in respective item for separately.</i>				
10.8.1	<i>16 mm thick, 1000 (±10%) wide panel with U value not more than 2.10 W/m<sup>2</sup>K and weight not less than 2.75 kg/sum.</i>	112.00	Sqm	3973.05	444982.00
10.9	<i>Providing and fixing multi walled transparent /opaque 10 mm thick polycarbonate sheet of required colour blue, brown or green etc. UV co-extruded and having UV coating on one side multi walled sheet of weight not less than 1.60 to 2.05kg/sqm as approved by Engineer-in-charge. The light transmission from transparent or translucent or opaque polycarbonate sheet varies from 30 to 80% and shall be decided by engineer in charge as per requirement. The panel shall satisfy the Dart drop impact test for value above 15 and upto 60 Joules and confirm either fame retardancy of class UL-94HB/94V-0 category as per ISI4434:2023 or category VO &amp; HB as per ASTM D635-18 or BSI DO classification as per EN13501 for fire safety. The yellowness index tested as per ASTM E313 (D1925) shall be less than or equal to 2 or it shall be 1 units as per ASTM D 2244 at the time of installation and shall be less than or equal to 10 as per ASTM E313 (1) 1925) or 6 units as per ASTM D 2244 on a sample after 5000 Hours of exposure of UV / sun light. The multi walled poly carbonate sheet shall be fixed on tubular steel structure with aluminium Alcox section of size 60x18x2 mm (anodized 25 micron thick) and weight not less than 0.462 kg/metre. Weather proof Neoprene/ EPDM rubber gasket shall be fixed on both side of joints to make the whole structure water tight as per approved design/drawings. The aluminium section shall be fixed on Joints at both sides (top &amp; bottom) of polycarbonate sheet to hold the sheets rigidly together. The weather proof neoprene gasket and aluminium profile shall be fixed and sealed with silicon sealant to make the Joints fully water proof. The open overhead ends of polycarbonate sheet to be sealed with anodised aluminium U Profile/ channel of size 10x10x 1.5 mm thick of weight not less than 0.2kg/m. The polycarbonate sheet and aluminium profile shall be fixed to MS Framed Structure with self-taping and self-drilling 55mm long steel screws to be fixed @</i>				

	<i>300mm centre to centre. The rate shall be inclusive of cost of all material involved such as polycarbonate sheet, aluminium profile and aluminium channel, EPDM gasket, Self-taping screws, nut bolts, Silicon sealant or any other material required for fixing the sheet but excluding the cost of steel structure which shall be paid separately including hoisting the sheets and fixing in position in required scaffolding shape. The rate shall also include the cost of all T &amp; P scaffolding and safety precautions required during execution of the work. The entire work shall be executed</i>				
10.9.1	<i>10 mm thick and U- value not more than 2.50 W/m2K</i>	<i>54.51</i>	<i>Sqm</i>	<i>1056.27</i>	<i>57577.00</i>
<b>11</b>	<b>FINISHING</b>				
11.1	<i>12 mm cement plaster of mix:</i>				
11.1.1	<i>1:6(1 cement: 6 fine sand)</i>	<i>323.99</i>	<i>sqm</i>	<i>360.03</i>	<i>116646.00</i>
11.2	<i>15 mm cement plaster on rough side of single or half brick wall of mix:</i>				
11.2.1	<i>1:6(1 cement: 6 coarse sand)</i>	<i>30.00</i>	<i>sqm</i>	<i>426.99</i>	<i>12810.00</i>
11.3	<i>Cement plaster 1:3(1 cement: 3 coarse sand) finished with a floating coat of neat cement.</i>				
11.3.1	<i>12 mm cement plaster</i>	<i>150.00</i>	<i>sqm</i>	<i>485.53</i>	<i>72830.00</i>
11.4	<i>18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement: 6 fine sand).</i>	<i>96.38</i>	<i>sqm</i>	<i>560.05</i>	<i>53978.00</i>
11.5	<i>6 mm cement plaster of mix:</i>				
11.5.1	<i>1:3(1 cement :3 fine sand)</i>	<i>1574.94</i>	<i>sqm</i>	<i>324.50</i>	<i>511068.00</i>
11.6	<i>Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.</i>				
11.6.1	<i>10 to 13 m</i>	<i>106.60</i>	<i>sqm</i>	<i>94.07</i>	<i>10028.00</i>
11.6.2	<i>13 to 16 m</i>	<i>6.60</i>	<i>sqm</i>	<i>188.14</i>	<i>1242.00</i>
11.7	<i>Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gram/litre, of approved manufacturer and of required shade and colour all complete to achieve even shade and colour:</i>				
11.7.1	<i>New work (two or more coats) over and including water thinnable priming coat with cement primer having VOC content less than 50 gram/litre</i>	<i>30567.55</i>	<i>sqm</i>	<i>200.51</i>	<i>6129099.00</i>
11.8	<i>Finishing walls with textured exterior paint of required shade:</i>				

11.8.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	11671.31	sqm	241.49	2818505.00
11.9	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
11.9.1	Two or more coats on new work	4684.36	sqm	168.38	788753.00
11.10	Washed stone grit plaster on exterior walls height upto 10 metre above ground level, in two layers, under layer 12 mm cement plaster 1:4 (1 cement : 4 coarse sand ), furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 Kg of cement per square metre, top layer 15 mm cement plaster 1:1/2:2 (1 cement: 1/2 coarse sand : 2 stone chipping 10 mm nominal size), in panels with groove all around as per approved pattern, including scrubbing and washing the top layer with brushes and water to expose the stone chippings ,complete as per specification and direction of Engineer-in-charge (payment for providing grooves shall be made separately).	183.86	sqm	1255.26	230792.00
11.11	Forming groove of uniform size in the top layer of washed stone grit plaster as per approved pattern using wooden battens, nailed to the under layer, including removal of wooden battens, repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge :				
11.11.1	15 mm wide and 15 mm deep groove	267.72	metre	81.16	21728.00
11.12	Extra for washed grit plaster on exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.				
11.12.1	10 to 13m	105.64	sqm	179.12	18922.00
11.12.2	13 to 16 m	5.64	sqm	358.25	2021.00
11.12.3	16 to 19 m	5.64	sqm	537.37	3031.00
11.12.4	19 to 22m	5.64	sqm	716.49	4041.00
11.12.5	22 to 25 m	5.64	sqm	895.61	5051.00
11.13	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	5369.22	sqm	168.54	904928.00
11.14	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound ) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.				
11.14.1	Two coats	14705.00	sqm	148.45	2182957.00

11.15	<i>Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound ) content.</i>				
11.15.1	<i>With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre</i>	14705.00	sqm	79.87	1174488.00
<b>12</b>	<b><i>Dismantling and Demolishing</i></b>				
12.1	<i>Demolishing lime concrete manually/ by mechanical means and disposal of material within 50 metres lead as per direction of Engineer- in-charge.</i>	10.00	cum	919.65	9197.00
12.2	<i>Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.</i>				
12.2.1	<i>Nominal concrete 1:3:6 or richer mix (including equivalent design mix)</i>	2.00	cum	2629.06	5258.00
12.3	<i>Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.</i>	10.00	cum	3835.46	38355.00
12.4	<i>Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.</i>				
12.4.1	<i>In cement mortar</i>	10.00	cum	2225.08	22251.00
12.5	<i>Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.</i>				
12.5.1	<i>For thickness of tiles 10 mm to 25 mm</i>	533.42	sqm	79.27	42284.00
12.6	<i>Dismantling stone slab flooring laid in cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.</i>	30.70	sqm	287.77	8835.00
12.7	<i>Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.</i>	236.82	sqm	59.02	13977.00
<b>13</b>	<b><i>ROAD WORK</i></b>				
13.1	<i>Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earthwith lead upto 50 metres.</i>	50.00	sqm	236.42	11821.00
13.2	<i>Supplying and stacking at site.</i>				
13.2.1	<i>90 mm to 45 mm size stone aggregate</i>	165.75	cum	2266.33	375644.00

13.3	Laying, spreading and compacting stone aggregate of specified sizes to WBM specifications in uniform thickness, hand picking, rolling with 3 wheeled road/vibratory roller 8-10 tonne capacity in stages to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required density .	376.18	cum	1130.74	425362.00
13.4	Providing and laying design mix cement concrete of M-30 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber, finishing with required texture, including steel form work with sturdy M.S. channel sections, curing, making provision for contraction/ expansion, construction & longitudinal joints (10 mm wide x 50 mm deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineer- in-charge (Item of joint fillers, sealants, dowel bars with sleeve/ tie bars to be paid separately). Note:- Cement content considered in M-30 is @ 340 kg/cum. Excess/ less cement used as per design mix is payable/ recoverable separately.				
13.4.1	Cement concrete prepared with batch mixing machine	927.15	cum	11372.01	10543559.00
13.5	Providing and fixing pre-moulded joint filler in expansion joints of RCC roads / CC pavements after making the joints dust free with high pressure air jet cleaners, all complete as per direction of the Engineer-in-Charge. (Pre-moulded joint fillers shall be made of bitumen hot sealing compound impregnated fibre board having impregnation more than 35%, conforming to IS:1838 for fibre board and IS: 1834 for hot sealing bitumen compound grade A.)	6240.00	per cm depth per cm width per metre length	5.72	35693.00
13.6	Painting runway/taxi track/apron marking with adequate nos of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge, including cleaning the surface of ail dirt, scales, oil, grease and other foreign material etc. and lining out complete.				

13.6.1	<i>New work (Two or more coats)</i>	1824.90	sqm	203.26	370929.00
13.7	<i>Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured to calculate volume for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).</i>	207.76	cum	10927.31	2270258.00
13.8	<i>Construction of dry lean cement concrete sub base over a prepared sub- grade with coarse and fine aggregate conforming to IS:383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per specifications, cement content not to be less than 150 Kg/cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, for all leads &amp; lifts, laid with a mechanical paver, compacting with 8-10 tonne vibratory roller, finishing and curing etc. complete as per direction of Engineer-in- charge.</i>	748.59	cum	4480.67	3354185.00
13.9	<i>Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8 mm having with water absorption less than 0.5% and conforming to IS:15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) in all shapes &amp; patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge.</i>	472.10	sqm	2179.07	1028739.00

13.10	Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50 mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge.				
13.10.1	60 mm thick cement concrete paver block of M-35 grade with approved colour, design & pattern.	963.20	sqm	1129.33	1087771.00
13.10.2	80 mm thick C.C. paver block of M-35 grade with approved colour design and pattern.	4256.00	sqm	1178.85	5017186.00
<b>14</b>	<b>SANITARY INSTALLATIONS</b>				
14.1	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS:13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required :				
14.1.1	Kitchen sink with drain board				
14.1.1.1	510x1040 mm bowl depth 200 mm	2.00	each	7731.93	15464.00
14.1.2	Kitchen sink without drain board				
14.1.2.1	610x460 mm bowl depth 200 mm	6.00	each	4183.82	25103.00
14.2	Providing and fixing CP Brass 32 mm size Bottle Trap of approved quality & make and as per the direction of Engineer-in-charge.	331.00	each	1117.62	369932.00
14.3	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.				
14.3.1	Semi rigid pipe				
14.3.1.1	40 mm dia	6.00	each	126.04	756.00
14.3.2	Flexible pipe				
14.3.2.1	40 mm dia	2.00	each	129.12	258.00
14.4	Providing and fixing toilet paper holder :				
14.4.1	C.P. brass	180.00	each	868.02	156244.00
14.5	Providing and fixing soil, waste and vent pipes :				
14.5.1	100 mm dia				
14.5.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	59.00	metre	1262.88	74510.00
14.5.2	75 mm diameter :				
14.5.2.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	54.00	metre	1041.42	56237.00

14.6	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
14.6.1	100 mm dia				
14.6.1.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	8.00	each	612.59	4901.00
14.7	Providing and fixing plain bend of required degree.				
14.7.1	100 mm dia				
14.7.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	7.00	each	397.45	2782.00
14.7.2	75 mm dia				
14.7.2.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	9.00	each	272.71	2454.00
14.8	Providing and fixing heel rest sanitary bend				
14.8.1	100 mm dia				
14.8.1.1	Sand cast iron S&S as per IS - 3989	2.00	each	592.61	1185.00
14.9	Providing and fixing double equal plain junction of required degree.				
14.9.1	100x100x100x100 mm				
14.9.1.1	Hubless centrifugally cast (spun) iron pipes epoxy coated inside & outside IS:15905	2.00	each	821.58	1643.00
14.10	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
14.10.1	100x100x100 mm				
14.10.1.1	Sand cast iron S&S as per IS - 3989	5.00	each	999.78	4999.00
14.10	Providing and fixing single equal plain junction of required degree :				
14.10.2	75x75x75 mm				
14.10.2.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	5.00	each	364.89	1824.00
14.11	Providing and fixing single unequal plain junction of required degree :				
14.11.1	100x100x75 mm				
14.11.1.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	2.00	each	595.69	1191.00
14.12	Providing and fixing terminal guard :				
14.12.1	100 mm				
14.12.1.1	Hubless centrifugally cast (spun) iron epoxy coated inside & outside as per IS:15905	6.00	each	462.04	2772.00
14.12.2	75 mm				
14.12.2.1	Sand cast iron S&S as per IS - 3989	2.00	each	437.14	874.00
14.13	Providing and fixing shielded coupling for Hubless centrifugally cast iron pipe				
14.13.1	100 mm dia				
14.13.1.1	SS 304 grade coupling with EPDM rubber gasket	40.00	each	466.63	18665.00
14.13.2	75 mm dia				
14.13.2.1	SS 304 grade coupling with EPDM rubber gasket	35.00	each	420.19	14707.00

14.14	Providing and fixing M.S. stays and clamps for sand cast iron/ centrifugally cast (spun) iron pipes of diameter :				
14.14.1	100 mm	11.00	each	150.88	1660.00
14.14.2	75 mm	7.00	each	97.53	683.00
14.15	Painting sand cast iron/ centrifugally cast (spun) iron soil, waste vent pipes and fittings with two coats of synthetic enamel paint of any colour such as chocolate grey, or buff etc. over a coat of primer (of approved quality) for new work :				
14.15.1	100 mm diameter pipe	1032.00	metre	89.43	92292.00
14.15.2	75 mm diameter pipe	364.00	metre	67.99	24748.00
<b>15</b>	<b>WATER SUPPLY</b>				
15.1	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings and fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc.				
15.1.1	20 mm nominal dia Pipes	20.00	metre	580.62	11612.00
15.1.2	25 mm nominal dia Pipes	15.00	metre	677.45	10162.00
15.1.3	32 mm nominal dia Pipes	10.00	metre	798.47	7985.00
15.2	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. External work				
15.2.1	25 mm nominal dia Pipes	20.00	metre	383.84	7677.00
15.2.2	32 mm nominal dia Pipes	20.00	metre	473.70	9474.00
15.2.3	40 mm nominal dia Pipes	20.00	metre	608.11	12162.00
15.2.4	50 mm nominal dia Pipes	20.00	metre	857.81	17156.00
15.2.5	80 mm nominal dia Pipes	20.00	metre	2339.72	46794.00
15.3	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc. Internal work - Exposed on wall				
15.3.1	20 mm dia nominal bore	343.00	metre	472.30	161999.00
15.3.2	25 mm dia nominal bore	595.00	metre	595.85	354531.00
15.3.3	32 mm dia nominal bore	296.00	metre	720.38	213232.00
15.3.4	40 mm dia nominal bore	249.00	metre	876.88	218343.00
15.3.5	50 mm dia nominal bore	449.00	metre	1132.25	508380.00

15.4	<i>Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. External work</i>				
15.4.1	<i>25 mm dia nominal bore</i>	160.00	metre	505.18	80829.00
15.4.2	<i>32 mm dia nominal bore</i>	5.00	metre	583.54	2918.00
15.4.3	<i>40 mm dia nominal bore</i>	30.00	metre	666.43	19993.00
15.4.4	<i>50 mm dia nominal bore</i>	15.00	metre	823.14	12347.00
15.4.5	<i>65 mm dia nominal bore</i>	10.00	metre	968.35	9684.00
15.4.6	<i>80 mm dia nominal bore</i>	205.00	metre	1125.07	230639.00
15.5	<i>Constructing masonry Chamber 30x30x50 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for stop cock, with C. I. surface box 100x100 x75 mm (inside) with hinged cover fixed in reinforced cement concrete slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size), including necessary excavation, foundation concrete 1:5:10 ( 1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size ) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :</i>				
15.5.1	<i>With common burnt clay F.P.S.(non modular) bricks of class designation 7.5</i>	6.00	each	2152.07	12912.00
15.6	<i>Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep ( inside) with chained lid and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size), including necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :</i>				
15.6.1	<i>With common burnt clay F.P.S.(non modular) bricks of class designation 7.5</i>	3.00	each	11731.72	35195.00
15.7	<i>Painting G.I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work :</i>				
15.7.1	<i>20 mm diameter pipe</i>	343.00	metre	25.11	8613.00
15.7.2	<i>25 mm diameter pipe</i>	595.00	metre	32.67	19439.00
15.7.3	<i>32 mm diameter pipe</i>	296.00	metre	39.26	11621.00
15.7.4	<i>40 mm diameter pipe</i>	249.00	metre	46.06	11469.00
15.7.5	<i>50 mm diameter pipe</i>	449.00	metre	55.08	24731.00

15.8	<i>Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality :</i>				
15.8.1	<i>25 mm diameter pipe</i>	160.00	metre	19.82	3171.00
15.8.2	<i>32 mm diameter pipe</i>	5.00	metre	23.98	120.00
15.8.3	<i>40 mm diameter pipe</i>	30.00	metre	27.27	818.00
15.8.4	<i>50 mm diameter pipe</i>	15.00	metre	32.94	494.00
15.8.5	<i>65 mm diameter pipe</i>	10.00	metre	40.88	409.00
15.8.6	<i>80 mm diameter pipe</i>	205.00	metre	47.52	9742.00
15.9	<i>Providing and filling sand of grading zone V or coarser grade, allround the G.I. pipes in external work :</i>				
15.9.1	<i>25 mm diameter pipe</i>	160.00	metre	173.56	27770.00
15.9.2	<i>32 mm diameter pipe</i>	5.00	metre	178.10	891.00
15.9.3	<i>40 mm diameter pipe</i>	30.00	metre	180.37	5411.00
15.9.4	<i>50 mm diameter pipe</i>	15.00	metre	187.12	2807.00
15.9.5	<i>65 mm diameter pipe</i>	10.00	metre	295.33	2953.00
15.9.6	<i>80 mm diameter pipe</i>	205.00	metre	304.35	62392.00
15.9.7	<i>100 mm diameter pipe</i>	99.00	metre	322.39	31917.00
15.10	<i>Providing and fixing C.P. Brass extension nipple (size 15 mm x 50 mm) of approved make and quality as per direction of Engineer-in-charge.</i>	269.00	each	80.79	21733.00
15.11	<i>Providing and fixing enclosed type water meter (bulk type) conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber insertions etc. (The tail pieces if required will be paid separately) :</i>				
15.11.1	<i>80 mm dia nominal bore</i>	3.00	each	3917.97	11754.00
15.11.2	<i>100 mm dia nominal bore</i>	2.00	each	5905.98	11812.00
15.12	<i>Providing and fixing C.I. dirt box strainer for bulk type water meter with nuts, bolts, rubber insertions etc. complete conforming to IS : 2373 :</i>				
15.12.1	<i>80 mm dia</i>	2.00	each	4993.52	9987.00
15.12.2	<i>100 mm dia</i>	1.00	each	8057.02	8057.00
15.13	<i>Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete so as to make it leak proof.</i>	14.00	each	488.17	6834.00
15.14	<i>Providing, laying, testing &amp; commissioning of 'B' class heavy duty G.I. pipe conforming to IS 1239 including welding, fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :</i>				
	<i>Internal Work - Exposed on Wall</i>				

15.14.1	65 mm dia. nominal bore	294.00	Mtr	1330.00	391020.00
15.14.2	80 mm dia. nominal bore	109.00	Mtr	1514.00	165026.00
15.15	Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :				
15.15.1	65 mm dia	19.00	each	9797.00	186143.00
15.15.2	80 mm dia	36.00	each	11314.00	407304.00
15.15.3	100 mm dia	4.00	each	15483.00	61932.00
<b>16</b>	<b>DRAINAGE</b>				
16.1	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design :				
16.1.1	250 mm diameter S.W. pipe	109.80	metre	1098.28	120591.00
16.1.2	300 mm diameter S.W. pipe	10.00	metre	1267.25	12673.00
16.2	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x 300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design:				
16.2.1	180x150 mm size P type				
16.2.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	14.00	each	3026.41	42370.00
16.3	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
16.3.1	250 mm dia. R.C.C. pipe	110.00	metre	971.81	106899.00
16.3.2	300 mm dia. R.C.C. pipe	10.00	metre	1073.87	10739.00
16.3.3	450 mm dia. R.C.C. pipe	5.00	metre	1750.67	8753.00
16.3.4	500 mm dia. R.C.C. pipe	14.00	metre	2072.47	29015.00
16.3.5	600 mm dia. R.C.C. pipe	5.00	metre	2422.94	12115.00
16.3.6	900 mm dia. R.C.C. pipe	147.00	metre	5131.06	754266.00
16.4	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone-III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20				

	<i>mm nominal size) finished with a floating coat of neat cement complete as per standard design :</i>				
16.4.1	<i>Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :</i>				
16.4.1.1	<i>With common burnt clay F.P.S. (non modular) bricks of class designation 7.5</i>	1.00	each	13792.58	13793.00
16.5	<i>Extra for depth for manholes :</i>				
16.5.1	<i>Size 90x80 cm</i>				
16.5.1.1	<i>With common burnt clay F.P.S. (non modular) bricks of class designation 7.5</i>	1.00	metre	9531.70	9532.00
16.6	<i>Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :</i>				
16.6.1	<i>0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :</i>				
16.6.1.1	<i>With common burnt clay F.P.S. (non modular) bricks of class designation 7.5</i>	2.00	each	13743.38	27487.00
16.7	<i>Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m</i>				
16.7.1	<i>With common burnt clay F.P.S. (non modular) bricks of class designation 7.5</i>	2.00	metre	8199.37	16399.00

16.8	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
16.8.1	1.68 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :				
16.8.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2.00	each	26679.71	53359.00
16.9	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.68 m to 2.29 m :				
16.9.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	2.00	metre	10650.66	21301.00
16.10	Constructing brick masonry circular manhole 1.52 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				

16.10.1	2.30 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :				
16.10.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	7.00	each	57208.22	400458.00
16.11	Extra depth for circular type manhole 1.52 m internal dia (at bottom) beyond 2.30 m :				
16.11.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	7.00	metre	24594.28	172160.00
16.12	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910, on 12 mm dia steel bar conforming to IS: 1786, having minimum cross section as 23 mmx25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	261.00	each	598.01	156081.00
16.13	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality				
16.13.1	HD - 20				
16.13.1.1	Circular shape 560 mm internal diameter	41.00	each	1809.81	74202.00
16.14	Constructing brick masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :				
16.14.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	17.00	each	6434.71	109390.00
16.15	Extra for depth beyond 45 cm of brick masonry chamber :				
16.15.1	For 455x610 mm size				

16.15.1.1	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	1.00	metre	6606.54	6607.00
16.16	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete				
16.16.1	450 mm dia RCC pipes.	1.00	metre	2890.75	2891.00
16.16.2	600 mm dia RCC pipes.	1.00	metre	3673.45	3673.00
<b>17</b>	<b>ALUMINIUM WORK</b>				
17.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				
17.1.1	For fixed portion				
17.1.1.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	18616.96	kg	573.39	10674779.00
17.1.2	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
17.1.2.1	Powder coated aluminium (minimum thickness of powder coating 50 micron)	6082.98	kg	685.23	4168240.00
17.2	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item):				
17.2.1	With float glass panes of 4.0 mm thickness (weight not less than 10kg/sqm)	179.30	sqm	1270.98	227887.00

17.3	<i>Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer- in-charge.</i>				
17.3.1	<i>With stainless steel cover plate minimum 1.25 mm thickness</i>	8.00	each	3049.84	24399.00
17.4	<i>Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top &amp; bottom pivot &amp; double acting hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).</i>	187.00	sqm	5752.13	1075648.00
<b>18</b>	<b>WATER PROOFING</b>				

18.1	<p><i>Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: (a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. (b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs. (c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. (d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. (e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. “All above operations to be done in order and as directed and specified by the Engineer-in-Charge”:</i></p>				
18.1.1	<p><i>With average thickness of 120 mm and minimum thickness at khurra as 65 mm.</i></p>	448.98	sqm	1819.42	816883.00

18.2	<i>Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage &amp; water treatment plant, tunnels / subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50 mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guarantee for 10 years against any leakage.</i>				
18.2.1	<i>For vertical surface two coats @ 0.70 kg per sqm per coat</i>	1614.94	sqm	510.75	824831.00
18.2.2	<i>For horizontal surface one coat @1.10 kg per sqm.</i>	595.06	sqm	391.83	233162.00
<b>19</b>	<b>RAIN WATER HARVESTING &amp; TUBEWELLS</b>				
19.1	<i>Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire &amp; running charges of all equipments, tools, plants &amp; machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level.</i>				
19.1.1	<i>All types of soil</i>				
19.1.1.1	<i>400 mm dia</i>	210.00	metre	1070.09	224719.00
19.2	<i>Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire &amp; running charges of all equipments, tools, plants &amp; machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90</i>				

	<i>metre &amp; upto 150 metre depth below ground level.</i>				
<i>19.2.1</i>	<i>All types of soil</i>				
<i>19.2.1.1</i>	<i>400 mm dia</i>	<i>60.00</i>	<i>metre</i>	<i>1337.62</i>	<i>80257.00</i>
<i>19.3</i>	<i>Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings &amp; accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.</i>				
<i>19.3.1</i>	<i>200 mm nominal size dia</i>	<i>5.00</i>	<i>metre</i>	<i>1202.45</i>	<i>6012.00</i>
<i>19.4</i>	<i>Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire &amp; labour charges, fittings &amp; accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.</i>				
<i>19.4.1</i>	<i>200 mm nominal size dia</i>	<i>30.00</i>	<i>metre</i>	<i>1356.19</i>	<i>40686.00</i>
<i>19.5</i>	<i>Supplying, filling, spreading &amp; leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads &amp; lifts, all complete as per direction of Engineer-in-charge.</i>	<i>36.00</i>	<i>cum</i>	<i>1630.63</i>	<i>58703.00</i>
<i>19.6</i>	<i>Supplying, filling, spreading &amp; leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads &amp; lifts, all complete as per direction of Engineer- in-charge.</i>	<i>36.00</i>	<i>cum</i>	<i>1661.36</i>	<i>59809.00</i>
<i>19.7</i>	<i>Supplying, filling, spreading &amp; leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads &amp; lifts, all complete as per direction of Engineer -in-charge.</i>	<i>36.00</i>	<i>cum</i>	<i>1661.36</i>	<i>59809.00</i>
<i>19.8</i>	<i>Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading &amp; sizes as per actual requirement, all complete as per direction of Engineer- in-charge.</i>	<i>9.00</i>	<i>cum</i>	<i>2186.52</i>	<i>19679.00</i>
<i>19.9</i>	<i>Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/plain ended casing pipes of required dia, conforming to IS: 4270, of reputed &amp; approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire &amp;</i>				

	<i>labour charges, fittings &amp; accessories, all complete, for all depths, as per direction of Engineer-in-charge.</i>				
19.9.1	<i>200 mm nominal size dia having minimum wall thickness 5.40 mm</i>	60.00	metre	2638.24	158294.00
19.10	<i>Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:</i>				
19.10.1	<i>200 mm dia</i>	4.00	each	346.85	1387.00
19.11	<i>Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts &amp; nuts of required size complete.</i>				
19.11.1	<i>200 mm clamp</i>	6.00	each	2477.21	14863.00
<b>20</b>	<b><i>STRUCTURAL GLAZING ALUMMINIUM COMPOSITE PANEL</i></b>				
20.1	<i>Providing and supplying aluminium extruded tubular and other aluminium sections as per the architectural drawings and approved shop drawings , the aluminium quality as per grade 6063 T5 or T6 as per BS 1474,including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer-in-Charge. ( The item includes cost of material such as cleats, sleeves, screws etc. necessary for fabrication of extruded aluminium frame work. Nothing extra shall be paid on this account). The weight of aluminium extruded section shall be taken for purpose of payment.</i>	2500.00	kg	447.46	1118650.00

20.2	<p><i>Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels, including: (a) Structural analysis &amp; design and preparation of shop drawings for the specified design loads conforming to IS 875 part III (the system must passed the proof test at 1.5 times design wind pressure without any failure), including functional design of the aluminum sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants, flashings, fire stop (barrier)- cum-smoke seals, microwave cured EPDM gaskets for water tightness, pressure equalisation &amp; drainage and protection against fire hazard including: (b) Fabricating and supplying serrated M.S. hot dip galvanised / Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimensional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/ masonry/structural steel framework of building structure using stainless steel anchor fasteners/ bolts, nylon seperator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers. (c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment, including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass. (d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight. (e) Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter</i></p>	445.00	sqm	3791.45	1687195.00
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profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved by Engineer-in-charge. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for occupation. In the end, the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer- in-Charge.

Note:- 1. The cost of providing extruded aluminium frames, shadow boxes, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub- head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places. Note:-2. The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 Sqm from the certified laboratories accredited by NABL(National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. Cost of testing is payable separately. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work. Performance Testing of Structural glazing system Tests to be conducted in the NABL accredited lab or any other accreditation body which operates in accordance with

ISO/IEC 17011 and accredits labs as per ISO/IEC 17025

1. Performance Laboratory Test for Air Leakage Test (-50pa to - 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr
2. Static Water Penetration Test. (50pa to 1500pa) as per ASTM E- 331-09 testing method for a range up to 2000 ml.
3. Dynamic Water Penetration (50pa to 1500pa) as per AAMA 501.01- 05 testing method for a range upto 2000 ml
4. Structural Performance Deflection and deformation by static air pressure test (1.5 times design wind pressure without any failure) as per ASTM E-330-10 testing method for a range upto 50 mm
5. Seismic Movement Test (upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test, Tests to be conducted on site.
6. Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35psi) upto 2000 ml

20.3	<p><i>Providing, assembling and supplying vision glass panels (IGUs) comprising of hermetically-sealed 6-12- 6 mm insulated glass (double glazed) vision panel units of size and shape as required and specified, comprising of an outer heat strengthened float glass 6 mm thick, of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade, an inner Heat strengthened clear float glass 6 mm thick, spacer tube 12 mm wide, dessicants, including primary seal and secondary seal (structural silicone sealant) etc. all complete for the required performances, as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer- in-Charge. The IGUs shall be assembled in the factory/ workshop of the glass processor. (Payment for fixing of IGU Panels in the curtain glazing is included in cost of item No.25.2) For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm. (i) Coloured tinted float glass 6 mm thick substrate with reflective soft coating on face # 2, + 12 mm Airgap + 6 mm Heat Strengthened clear Glass of approved make having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25-0.28) and U value of 3.0 to 3.3 W/m2 degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.</i></p>	445.00	sqm	4016.31	1787258.00
20.4	<p><i>Extra for openable side / top hung vision glass panels (IGUs) including providing and supplying at site all accessories and hardwares for the openable panels as specified and of the approved make such as heavy duty stainless steel friction hinges, min 4 -point cremone locking sets with stainless steel plates, handles, buffers etc. including necessary stainless steel screws/ fasteners, nuts, bolts, washers etc. all complete as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer- in-Charge.</i></p>	45.00	sqm	3965.33	178440.00
21	<b>NEW TECHNOLOGIES AND MATERIALS</b>				

21.1	<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 inter-locking metal powder coated T-Grid of hot dipped galvanised iron section of 0.40 mm thick on Silhouette profile, rotary stiched double webbed white with 6 mm reveal profile (white/ black), comprising of main-T runners of size 15x42 mm of length 3000 mm, cross - T of size 15x42 mm of length 1200 mm and secondary intermediate cross-T of size 15x42 mm of length 600 mm to form grid module of size 600 x 600 mm, suspended from ceiling using galvanised mild steel items (galvanizing @ 80 grams per sqm) i.e. 50 mm long, 8 mm outer diameter M-6 dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 85x25x2 mm. Galvanised iron perimeter wall angle of size 22x19x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450 mm center to center and 40 mm long dry wall S.S screws. The work shall be carried out as per specifications, drawing and as per directions of the Engineer-in-Charge.</p>				
21.1.1	<p>With 15 mm thick integral densified micro edge light weight calcium silicate false ceiling tiles</p>	4285.00	sqm	2840.91	12173299.00
21.2	<p>Providing and injecting approved grout in proportion recommended by the manufacturer into cracks/honey-comb area of concrete/masonry by suitable gun/pump at required pressure including cutting of nipples after curing etc. complete as per directions of Engineer-in-Charge. (The payment shall be made on the basis of actual weight of approved grout injected.)</p>				
21.2.1	<p>Stirrer mixed SBR Polymer (of approved make) modified Cement slurry made with Shrinkage Compensating Cement in concrete/RCC work.</p>	800.00	kg	133.92	107136.00
22	<p><b>NON DSR ITEMS</b></p>				

22.1	Providing hard stone soling of required thickness (or as specified in drawing) in layers not exceeding 20 cm in depth under foundation, flooring, under pavement, under plinth protection, under ramp, consolidating each deposited layer by ramming, watering and rolling with ½ tonne roller or wooden or steel rammers where ever required including preparing of surface etc. complete as per the direction of Engineer-in-charge.	264.57	cum	1748.85	462693.00
22.2	Providing and fixing 50 mm wide yellow high intensity reflective colour contrasting strips (glow in the dark , retroreflective kinds) of make 3M or equivalent at the edge of nosing of steps as per direction of Engineer-in-charge complete.	3105.00	Mtr	124.55	386728.00
22.3	Providing and fixing 18mm thick pre-polished granite stone strip of any colour and shade 60mm wide with one edge round moulded and polished, fixing the strip in wall above the top of dado, by cutting chase in wall and fixing the same with cement mortar 1:3 (1cement : 3 coarse sand), neatly finished and fixed such that the outer rounded edge projected 20mm beyond the surface of dado , all complete as per direction of engineer-in-charge	218.80	Mtr	457.05	100003.00
22.4	Providing and fixing curtain rods of 1.20 mm thick S.S. grade 304 , with required S.S. 304 brackets fixed with S.S. screws and wooden plugs, etc., wherever necessary complete				
22.4.1	20 mm dia	404.70	metre	277.40	112264.00
22.4.2	25 mm dia	509.40	metre	360.50	183639.00
22.5	Providing and fixing BWP grade plywood conforming to IS:303 and IS 710 in balance/remaining portion of already partially executed cupboards of approved design and dimensions, including cutting, shaping, edge preparation, fabrication and fixing of shutters, shelves, partitions, side panels, back panels, loft/storage units and other plywood components as per approved drawings and directions of Engineer-in-Charge, complete with 2 mm thick PVC edge banding on all exposed edges, applied through edge banding machine with hot melt adhesive, including trimming, finishing, screws, nails, synthetic adhesive, necessary fixing arrangements, all labour, tools & plants, handling, wastage and incidental charges required for proper completion of the work complete.				
22.5.1	6 mm thick BWP Grade Plywood	23.81	sqm	1094.30	26055.00
22.5.2	12 mm thick BWP Grade Plywood	41.68	sqm	1497.80	62428.00
22.5.3	19 mm thick BWP Grade Plywood	74.42	sqm	1973.35	146857.00

22.6	<i>Providing and fixing concealed soft closing hinges suitable for cupboard shutters of approved make, complete with hinge cup, mounting plate, necessary screws and all accessories required for proper fixing, including drilling, cutting, fitting, alignment, testing and adjustment for smooth operation, all labour, tools &amp; plants and incidental charges complete as directed by Engineer-in-Charge.</i>	416.00	Each	183.75	76440.00
22.7	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) "D" type Handle of size 300 mm (Minimum) and of approved quality and make with necessary screws etc. or as specified in drawing all complete as directed by the Engineer-in-charge.</i>	630.00	Pair	1605.40	1011402.00
22.8	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) sliding door bolts (250x16mm)of approved quality and make fixed with SS nuts and screws etc. or as specified in drawing complete as directed by the Engineer-in-charge.</i>	160.00	Each	569.60	91136.00
22.9	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) sliding door bolts (200x16mm)of approved quality and make fixed with SS nuts and screws etc. or as specified in drawing complete as directed by the Engineer-in-charge.</i>	570.00	Each	533.25	303953.00
22.10	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) tower bolts (Barrel type) of size 250x10mm of approved quality and make fixed with necessary screws etc. complete as directed by the Engineer-in-charge.</i>	246.00	Each	254.60	62632.00
22.11	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) tower bolts (Barrel type) of size 150x10mm of approved quality and make fixed with necessary screws etc. complete as directed by the Engineer-in-charge.</i>	928.00	Each	157.55	146206.00
22.12	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) wall mounted door buffer of tube having size (minimum) length 70mm , dia/width 22mm, flange dia/width 50mm,of approved quality and make fixed with SS screws etc. or as specified in drawing complete as directed by the Engineer-in-charge.</i>	430.00	Each	207.70	89311.00

22.13	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) hanging single rubber floor door stopper having minimum length of 90mm, of approved quality and make fixed with SS screws etc. or as specified in drawing complete as directed by the Engineer-in-charge.</i>	428.00	Each	564.35	241542.00
22.14	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) "D" type (Glass Door Pull Both Side) Handle of size 300mm and 22 mm dia. of approved quality and make with necessary screws etc. or as specified in drawing all complete as directed by the Engineer-in-charge.</i>	97.00	Pair	1672.60	162242.00
22.15	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) Glass to Glass round type lock of approved quality and make with necessary screws etc. or as specified in drawing all complete as directed by the Engineer-in-charge.</i>	93.00	Each	3889.45	361719.00
22.16	<i>Providing and fixing concealed type "star lock" of size 180x22mm (Minimum) in Aluminium sliding windows/ ventilators transparent or dyed to required colour and shade of approved quality and make with necessary screws etc. or as specified in drawing all complete as directed by the Engineer-in-charge.</i>	966.00	Pair	375.60	362830.00
22.17	<i>Providing and fixing beveled edge Mirror of 6 mm thickness with 12 mm thick BWP grade Ply wood backing (including applying coat), SS studs base 60mm dia, cylinder with threaded hole both side with neoprene washer(spacing of stud should not increase 900mm centre to centre). Gap between dado and mirror should be sealed with silicon . work to be carried out as per drawing and directed by Engineer-in-charge</i>	81.74	Sqm	5634.85	460593.00
22.18	<i>Providing and fixing 18mm thick Granite stone work for wall lining upto 10 m height in cement mortar 1:3 (1cement : 3 coarse sand) including pointing with white cement mortar with an admixture of pigment to match the granite shade complete as per direction of Engineer-in-charge.</i>	564.55	Sqm	4891.50	2761496.00
22.19	<i>Providing and making machine-cut chamfering up to 10mm to 15mm width on the edges of Kota stone/granite slabs/treads, including smooth grinding and polishing of the chamfered surface to match the floor finish, complete as per instructions of Engineer-in-charge.</i>	1300.76	Meter	95.25	123897.00

22.20	<i>Providing and carrying out machine grinding/rubbing of existing Kota stone flooring in( rubbing and polishing should be atleast 7 coats and more number of stages with carborundum stones of suitable grades, including filling of pin holes, cracks and joints with matching cement slurry, wet grinding, final polishing and buffing to obtain smooth, even and glossy finish complete as directed by Engineer-in-Charge. The rate includes all labour, tools &amp; plants, consumables, water, curing, cleaning and disposal of malba etc. complete. wherever required shall also be included in the rate.</i>	953.82	Sqm	641.05	611446.00
22.21	<i>Providing and carrying out machine grinding/rubbing of existing Kota stone flooring in( rubbing and polishing should be atleast 4 coats and more number of stages with carborundum stones of suitable grades, including filling of pin holes, cracks and joints with matching cement slurry, wet grinding, final polishing and buffing to obtain smooth, even and glossy finish complete as directed by Engineer-in-Charge. The rate includes all labour, tools &amp; plants, consumables, water, curing, cleaning and disposal of malba etc. complete. wherever required shall also be included in the rate.</i>	15019.09	Sqm	156.25	2346733.00
22.22	<i>Providing and carrying out machine/hand grinding, rubbing and polishing of existing Kota stone skirting fixed on walls, in required height and thickness, by carrying out rubbing and polishing in required number of coat/stages with suitable grades of carborundum stones, including filling of pin holes, surface defects, cracks and joints with matching cement slurry, wet grinding, edge finishing, final polishing and buffing to obtain smooth, uniform and glossy finish complete as directed by Engineer-in-Charge.</i>  <i>The item shall include protection of adjoining surfaces, cleaning of splashes, all labour, tools &amp; plants, consumables, water, scaffolding/working platform wherever required, curing, cleaning and disposal of debris/malba complete. The finished skirting surface shall be free from scratches, undulations and visible patch marks.</i>	1316.41	Sqm	377.95	497537.00

22.23	<i>Grouting the joints of flooring tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg) including cleaning of existing joints, filling / grouting and finishing complete as per direction of Engineer-in-charge.</i>				
22.23.1	<i>Size of Tile 300x300 mm</i>	1591.85	Sqm	452.55	720392.00
22.24	<i>Providing and applying second/final coat of white cement based wall putty of approved brand and manufacture over already prepared putty surface, including surface cleaning, scrapping of loose particles, minor surface corrections, rubbing with emery paper wherever required and finishing the surface smooth, even and ready to receive paint, complete as directed by Engineer-in-Charge.</i>	37068.08	Sqm	93.80	3476986.00
22.25	<i>Providing and fixing Single Glazing 6mm thick ET425 toughened glass (Required properties Solar factor <math>\leq 0.25</math>, U-Value <math>\leq (W/sq.m-K) 3.8W /M2K</math>, Visible light transmittance <math>\geq 0.20</math>) in panelling fixed in aluminium doors, windows shutter, ventilators and partition frames with Aluminium snap beading (smooth, rust free, straight, mitred) with EPDM rubber/ neoprene gasket etc. for glazing/ panelling, Stainless steel screws and as specified in Arch. drawing, all complete in all respects as per direction of the Engineer-in-charge.</i>	1759.82	sqm	2787.95	4906290.00
22.26	<i>Providing and fixing 50 micron thick Etching strips (film) over glass Non-fade, self adhesive, easy to cut and trim to size and easy to install, of approved make and manufacturer, fixed as per manufacturer's specifications and as specified in Arch. drawing, all complete in all respects as per direction of the Engineer-in-charge.</i>	221.00	Sqm	1297.60	286770.00

22.27	<i>Providing and fixing 4 mm thick Aluminium Composite Panel of approved brand and manufacturer, in panelling fixed in aluminum doors, windows shutters and partition frames with Aluminium snap beading (smooth, rust free, straight, mitred) with EPDM rubber/ neoprene gasket etc. for glazing/ panelling, with C.P. brass / stainless steel screws etc. as specified in Arch. drawing, all complete in all respects as per direction of the Engineer-in-charge. (Cost of Aluminium snap beading, EPDM rubber/ neoprene gasket etc. for glazing/ panelling, Stainless steel screws to be paid under respective items).</i>	87.60	Sqm	2564.70	224668.00
22.28	<i>Providing, placing &amp; fixing Precast Concrete Saucer Drains having size 310x315x100mm(minimum), of approved manufacturer, to be laid at the edge of RCC Pavement, fixed in required slot made in RCC Pavement, of required Shape &amp; size etc. with cement mortar 6mm thick 1:3 mortar (1 cement :3 coarse sand) complete in all respects as per direction of the Engineer-in-charge.</i>	373.88	sqm	2061.70	770828.00
22.29	<i>Providing and laying 400 micron thick PVC Sheet on DLC Surface with all operations such as cleaning of existing surface all complete as per direction of Engineer-in-Charge.</i>	4635.75	Sqm	86.55	401224.00
22.30	<i>Providing and fixing white vitreous china extended wall mounting water closet of approved approved shape including providing &amp; fixing slim concealed cistern with floor mounting frame including installation kit and drain pipe, connection set for wall hung WC with control plate D arc design all chrome including UF soft close slim seat cover, cistern fittings, nuts, bolts and gaskets etc complete (Make Jaquar WC cat NoSLS-WHT-6953BIUFSMN, Cistern Cat No JCS-WHT-2400WSG, Control plate Cat No JCP-CHR-372415 or equivalent model as per preferred make list) etc complete.</i>	13.00	Each	24367.25	316774.00

22.31	<i>Providing and fixing white vitreous china wall hung water closet of approved shape and size, including fixing of UF soft close slim seat cover and dual flush control plate (all chrome finish), complete with necessary nuts, bolts, connectors, gaskets and making proper connections with existing concealed cistern and drainage system already installed, testing and commissioning complete as required. (Make Jaquar WC Cat. No. SLS-WHT-6953BIUFSMN, UF soft close seat cover and Control Plate Cat. No. JCP-CHR-372415 or equivalent model as per preferred make list) etc complete</i>	168.00	Each	14208.85	2387087.00
22.32	<i>Providing and fixing overhead shower of Round shape single flow with air effect (ABS Body and Face plate Chrome plated) with Rub it cleaning system of approved brand and manufacturer with 15 or 20 mm inlet all complete in all respects as per direction of the Engineer-in-charge.</i>				
22.32.1	<i>120 mm (minimum) diameter (Jaquar model No. OHSCH R-1779G A or equivalent model as per preferred make list) with shower arm or 300 mm length (jaquar model no. SHA-CHR-479L300S or equivalent )</i>	94.00	Each	4375.10	411259.00
22.33	<i>Providing and fixing C.P. brass bib cock with wall flange of (Jaquar model No.FLP CH R- 5037P M or equivalent model as per preferred make list ) and manufacturer conforming to IS:8931, all complete in all respects as per direction of the Engineer-in-charge</i>				
22.33.1	<i>15 mm nominal bore</i>	92.00	Each	1936.75	178181.00
22.34	<i>Providing and fixing C.P. brass long body bib cock with wall flange of ( Jaquar model No. CON-107 KN or equivalent model as per preferred make list ) and manufacturer conforming to IS standards, all complete in all respects as per direction of the Engineer-in-charge:</i>				
22.34.1	<i>15 mm nominal bore</i>	24.00	Each	1785.70	42857.00
22.35	<i>Providing and fixing C.P. brass angle valve for basin mixer and geyser points with wall flange of (Jaquar model No. FLPCHR-5053P Mor equivalent model as per preferred make ) and manufacturer conforming to IS:8931, all complete in all respects as per direction of the Engineer-in-charge:</i>				

22.35.1	15 mm nominal bore	269.00	Each	1302.45	350359.00
22.36	Providing and fixing under counter (oval shape) white vitreous china wash basin (Make Jaquar Cat No FLS-WHT-5701 or equivalent ) of approved brand and manufacturer with all fixing accessories including C.I Brackets , 32 mm C.P. brass waste coupling (Make Jaquar ALD-CHR-705 or equivalent), complete in all respects including cutting and making good the walls where required all complete as per manufacturers specification and direction of Engineer-in-charge.				
22.36.1	with CP Brass Presmatic Pillar Cock(Make Jaquar PRS-CHR-031L65GA or equivalent) 15 mm nominal bore	110.00	Each	9059.75	996573.00
22.37	Providing and fixing 32 mm dia C.P. brass waste coupling and C.P. brass Presmatic Pillar Cock of approved make and model to existing wash basin, including all necessary fittings, connectors, washers, nuts, bolts, PTFE tape, making connections with existing water supply and waste disposal system, testing and commissioning complete as required. (Make: Jaquar Waste Coupling Cat. No. ALD-CHR-705 and Presmatic Pillar Cock Cat. No. PRS-CHR-031L65GA or equivalent as per approved make list)	100.00	Each	4654.95	465495.00
22.38	Providing & fixing white vitreous china battery based infrared sensor operated urinal of (Jaquar make Cat No URS-WHT-13253N or equivalent with fixing accessories) having pre & post flushing with water (250ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer in-charge	9.00	Each	17772.40	159952.00
22.39	Providing & fixing white vitreous china battery operated infrared sensor urinal of approved make and model (Jaquar Cat. No. URS-WHT-13253N or equivalent) complete with fixing accessories, brackets, waste dome, necessary connections to existing concealed water supply and waste line, including providing and fixing exposed part kit of urinal sensor comprising wall flange with sensor eye and battery unit (Jaquar Cat. No. SNR-CHR-51085K or equivalent), compatible with already installed concealed installation box (SNR-CHR-51085C), complete with testing,	114.00	Each	13736.75	1565990.00

	<i>commissioning and making good the disturbed surface, all as per manufacturer's specifications and direction of Engineer-in-Charge</i>				
22.40	<i>Providing and fixing 15mm C.P. connecting pipe 450mm long with C.P. brass nuts, washers( Jaquar Cat no. ALD-CHR-805B and equivalent) complete in all respects.</i>	269.00	Each	348.65	93787.00
22.41	<i>Providing and fixing health faucet (ABS body with chrome finish ) with 1 metre long easy flex tube in chrome finish flexible tube with hook of (Jaquar model No. ALD-CHR-565GA or equivalent model as per preferred make list) and manufacturer, fixed to PVC rawl plug with SS screws all complete as per manufacturers specification and direction of Engineer-in-charge.</i>	180.00	Each	1503.05	270549.00
22.42	<i>Providing and fixing of C.P. brass 600 mm (minimum) long towel Rack with three hooks, with or without hangers of (Jaquar model No. AQN-CHR_7781 or equivalent model as per preferred make list ) and manufacturer, fixed to PVC rawl plug with SS screws all complete as per manufacturers specification and direction of Engineer-in-charge.</i>	94.00	Each	6417.50	603245.00
22.43	<i>Providing and fixing of C.P. brass wall mixer with 15mm or 20mm inlet with provision for over head shower with long bend pipe on upper side, connecting legs and wall flanges of (Jaquar model No. FLP-CHR-5273P MGD or equivalent model as per preferred make list ) and manufacturer including cutting and making good the walls, if required all complete in all respects as per manufacturers specification and direction of Engineer-in-charge.</i>	5.00	Each	7416.15	37081.00
22.44	<i>Providing and fixing Stainless steel Grab Bar 38mm Diameter (minimum) and of required length as specified in Arch. Drawing of ( Jaquar model No. WACWH TBR060 0N or equivalent model as per preferred make list) and manufacturer, fixed to PVC rawl plug with SS screws including cutting and making good the walls wherever required, all complete as per manufacturers specification and direction of Engineer-in-charge.</i>	16.00	Each	1930.50	30888.00

22.45	<i>Providing and fixing C.P. brass Twin bib cock of ( Jaquar model No. FLP-CHR-5041P MGA or equivalent model as per preferred make list ) and manufacturer all complete as per manufacturers specification and direction of Engineer-in-charge.</i>				
22.45.1	<i>15 mm nominal bore</i>	<i>180.00</i>	<i>Each</i>	<i>2559.65</i>	<i>460737.00</i>
22.46	<i>Providing and fixing uPVC agricultural pipes conforming to IS:4985 (6 kg/sqcm) including all fittings, e.g. couplings, tees, bends, reducers and screwed adoptors jointing with solvent cement joint as per manufacturers' recommendations. [for Rain Water Pipes]</i>				
22.46.1	<i>160 mm OD</i>	<i>55.00</i>	<i>Metre</i>	<i>655.15</i>	<i>36033.00</i>
22.47	<i>Providing and fixing of GI split pipe support clamps with EPDM rubber lining, Zinc plated for support of vertical/hanging horizontal soil, waste, vent and rain water pipes, embedded in walls with anchor fastner, including recommended size GI threaded rod of required length etc. including cost of cutting holes and making good the walls complete in all respects.</i>				
22.47.1	<i>For 75 mm OD Pipe ( Thickness of clamp 1.7 mm )</i>	<i>25.00</i>	<i>Each</i>	<i>349.70</i>	<i>8743.00</i>
22.47.2	<i>For 100 mm dia Pipe ( Thickness of clamp 2.0 mm )</i>	<i>30.00</i>	<i>Each</i>	<i>356.65</i>	<i>10700.00</i>
22.47.3	<i>For 160 mm OD Pipe ( Thickness of clamp 2.0 mm )</i>	<i>15.00</i>	<i>Each</i>	<i>363.55</i>	<i>5453.00</i>
22.48	<i>Providing and fixing cast brass clean out plug with suitable insert keys for opening, male threaded joint with GI threaded socket caulked to CI soil pipe including cost of lead Joint.</i>				
22.48.1	<i>100 mm dia</i>	<i>7.00</i>	<i>Each</i>	<i>710.90</i>	<i>4976.00</i>
22.49	<i>Providing and fixing in position 125x125 mm stainless steel grating with frame( Item code F860056CP of hindware or equivalent) for floor trap/floor drain including fix to floor with cement mortar.</i>	<i>510.00</i>	<i>Each</i>	<i>280.55</i>	<i>143081.00</i>
22.50	<i>Painting G.I. pipes and fittings with synthetic enamel white paint with two coats over a ready mixed priming coat, both of approved quality for new work :</i>				
22.50.1	<i>65 mm dia. nominal bore</i>	<i>344.00</i>	<i>Metre</i>	<i>65.45</i>	<i>22515.00</i>
22.50.2	<i>80 mm dia. nominal bore</i>	<i>159.00</i>	<i>Metre</i>	<i>99.15</i>	<i>15765.00</i>

22.51	<i>Providing and fixing forged brass ball valve(of approved brand and manufacturers ) of brass body with hard chrome plated steel ball inside PTFE (Teflon) seat &amp; ring with chrome plated centre handle with female BSP threads complete in all respects etc. as per direction of Engineer-in-charge.</i>				
22.51.1	<i>20 mm nominal bore</i>	<i>66.00</i>	<i>Each</i>	<i>710.90</i>	<i>46919.00</i>
22.51.2	<i>25 mm nominal bore</i>	<i>79.00</i>	<i>Each</i>	<i>1103.75</i>	<i>87196.00</i>
22.51.3	<i>32 mm nominal bore</i>	<i>55.00</i>	<i>Each</i>	<i>1820.15</i>	<i>100108.00</i>
22.51.4	<i>40 mm nominal bore</i>	<i>18.00</i>	<i>Each</i>	<i>2632.45</i>	<i>47384.00</i>
22.51.5	<i>50 mm nominal bore</i>	<i>16.00</i>	<i>Each</i>	<i>3763.80</i>	<i>60221.00</i>
22.52	<i>Providing and fixing forged brass single acting air release valve of approved brand and manufacturers with screwed inlet 25 mm dia. complete in all respects etc. as per direction of Engineer-in-charge</i>	<i>4.00</i>	<i>Each</i>	<i>1323.75</i>	<i>5295.00</i>
22.53	<i>Providing and fixing of Single phase electrical actuator operated wafer type rubber lined butterfly valve of approved brand and manufacturers with bypass arrangement as specified in drawing including level controller, 3 nos. normal butter fly valves, necessary control and Power cables (Maximum 10 M. Length of each type) and control panel installed on OH tank filling line near the tanks complete in all respects etc. as per direction of Engineer-in-charge</i>				
22.53.1	<i>40 mm dia.</i>	<i>1.00</i>	<i>Each</i>	<i>23847.55</i>	<i>23848.00</i>
22.53.2	<i>50 mm dia.</i>	<i>1.00</i>	<i>Each</i>	<i>24372.10</i>	<i>24372.00</i>
22.54	<i>Providing and fixing heavy duty Floor Clean Out Plug of approved make, comprising threaded brass plug with recessed square head complete with gunmetal/brass body, rubber sealing ring, SS screws (where required), and all necessary fittings and accessories. The item shall be fixed in the floor drainage line complete with cutting, threading, making good the floor finish, testing for watertightness, and commissioning, complete in all respects as directed by the Engineer-in-Charge</i>				
22.54.1	<i>100 mm dia</i>	<i>4.00</i>	<i>Each</i>	<i>452.80</i>	<i>1811.00</i>
22.55	<i>Providing and fixing thermal insulation tubing for required diameter of approved brand and manufacturers pipe (elastomeric flexible material having hermetic blister closed cell structure of expanded synthetic rubber over pipes of required nominal bores and thickness including all required accessories complete etc.as specified in Arch.</i>				

	<i>Drawing and as per direction of Engineer-in-charge.</i>				
	<i>6 mm thick (Concealed Pipes)</i>				
22.55.1	<i>For 20 mm dia Pipe</i>	10.00	Metre	84.45	845.00
22.55.2	<i>For 25 mm dia Pipe</i>	10.00	Metre	99.60	996.00
22.56	<i>Providing and fixing thermal insulation tubing for required diameter of approved brand and manufacturers pipe, a elastomeric flexible material having hermetic blister closed cell structure of expanded synthetic rubber over pipes of following nominal bores and thickness including protection by wrapping with 24 gauge aluminium sheet with riveted screw joints all required accessories complete etc.as specified in Arch. Drawing and as per direction of Engineer-in-charge.</i>				
22.56.1	<i>13 mm thick (Exposed Pipes)</i>				
22.56.1.1	<i>For 20 mm dia Pipe</i>	98.00	Metre	201.55	19752.00
22.56.1.2	<i>For 25 mm dia Pipe</i>	190.00	Metre	234.75	44603.00
22.56.1.3	<i>For 32 mm dia Pipe</i>	114.00	Metre	284.05	32382.00
22.56.1.4	<i>For 40 mm dia Pipe</i>	20.00	Metre	349.95	6999.00
22.56.1.5	<i>For 50 mm dia Pipe</i>	103.00	Metre	402.00	41406.00
22.56.1.6	<i>For 65 mm dia Pipe</i>	10.00	Metre	458.45	4585.00
22.57	<i>Providing and fixing HDPE Irrigation Pipes( PE 80 PN6) conforming to relevant IS standards, of approved make, including all HDPE fittings such as couplers, elbows, tees, reducers, end caps and other accessories as required, complete with jointing by approved mechanical compression fittings/electrofusion/butt fusion as applicable, including excavation of trenches, laying of pipes, alignment, refilling of trenches, testing and commissioning complete in all respects as per manufacturer's specifications and as directed by Engineer-in-Charge.</i>				
22.57.1	<i>40 mm nominal outer dia Pipes</i>	1282.00	Metre	329.75	422740.00
22.57.2	<i>50 mm nominal outer dia Pipes</i>	300.00	Metre	412.55	123765.00
22.57.3	<i>63 mm nominal outer dia Pipes</i>	151.00	Metre	583.40	88093.00
22.57.4	<i>90 mm nominal outer dia Pipes</i>	422.00	Metre	957.70	404149.00
22.58	<i>Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.</i>				
22.58.1	<i>100 mm dia nominal bore</i>	99.00	Metre	1471.75	145703.00
22.59	<i>Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality :</i>				

22.59.1	100 mm dia nominal bore	99.00	Metre	66.90	6623.00
22.60	Providing, laying and jointing HDPE Double Wall Coil (DWC) SN-4 Grade pipes conforming to IS: 16098 including all fittings wherever required e.g., tees, bends of any degree, couplings, adapters, plugs, unions etc. and jointing as manufacturer recomondation etc. including testing of joints etc. complete.				
22.60.1	150 mm OD	20.00	Metre	650.90	13018.00
22.60.2	200 mm OD	16.00	Metre	1396.05	22337.00
22.60.3	250 mm OD	1.00	Metre	1684.30	1684.00
22.61	Providing and fixing in position SFRC (Steel Fibre Reinforced Concrete) Medium Duty manhole cover and frame of size 450 mm × 600 mm conforming to IS 12592, complete with all necessary fittings, embedding in cement concrete/masonry as required, including setting, alignment, grouting with cement mortar and making good the surrounding surface complete as directed by Engineer-in-Charge	12.00	Each	2538.65	30464.00
22.62	Providing and fixing Cast Iron (C.I.) Cover with Frame of size 300 × 300 mm (inside) conforming to relevant IS, complete with internal C.I. Grating with Frame suitable for 180 × 150 mm S.W. Gully Trap, including cutting/chipping of existing masonry wherever required, embedding frames in cement mortar 1:3, proper alignment, making good the disturbed masonry/plaster/concrete, including all labour, materials, T&P, carriage, loading/unloading and all incidental charges complete as directed by the Engineer-in-Charge.	10.00	Each	840.10	8401.00
22.63	Providing and fixing precast R.C.C. horizontal grating with frame of size 500 mm × 450 mm over already constructed road gully chamber, including bedding in cement mortar, alignment, grouting, fixing in position and making good the disturbed surface complete as directed by Engineer-in-Charge	6.00	Each	1850.45	11103.00
22.64	Providing and fixing 12 mm thick frameless toughened glass partitions of approved brand and manufacturer with all necessary S.S. 304 patch fitting hardware like corner, side, top & bottom and corner connector with all fixing arrangements and making necessary holes etc. for fixing required fittings complete including providing and fixing top & bottom with S.S.304 channel etc. or as specified in the drawing all complete as per direction of Engineer-in-	510.00	Sqm	3181.60	1622616.00

	<i>charge</i>				
22.65	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) sliding door bolts of approved quality and make fixed with SS nuts and screws etc. or as specified in drawing complete as directed by the Engineer-in-charge.</i>				
22.65.1	<i>300x16 mm</i>	<i>51.00</i>	<i>Each</i>	<i>899.80</i>	<i>45890.00</i>
22.66	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) tower bolts (Barrel type) of size 450x10mm of approved quality and make fixed with necessary screws etc. or as specified in drawing complete as directed by the Engineer-in-charge.</i>	<i>177.00</i>	<i>Each</i>	<i>515.25</i>	<i>91199.00</i>
22.67	<i>Providing and fixing bright/ matt finished Stainless Steel (SS 304 Grade) "D" type (Glass Door Pull Both Side) Handle of size 1200mm and 32 mm dia. of approved quality and make with necessary screws etc. or as specified in drawing all complete as directed by the Engineer-in-charge.</i>	<i>8.00</i>	<i>Each</i>	<i>8782.10</i>	<i>70257.00</i>

22.68	<p><i>Supply and fixing of Straight profiled "SELF SUPPORTED" SECRET FIX STANDING ROOFING SYSTEM IN 0.9mm THICK AA 3004 ALUMINIUM ALLOY. The general roof-construction shall comprise from bottom to top:</i></p> <p><i>(1) First Layer – Galvalume Steel Liner ,0.5mm TCT 35mm deep ribs, spanning upto 1500mm centre to centre (multiple spans)</i></p> <p><i>(2) Second Layer - Vapour Control Layer shall be a single layer of double-sided aluminium foil having thickness of 200 microns</i></p> <p><i>(3) Third Layer - One layer of Rockwool insulation of 100mm thickness each minimum 48 kg/m<sup>3</sup> density with thermal conductivity of K=0.038 W/mk at 25 degrees Celsius. Fire Classification with Test Procedures to BS 476:part 6&amp;7.</i></p> <p><i>(4) Fourth Layer – Aluminium Halters with thermal barrier pads to be fixed to the purlins with SS 304 screws only.</i></p> <p><i>(5) Top layer –Aluminium Straight profile sheeting manufactured from aluminium alloy AA 3004 H44 (AlMn1Mg1) as specified in BS EN 1396: 2007 material thickness of 0.9mm with PVDF2/Stucco finish (standard colours) on the exposed surface. The profiled roof panel should have 3Nos of Mini ribs for extra strength . The material properties shall be as follows: Ultimate tensile strength: minimum 200 N/mm<sup>2</sup>, 0.2% Proof Stress: min 185 N/mm<sup>2</sup>, Modulus of elasticity: 70,000 N/mm<sup>2</sup>. The roofing system provider shall be certified with a British Board of Agreement and should have all Factory Mutual (FM-4471),UL Certification (UL-90)&amp; should possess Thomas Bell Wright International Testing certificate. The Roofing system provider should have at least three new roll forming machines less than 5 years old. New roll former will ensure that roll formed panels shall be of consistent quality and extra roll former will avoid any delay in mobilizing roll former at appropriate time . All installation is to be carried out by approved trained roofing installer. Appropriate accessories for Verge, Eave Ridge shall be used to ensure the weather &amp; water tightness at these point. Gutter in RCC &amp; paid separately All complete as per direction of Engineer-in-charge.</i></p>	352.00	Sqm	9572.85	3369643.00

22.69	<i>Single length Granite stone flooring in treads of steps and risers using single length up to 2.00 metre</i>	200.00	<i>Sqm</i>	806.30	161260.00
22.70	<i>Providing &amp; fixing galvanized low carbon wire, annealed wire Chicken mesh formed by twisting two adjacent wires at least four times, forming a hexagonal shaped strong honeycomb mesh structure on joints of RCC &amp; Brick work before plastering, of required gauge (not less than 21 gauge) and mesh size 5 x 5, with nails etc. complete as specified in drawing and as per the Direction of Engineer-in-charge.</i>	50.00	<i>Sqm</i>	188.25	9413.00
22.71	<i>Providing and fixing 50 mm thick glass reinforced concrete jali (GRC) of required size, pattern, design and colour made from 53 grade portland cement, quartz. Fine silica sand, Alkali resistant glass fibre, super plasticizers and UV resistant synthetic inorganic pigment. the material casting should take place in synthetic rubber/FRP moulded as per approved manufacturer by Engineer-in-charge. GRC jali is to be fixed on/between RCC/Brick work column or structural steel work with dry fixing method with appropriate steel framed work, using fastener and necessary hardware etc. in Boundary wall. The jali shall be securely fixed with stainless steel bolts and anchor fasteners (304 grade) of required size as specific location etc. complete up to all lead and lift. The fixing shall be done by specialization approved Agency as directed by Engineer-in-charge. (Nothing shall be paid extra except steel frame work, if required).</i>	310.00	<i>Sqm</i>	6365.70	1973367.00
22.72	<i>Providing and fixing Single Glazing 6mm thick toughened glass (Required properties Solar factor <math>\leq 0.45</math>, U-Value <math>\leq (W/sq.m-K)</math> 5.7W /M2K, Visible light transmittance <math>\geq 0.30</math>) in panelling fixed in aluminium doors, windows shutter, ventilators and partition frames with Aluminium snap beading (smooth, rust free, straight, mitred) with EPDM rubber/ neoprene gasket etc. for glazing/ panelling, Stainless steel screws and as specified in Arch. drawing, all complete in all respects as per direction of the Engineer-in-charge.</i>	60.00	<i>Sqm</i>	1836.25	110175.00

22.73	<p><i>Providing and fixing Channelled wood based linear perforated panels of size 2400mm x 128mm x 15mm acoustic treatment up to 2.40 m height as per drawing and as per direction of engineer in charge made of moisture resistant fibre board substrate with a laminated facing as per approved shade and melamine balancing layer on reverse side. The board shall have a special perforation pattern where the reverse surface has a "Helmholtz" fluted perforation, the visible surface with 3 mm wide groove followed by 13 mm visible pane. The edges of panel shall be tongue and groove to fix special clips as per drawing for installation and seamless visual. The back of perforated panel shall have sound absorbing non woven soundtex acoustical fleece hot pressed to achieve minimum NRC of 0.45 and humidity resistance of 70 % with camber limit less than 1mm/1000 mm and bow less than 1 mm/300mm. The acoustic panels shall have class B fire performance per IBC. Flame spread rating of 50 or less and smoke developed classification of 100 or less when tested per ASTM E84 or CAN /ULC S102. The cavity of frame work should be inserted with rockwool of density 48 kg/m<sup>3</sup> of approved quality along with all accessories. The complete system shall be fixed on brick wall with the help of mounting clip and aluminium channel @ 600 mm C/c as per drawing and as per direction of engineer in charge.</i></p>	145.00	Sqm	7626.95	1105908.00
22.74	<p><i>Providing and fixing acoustical wall panelling (from 2.4 m height to ceiling as per drawing) with square edges made of fibre glass substrate and wrapped on the front side with an acoustically and fire resistant fabric with approved shade and color of size 600mmx600mmx25mm with a minimum sound absorption level of 0.90 NRC to be fixed to wall using wall implanter, construction adhesive and plywood of appropriate thickness to maintain the level same as acoustic panels below 2.4 m height.</i></p>	163.00	Sqm	6507.35	1060698.00
22.75	<p><i>Providing and fixing C.P. brass twin coat hooks of (Jaquar model No. AQN CHR 7761 or equivalent model as per preferred make list) and manufacturer, fixed to PVC rawl plug with SS screws all complete as per manufacturers specification and direction of Engineer-in-charge.</i></p>	6.00	Sqm	2419.60	14518.00

22.76	<i>Providing and fixing partition upto ceiling height with 12.5 mm thick double skin tapered edged plain Gypsum plaster board conforming to IS: 2095: (part I): 2011 (Board with BIS certification marks) and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.</i>	1010.00	Sqm	972.30	982023.00
22.77	<i>Providing and fixing partition upto ceiling height with Cement Fiber Board 12 mm thick of Type B, Category III as per IS 14862:2000 (High pressure Steam Cured). Proper taping and jointing to be done using fiber mesh tape and epoxy and acrylic based jointing compound for seamless finish as per manufacture's specification and direction of engineer in charge all complete.</i>	50.00	Sqm	1417.30	70865.00
				<i>Total</i>	<i>185121280.00</i>

## Schedule of Work-IIIT Vadodara (Electrical)

**Name of work:- Construction of Academic Building, Student Hostel & Electric Substation along with all necessary infrastructure facilities for IIIT-Vadodara at Dumad, Vadodara.SH: Execution of balance work at IIIT Vadodara.**

Sl.No	Description	Unit	Qty.	Rates.	Total Amount
<b>1</b>	<b>S.H.-I POINT WIRING</b>				
1.1	<i>Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface / recessed steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required. (New Wiring)</i>				
i)	<i>Group-C (Academic Building)</i>	<i>Point</i>	30	2101	63030
1.2	<i>Fixing of modular switches , suitable modular plates in the existing GI Box , drawing of required numbers of wires with 1.5 sq mm FRLS/HFFR PVC insulated copper conductor single core cable for point wiring in existing conduit including terminations, testing,commissing etc as required.(Wire, Switch, Cover Plate shall be issued by department).</i>				
i)	<i>Group-C (Academic Building)</i>	<i>Point</i>	485	331.00	160535
1.3	<b>Fixing of switches , suitable modular plates for point wiring including terminations of wires testing, commissing etc is required. (where point wires already drawn). (Switch, Cover Plate shall be issued by department)</b>	<i>Point</i>	428	155.00	66340
1.4	<b>Drawing of Wiring for twin control light point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in existing surface / recessed steel conduit, Supplying &amp; Fixing 2 way modular switch, modular plate in existing GI box and earthing the point with 1.5 sq.mm. FRLS/HFFR PVC insulated copper conductor single core cable including terminations, testing,commissing etc .as required. (Wire shall be issued by department)</b>	<i>Point</i>	56	484.00	27104
1.5	<i>Supplying and drawing following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.</i>				
a)	<i>2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire</i>	<i>meter</i>	5500	104.00	572000
b)	<i>2 X 4 sq. mm + 1 X 4 sq. mm earth wire</i>	<i>meter</i>	7700	222.00	1709400
c)	<i>4 X 4 sq. mm + 2 X 4 sq. mm earth wire</i>	<i>meter</i>	7500	424.00	3180000

1.6	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
a)	20mm	meter	200	254.00	50800
b)	25mm	meter	100	289.00	28900
1.7	<b>Drawing of Wires for light/ power plug with 2X4 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in existing surface/ recessed steel conduit along with 1 No. 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required. (Wire shall be issued by the department).</b>	Metre	3300	33.00	108900
1.8	<b>Drawing of Wiring for light/ power plug with 4X4 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable in existing surface/ recessed steel conduit along with 2 Nos. 4 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable for loop earthing as required. (Wire shall be issued by the department).</b>	Metre	450	49.00	22050
1.9	<b>Drawing of wires for circuit/ submain wiring along with earth wire with the following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in existing surface/ recessed steel conduit as required. (Wire shall be issued by the department) .</b>				
(i)	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Metre	6500	22.00	143000
1.10	Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable in surface/ recessed steel conduit, and earthing the point with 1.5 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required. ( New Wiring)				
i)	<b>Group-C</b>	Point	10	994	9940
1.11	<b>Fixing of switches , suitable modular plates, of required numbers drawing of wires 1.5 sq mm FRLS/HFFR PVC insulated copper conductor single core cable for point wiring in existing conduit including terminations, testing,commissing from existing GI Box for group controlled (looped) as required. (Switch,Wires, modular plates shall be issued by the department)</b>				
i)	<b>Group-C</b>	Point	543	331.00	179733
1.12	Fixing of switches , suitable modular plates for point wiring including terminations of wires in existing GI Box of light point, fan point, exhaust fan point, call bell point including testing,commissing etc is required. (where point wires already drawn). (Switch, Cover Plate shall be issued by the department)				

i)	<b>Group-A (HOSTEL BLOCK)</b>	Point	560	155.00	86800
1.13	<i>Drawing of Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in <b>existing</b> surface/ recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable including termination, testing,commissing. as required.(Wire, Switch, Cover Plate shall be issued by the department)</i>				
i)	<b>Group-A (HOSTEL BLOCK)</b>	Point	250	221.00	55250
1.14	<i>Wiring for twin control light point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable including termination, testing, commissing.etc. as required. <b>(New Wiring)</b></i>	Point	10	1803	18030
1.15	<i>Supplying and drawing following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.</i>				
a)	<i>2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire</i>	meter	100	104	10400
b)	<i>4 X 1.5 sq. mm + 2 X 1.5 sq. mm earth wire</i>	meter	100	195	19500
b)	<i>2 X 4 sq. mm + 1 X 4 sq. mm earth wire</i>	meter	1250	222	277500
c)	<i>4 X 4 sq. mm + 2 X 4 sq. mm earth wire</i>	meter	1800	424	763200
1.16	<i>Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.</i>				
a)	<i>25mm</i>	meter	200	168	33600
1.17	<i>Drawing of Wiring for light/ power plug with 2X4 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable in <b>existing</b> surface/ recessed medium class PVC conduit along with 1 No. 4 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable for loop earthing as required. <b>(Wire shall be issued by the department)</b></i>	Metre	100	33.00	3300
1.18	<i>Drawing of Wiring for light/ power plug with 4X4 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable in <b>existing</b> surface/ recessed medium class PVC conduit along with 2 Nos. 4 sq. mm FRLS/HFFR PVC insulated copper conductor single core cable for loop earthing as required. <b>(Wire shall be issued by the department).</b></i>	Metre	100	49.00	4900

1.19	<b>Drawing of Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in existing surface/ recessed medium class PVC conduit as required. (Wire shall be issued by the Department)</b>				
i)	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Metre	50	22.00	1100
1.20	<b>Drawing following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required. (Wire shall be issued by the Department).</b>				
i)	6 x 1.5 sq. mm	Metre	50	33.00	1650
1.21	<b>Supplying and fixing following modular switch/ socket on the existing modular plate &amp; switch box including connections but excluding modular plate etc. as required.</b>				
i)	5/6 A switch	Each	5000	121	605000
ii)	15/16 A switch	Each	800	176	140800
iii)	3 pin 5/6 A socket outlet	Each	5000	136	680000
iv)	6 pin 15/16 A socket outlet	Each	800	219	175200
v)	Telephone socket outlet	Each	9	168	1512
vi)	TV antenna socket outlet	Each	3	168	504
vii)	blinking plate	Each	105	47	4935
1.22	<b>Fixing following modular switch/ socket on the existing modular plate &amp; switch box including connections but excluding modular plate etc. as required. (Materials shall be issued by the department).</b>				
i)	5/6 A switch	Each	1600	44.00	70400
ii)	15/16 A switch	Each	350	44.00	15400
iii)	3 pin 5/6 A socket outlet	Each	1600	44.00	70400
iv)	6 pin 15/16 A socket outlet	Each	350	44.00	15400
v)	Telephone socket outlet	Each	6	44.00	264
vi)	TV antenna socket outlet	Each	123	44.00	5412
vii)	blinking plate	Each	200	22.00	4400
viii)	RJ - 45 Data Socket	Each	132	44.00	5808
1.23	<b>Supplying and fixing following size/ modules modular base &amp; cover plate for modular switches in recess etc. as required. in existing GI box</b>				
i)	1 or 2 Module	Each	1370	156	213720
ii)	3 Module	Each	1955	175	342125
iii)	4 Module	Each	36	182	6552
iv)	6 Module	Each	720	207	149040
v)	8 Module	Each	33	238	7854
vi)	12 Module	Each	4	301	1204
vii)	16 Module	Each	26	301	7826
1.24	<b>Fixing following size/ modules modular base &amp; cover plate for modular switches in recess etc. as required in existing G.I. box.</b>				

	<b>(Material shall be issued from store).</b>				
i)	1 or 2 Module	Each	200	66.00	13200
ii)	3 Module	Each	1090	66.00	71940
iii)	4 Module	Each	6	66.00	396
iv)	6 Module	Each	172	66.00	11352
v)	8 Module	Each	12	66.00	792
vi)	12 Module	Each	67	66.00	4422
1.25	Fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required. <b>(Materials shall be issued by the department)</b>	Each	552	66.00	36432
1.26	Supplying & Fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	23	402	9246
1.27	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.	Each	41	545	22345
1.28	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	61	659	40199
1.29	Supplying & Fixing call bell suitable for single phase, 230V complete as required	Each	11	112	1232
1.30	Drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required. <b>(Materials shall be issued by the department)</b>				
i)	1 run of cable	Metre	45750	22.00	1006500
1.31	Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in <b>existing</b> surface/ recessed PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required. <b>(Wire shall be issued by the department)</b>				
i)	Group-A	Point	56	221.00	12376
1.32	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing <b>2 nos. 3 pin 5/6 A</b> modular socket outlet and <b>2 nos. 5/6 A</b> modular switch, connections etc. as required. (For light plugs to be used in non residential buildings).	Set	15	757	11355
	<b>WIRING FOR TELEPHONE SYSTEM &amp; TV SYST</b>				

	<b>EM</b>				
1.33	Supplying and drawing following pair 0.5 mm dia FRLS/HFFR PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.				
i)	2 Pair	Metre	3400	39	132600
ii)	4 Pair	Metre	600	53	31800
1.34	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	300	54	16200
1.35	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
i)	25mm dia	Metre	150	168	25200
ii)	32mm dia	Metre	70	209	14630
1.36	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
i)	25 mm	Metre	1020	289	294780
ii)	32 mm	Metre	60	360	21600
1.37	Supplying and drawing following pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, armored telephone cable including marking tag in the existing surface/ recessed steel/ PVC conduit as required.				
i)	10 Pair	Metre	100	256.00	25600
ii)	20 Pair	Metre	300	435.00	130500
iii)	30 Pair	Metre	100	935.00	93500
iv)	100 Pair	Metre	200	1764.00	352800
1.38	Supply installation and testing and commissioning of following size of Telephone distribution board in a M.S. box with hinged cover/ door complete with krone type tag block with double jumpering facility mounted on a bakelite sheet etc. including terminations of cable as required.				
i)	10 Pair telephone distribution board	Each	2	666.00	1332
ii)	20 Pair telephone distribution board	Each	8	743.00	5944
iii)	30 Pair telephone distribution board	Each	2	1718.00	3436
iv)	100 Pair telephone distribution board	Each	2	3241.00	6482
1.39	Supplying & fixing suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 25 A modular socket outlet and 25 A modular SP MCB, "C" curve including connections, painting etc. as required.	Each	26	807	20982

1.40	Supplying, Installation, Testing and commissioning of CAT6 Copper Information Outlet (IO) with face plate of color as per site requirement, should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D. All copper Cable and Components should be from same OEM to maintain compatibility and interoperability etc. complete as required.	Each	1105	212	234260
<b>TOTAL S.H.-I POINT WIRING</b>					
<b>2</b>	<b>S.H.-II DISTRIBUTION BOARDS</b>				
2.1	Fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer ) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
i)	12 way (4 + 36), Double door	Each	16	507.00	8112
ii)	8 way (4 + 24), Double door	Each	15	507.00	7605
iii)	6 way (4 + 18), Double door	Each	14	507.00	7098
2.2	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer ) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
i)	12 way (4 + 36), Double door	Each	3	13512	40536
ii)	8 way (4 + 24), Double door	Each	2	10724	21448
iii)	6 way (4 + 18), Double door	Each	2	7951	15902
2.3	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
i)	16 way, Double door	Each	3	3367	10101
ii)	12 way, Double door	Each	3	2871	8613
iii)	8 way, Double door	Each	5	2773	13865
2.4	Fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
i)	16 way, Double door	Each	3	419.00	1257
ii)	12 way, Double door	Each	8	419.00	3352
iii)	8 way, Double door	Each	1	419.00	419

iv)	6 way, Double door	Each	20	419.00	8380
2.5	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 30 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
i)	25/32 Amps	Each	403	2141	862823
ii)	40 Amps	Each	76	2512	190912
iii)	63 Amps	Each	16	2866	45856
2.6	Fixing following rating, four pole, 415 V, MCB in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
i)	25/32 Amps	Each	18	88.00	1584
ii)	40 Amps	Each	5	88.00	440
iii)	63 Amps	Each	1	88.00	88
2.7	Supplying and fixing following rating, four pole, 415 V, MCB in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
i)	25/32 Amps	Each	44	1301	57244
ii)	40 Amps	Each	3	1301	3903
iii)	63 Amps	Each	43	1301	55943
2.8	Fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
i)	Single pole	Each	4350	88.00	382800
2.9	Fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	200	2.00	400
2.10	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	106	14	1484
2.11	Supplying and fixing Cable End Box (Loose Wire Box) suitable for following triple pole and neutral, sheet steel, MCB distribution board, 415 Volts, on surface/ recess, complete with testing and commissioning etc.as required.				
i)	For 6 way, Double door TPN MCBDB	Each	3	1223	3669
ii)	For 8 way, Double door TPN MCBDB	Each	2	1448	2896
iii)	For 12 way, Double door TPN MCBDB	Each	2	1448	2896
iv)	For 16 way, Double door SPN MCBDB	Each	3	990	2970
v)	For 12 way, Double door SPN MCBDB	Each	3	990	2970
vi)	For 8 way, Double door SPN MCBDB	Each	5	918	4590
vii)	For 6 way, Double door SPN MCBDB	Each	5	834	4170
	<b>TOTAL : S.H.-II DISTRIBUTION BOARDS</b>				

<b>3</b>	<b>S.H.-III MAIN LT PANEL, METER BOARD, RISING MAIN, MAIN DISTRIBUTION BOARDS, DISTRIBUTION BOARDS</b>				
3.1	<b>RISING MAINS</b>				
3.1.1	<i>Installing by suspension on ceiling/along the wall, testing and commissioning of following capacity Sandwich Type Rising Mains for use on 3 phase 4 wire 415 V, 50Hz A.C. supply with metal clad enclosure having IP-54 rating after fixing the tap off boxes and all accessories, made of 1.6mm thick steel sheet duly powder coated in convenient section complete with 4 Nos. copper bus bars having current density of 160 A/sq. cm at nominal current rating, necessary joints, elbow joints &amp; expansion joints and bends, fire barrier at each floor, provision of tapping at every meter, adopter box and copper flexible for joints, continuous earthing with 2 Nos. copper strip of suitable size (one on each side) including, G.I. clamping brackets, suspenders, angle iron bracket, steel fasteners, connecting to earthing system etc. as required.</i>				
i)	800 A, I <sub>sc</sub> = 50 kA for 1 second	Metre	48.3 5	845.00	40855.75
ii)	1000 A, I <sub>sc</sub> = 50 kA for 1 second	Metre	29.2 7	845.00	24733.15
3.1.2	<i>Installation, testing &amp; commissioning of following capacity Plug In/ tap off box on the existing Air Insulated Compact Type bus trunking rising mains for use on 3 phase 4 wire 415 V, 50Hz A.C. supply made with 1.6mm thick sheet steel enclosure (IP54) duly powder coated with FP MCCB complete etc. as required.</i>				
i)	32A/100 A, I <sub>sc</sub> = 25 kA for 1 second	Each	19	221.00	4199
ii)	125A/160A/200 A, I <sub>sc</sub> = 25 kA for 1 second	Each	12	221.00	2652
iii)	250 A, I <sub>sc</sub> = 25 kA for 1 second	Each	1	287.00	287
3.1.3	<i>Supplying, installation, testing &amp; commissioning of following capacity End Feed Unit for the existing Air Insulated Compact Type bus trunking/ rising mains for use on 3 phase 4 wire 415 V, 50Hz A.C. supply made with 1.6mm thick steel sheet enclosure (IP54) duly powder coated with FP MCCB/ ACB complete with necessary joints including clamping brackets, angle iron bracket, steel fasteners, connecting to earthing system etc. as required.</i>				
i)	400 A, I <sub>sc</sub> = 35 kA for 1 second	Each	2	11888	23776
ii)	800 A, I <sub>sc</sub> = 50 kA for 1 second	Each	1	18772	18772
iii)	1000 A, I <sub>sc</sub> = 50 kA for 1 second	Each	1	18772	18772

3.1.4	<i>Installation including suspension, testing and commissioning of following capacity bus trunking with aluminium bus bars having current density of 130 A/sq.cm at nominal current rating in 1.6mm thick IP 42 sheet steel enclosure in convenient sections for use on, 3 phase, 4 wire, 415 V, 50 Hz, A.C. supply including jointing of sections, flexible joints, expansion joints, bends and earthing with 2 runs of galvanised iron strips, suspenders, angle iron bracket, steel fasteners, connecting to earthing system etc. as required.</i>				
i)	<i>2000 A, I<sub>sc</sub> = 50 kA for 1 second</i>	<i>Each</i>	<i>55.6 7</i>	<i>773.00</i>	<i>43032.91</i>
ii)	<i>3200A, I<sub>sc</sub> = 50 kA for 1 second</i>	<i>Each</i>	<i>14.8</i>	<i>773.00</i>	<i>11440.4</i>
3.2	<i>SITC of Panels</i>				
3.2.1	<i>Supplying, installation, testing &amp; commissioning of cubical type LT panels CPRI approved suitable for 415V, 3 Phase, 4 Wire 50 Hz AC supply system having suitable front surface area fabricated in suitable Sections compartmentalized design from CRCA sheet steel of 2 mm thick for frame work and covers top entry for cables, 3 mm thick for gland plates i/c cleaning &amp; finishing complete with 9 tank process for powder coating in approved shade, having suitable capacity extensible type bus bars of high conductivity, DMC/ SMC bus bar supports, with short circuit withstand capacity of 31 MVA for 1 Sec., bottom base channel of MS section not less than 100 mm x 75 mm x 5 mm thick, fabrication shall be done in transportable sections, entire panel shall have a common GI earth bar of size 25 mm x 5 mm at the rear with 2 Nos. earth stud, solid connections from main bus bar to switch gears with required size of bus bars and cable connections from the top and control wiring with 2.5 sq.mm. PVC insulated copper conductor single core cable, cable alleys, cable gland plates in two half, i/c providing following switch gears. (Applicable for all Panels.)</i>				
3.2.1.1	<b>L+P Panel -1 (Non Essential) For Academic Block GF Floor(TTA 61439)</b>	<i>Each</i>	<i>1</i>	<i>88488.00</i>	<i>88488</i>
	<b>INCOMER FEEDER</b>				
	<i>100A 4P 25KA MCCB TM Release ,O/L, S/C- 1 Nos</i>				
	<i>100A Extended ROH -1 Nos</i>				
	<i>100A Spreader Set of 8 -1Nos</i>				
	<i>100A Aux. Contact for MCCB -1Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1Nos</i>				
	<i>CT's 100/5A Cl - 1.0 10VA, Resin Cast for Metering - 3Nos</i>				

	CTTB - 4Nos				
	RY Phase Indication lamp Led Type -2Nos				
	B Phase Indication lamp Led Type -1Nos				
	On Indication lamp Led Type -1Nos				
	OFF Indication lamp Led Type -1Nos				
	2A, 1P, 10kA, C-Curve MCB- 4 Nos				
	Neutral Link -1Nos				
	<b>Outgoing</b>				
	63A, 4P, 10kA, C-Curve MCB-3 Nos				
	40A, 4P, 10kA, C-Curve MCB-5 nos				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP - 1Nos</b>				
	<b>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1Nos</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
3.2.1.2	<b>L+P Panel -2 (Non Essential) For Academic Block 1st Floor (TTA 61439</b>	Each	1	91111.00	91111
	<b>INCOMER FEEDER</b>				
	125A 4P 25KA MCCB TM Release ,O/L, S/C -1Nos				
	Extended ROH -1Nos				
	Spreader Set of 8 -1Nos				
	Aux. Contact for MCCB -1Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1Nos				
	CT's 125/5A Cl - 1.0 10VA, Resin Cast for Metering - 3Nos				
	CTTB - 4 Nos				
	RY Phase Indication lamp Led Type -2Nos				
	B Phase Indication lamp Led Type -1Nos				
	On Indication lamp Led Type -1Nos				
	OFF Indication lamp Led Type -1Nos				
	2A, 1P, 10kA, C-Curve MCB - 4 Nos				
	Neutral Link -1Nos				
	<b>Outgoing</b>				
	63A, 4P, 10kA, C-Curve MCB -3Nos				
	40A, 4P, 10kA, C-Curve MCB -3Nos				
	63A, DP, 10kA, C-Curve MCB-3Nos				
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	<i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP</i>				
	<i>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1Nos</i>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc. -1Nos</i>				
3.2.1.3	<b>L+P Panel -3 (Non Essential) For Academic Block 2nd Floor (TTA 61439)</b>	Each	1	113347.00	113347
	INCOMER FEEDER				
	200A 4P 25KA MCCB TM Release ,O/L, S/C -1Nos-1Nos				
	Extended ROH -1Nos				
	Spreader Set of 8 -1Nos				
	Aux. Contact for MCCB -1Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1Nos				
	CT's 200/5A Cl - 1.0 10VA, Resin Cast for Metering - 3 Nos				
	CTTB - 4 Nos				
	RY Phase Indication lamp Led Type -2Nos				
	B Phase Indication lamp Led Type -1Nos				
	On Indication lamp Led Type -1Nos				
	OFF Indication lamp Led Type -1Nos				
	2A, 1P, 10kA, C-Curve MCB -4 Nos				
	Neutral Link -1Nos				
	<b>Outgoing</b>				
	63A, 4P, 10kA, C-Curve MCB -6 Nos				
	40A, 4P, 10kA, C-Curve MCB-1Nos				
	32A, 4P, 10kA, C-Curve MCB-1Nos				
	63A, DP, 10kA, C-Curve MCB-3Nos				
	<i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP - 1Nos</i>				
	<i>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1Nos</i>				

	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
3.2.1.4	<b>L+P Panel -4 (Non Essential) For Academic Block 3rdFloor(TTA 61439)</b>	Each	1	97155.00	97155
	<b>INCOMER FEEDER</b>				
	<i>160A 4P 25KA MCCB TM Release ,O/L, S/C -1Nos</i>				
	<i>Extended ROH -1Nos</i>				
	<i>Spreader Set of 8 -1Nos</i>				
	<i>Aux. Contact for MCCB -1Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1Nos</i>				
	<i>CT's 160/5A Cl - 1.0 10VA, Resin Cast for Metering - 3 Nos</i>				
	<i>CTTB -4 Nos</i>				
	<i>RY Phase Indication lamp Led Type -2 Nos</i>				
	<i>B Phase Indication lamp Led Type -1 Nos</i>				
	<i>On Indication lamp Led Type -1Nos</i>				
	<i>OFF Indication lamp Led Type -1Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -4 Nos</i>				
	<i>Neutral Link -1Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB -7Nos</i>				
	<i>40A, 4P, 10kA, C-Curve MCB -3 Nos</i>				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP - 1Nos</b>				
	<b>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1Nos</b>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
3.2.1.5	<b>L+P Panel -5 (Non Essential) For Academic Block 4th Floor(TTA 61439)</b>	Each	1	94646.00	94646

	<b>INCOMER FEEDER</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Aux. Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 125/5A CI - 1.0 10VA, Resin Cast for Metering-3 Nos</i>				
	<i>CTTB-4 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>40A, 4P, 10kA, C-Curve MCB-5 Nos</i>				
	<b>-</b>				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
3.2.1.6	<b>L+P Panel -6 (Non Essential) For Academic Block 5th Floor(TTA 61439)</b>	Each	1	117680.00	117680
	<b>INCOMER FEEDER</b>				
	<i>250A 4P 25KA MCCB TM Release ,O/L, S/C -1 Nos</i>				
	<i>Extended ROH -1Nos</i>				
	<i>Spreader Set of 8 -1Nos</i>				
	<i>Aux. Contact for MCCB -1Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1Nos</i>				

	<i>CT's 250/5A CI - 1.0 10VA, Resin Cast for Metering - 3Nos</i>				
	<i>CTTB -4Nos</i>				
	<i>RY Phase Indication lamp Led Type -2 Nos</i>				
	<i>B Phase Indication lamp Led Type -1Nos</i>				
	<i>On Indication lamp Led Type -1 Nos</i>				
	<i>OFF Indication lamp Led Type -1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -4 Nos</i>				
	<i>Neutral Link -1Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB -7 Nos</i>				
	<i>40A, 4P, 10kA, C-Curve MCB -2 Nos</i>				
	<i>63A, DP, 10kA, C-Curve MCB -2 Nos</i>				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 Nos</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
3.2.1.7	<b>AC DB Panel-1 (Essential) For Academic Block 1st Floor(TTA 61439)</b>	Each	1	85296.00	85296
	<b>INCOMER FEEDER</b>				
	<i>100A 4P 25KA MCCB TM Release ,O/L, S/C -1 Nos</i>				
	<i>100A Extended ROH -1 Nos</i>				
	<i>100A Spreader Set of 8 -1 Nos</i>				
	<i>100A Aux. Contact for MCCB -1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos</i>				
	<i>CT's 100/5A CI - 1.0 10VA, Resin Cast for Metering - 3 Nos</i>				
	<i>CTTB - 4 Nos</i>				
	<i>RY Phase Indication lamp Led Type -2 Nos</i>				
	<i>B Phase Indication lamp Led Type -1 Nos</i>				
	<i>On Indication lamp Led Type -1 Nos</i>				
	<i>OFF Indication lamp Led Type -1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -4 Nos</i>				

	<i>Neutral Link -1 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB -1 Nos</i>				
	<i>32A, 4P, 10kA, C-Curve MCB -8 Nos</i>				
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	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 Nos</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
<b>3.2.1.8</b>	<b><i>Lift Panel (TTA 61439)</i></b>	<i>Each</i>	<i>1</i>	<i>336735.00</i>	<i>336735</i>
	<b><i>INCOMER FEEDER</i></b>				
	<i>200A 4P Auto Transfer Switch -1 Nos</i>				
	<i>200A 4P 25KA MCCB TM Release ,O/L, S/C -2 Nos</i>				
	<i>Extended ROH -2 Nos</i>				
	<i>Spreader Set of 6 -2 Nos</i>				
	<i>Aux.Contact 1C/O For MCCB -2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos</i>				
	<i>CT's 200/5A CI - 1.0 5VA, Resin Cast for Metering -3 Nos</i>				
	<i>CTTB -3 Nos</i>				
	<i>RY Phase Indication lamp Led Type -4 Nos</i>				
	<i>B Phase Indication lamp Led Type -2 Nos</i>				
	<i>On Indication lamp Led Type -2 Nos</i>				
	<i>OFF Indication lamp Led Type -2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -8 Nos</i>				
	<i>Neutral Link -2 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P RCBO 300mA - 7 Nos</i>				
	<i>Aux. Contact for MCB - 7 Nos</i>				
	<i>On Indication lamp Led Type - 7 Nos</i>				
	<i>OFF Indication lamp Led Type - 7 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB - 7 Nos</i>				
	<i>Neutral Link - 7 Nos</i>				
	<i>63A, DP, 10kA, C-Curve MCB-5 Nos</i>				

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	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</b>				
	<b>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves 1 Nos</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.9</b>	<b>L+P Panel -1 (Non Essential) For Academic Block GF Floor(TTA 61439)</b>	Each	1	92137.00	92137
	<b>INCOMER FEEDER</b>				
	160A 4P 25KA MCCB TM Release ,O/L, S/C				
	Extended ROH				
	Spreader Set of 8				
	Aux. Contact for MCCB				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)				
	CT's 150/5A Cl - 1.0 10VA, Resin Cast for Metering				
	CTTB				
	RY Phase Indication lamp Led Type				
	B Phase Indication lamp Led Type				
	On Indication lamp Led Type				
	OFF Indication lamp Led Type				
	2A, 1P, 10kA, C-Curve MCB				
	Neutral Link				
	<b>Outgoing</b>				
	63A, 4P, 10kA, C-Curve MCB				
	40A, 4P, 10kA, C-Curve MCB				
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	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP</b>				
	<b>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves</b>				

	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.1 0</b>	<b>L+P Panel -2 (Non Essential) For Academic Block 1st Floor(TTA 61439)</b>	<i>Each</i>	<i>1</i>	<i>111523.00</i>	<i>111523</i>
	<b>INCOMER FEEDER</b>				
	<i>200A 4P 25KA MCCB TM Release ,O/L, S/C -1 Nos</i>				
	<i>Extended ROH -1 Nos</i>				
	<i>Spreader Set of 8 -1 Nos</i>				
	<i>Aux. Contact for MCCB -1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos</i>				
	<i>CT's 200/5A CI - 1.0 10VA, Resin Cast for Metering - 3 Nos</i>				
	<i>CTTB -.4 Nos</i>				
	<i>RY Phase Indication lamp Led Type -2 Nos</i>				
	<i>B Phase Indication lamp Led Type -1 Nos</i>				
	<i>On Indication lamp Led Type -1 Nos</i>				
	<i>OFF Indication lamp Led Type -1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -4 Nos</i>				
	<i>Neutral Link -1 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB -7 Nos</i>				
	<i>63A, DP, 10kA, C-Curve MCB -3 Nos</i>				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</b>				
	<b>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 Nos</b>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.1 1</b>	<b>L+P Panel -3 (Non Essential) For Academic Block 2nd Floor(TTA 61439)</b>	<i>Each</i>	<i>1</i>	<i>113347.00</i>	<i>113347</i>
	<b>INCOMER FEEDER</b>				

	200A 4P 25KA MCCB TM Release ,O/L, S/C -1 Nos				
	Extended ROH -1 Nos				
	Spreader Set of 8 -1 Nos				
	Aux. Contact for MCCB -1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos				
	CT's 200/5A CI - 1.0 10VA, Resin Cast for Metering - 3 Nos				
	CTTB - 4 Nos				
	RY Phase Indication lamp Led Type -2 Nos				
	B Phase Indication lamp Led Type -1 Nos				
	On Indication lamp Led Type -1 Nos				
	OFF Indication lamp Led Type -1 Nos				
	2A, 1P, 10kA, C-Curve MCB - 4 Nos				
	Neutral Link -1 Nos				
	<b>Outgoing</b>				
	63A, 4P, 10kA, C-Curve MCB -6 Nos				
	40A, 4P, 10kA, C-Curve MCB -1 Nos				
	32A, 4P, 10kA, C-Curve MCB -1 Nos				
	63A, DP, 10kA, C-Curve MCB -3 Nos				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</b>				
	<b>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 Nos</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.1</b>	<b>L+P Panel -4 (Non Essential) For Academic Block 3rd Floor(TTA 61439)</b>	<i>Each</i>	<i>1</i>	<i>110725.00</i>	<i>110725</i>
<b>2</b>	<b>INCOMER FEEDER</b>				
	200A 4P 25KA MCCB TM Release ,O/L, S/C -1 Nos				
	Extended ROH -1 Nos				
	Spreader Set of 8 -1 Nos				
	Aux. Contact for MCCB -1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power				

	<i>Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos</i>				
	<i>CT's 200/5A CI - 1.0 10VA, Resin Cast for Metering - 3 Nos</i>				
	<i>CTTB -4 Nos</i>				
	<i>RY Phase Indication lamp Led Type -2 Nos</i>				
	<i>B Phase Indication lamp Led Type -1 Nos</i>				
	<i>On Indication lamp Led Type -1 Nos</i>				
	<i>OFF Indication lamp Led Type -1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -4 Nos</i>				
	<i>Neutral Link -1 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB -7 Nos</i>				
	<i>32A, 4P, 10kA, C-Curve MCB -1 Nos</i>				
	<i>63A, DP, 10kA, C-Curve MCB -1 Nos</i>				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</b>				
	<b>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 Nos</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
3.2.1.1 3	<b>L+P Panel -5 (Non Essential) For Academic Block 4th Floor(TTA 61439)</b>	Each	1	90997.00	90997
	<b>INCOMER FEEDER</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C - 1 Nos</i>				
	<i>Extended ROH -1 Nos</i>				
	<i>Spreader Set of 8 -1 Nos</i>				
	<i>Aux. Contact for MCCB -1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos</i>				
	<i>CT's 125/5A CI - 1.0 10VA, Resin Cast for Metering - 3 Nos</i>				
	<i>CTTB - 4 Nos</i>				
	<i>RY Phase Indication lamp Led Type- 2 Nos</i>				
	<i>B Phase Indication lamp Led Type- 1 Nos</i>				
	<i>On Indication lamp Led Type- 1 Nos</i>				

	<i>OFF Indication lamp Led Type- 1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB- 4 Nos</i>				
	<i>Neutral Link - 1 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB - 6 Nos</i>				
	<i>40A, 4P, 10kA, C-Curve MCB- 2 Nos</i>				
	-				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP - 1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 240A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves - 1 Nos</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
<b>3.2.1.1</b>	<b><i>L+P Panel -6 (Non Essential) For Academic Block 5th Floor(TTA 61439)</i></b>	<i>Each</i>	<i>1</i>	<i>109014.00</i>	<i>109014</i>
<b>4</b>	<b><i>INCOMER FEEDER</i></b>				
	<i>200A 4P 25KA MCCB TM Release ,O/L, S/C- 1 Nos</i>				
	<i>Extended ROH- 1 Nos</i>				
	<i>Spreader Set of 8- 1 Nos</i>				
	<i>Aux. Contact for MCCB- 1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) - 1 Nos</i>				
	<i>CT's 200/5A CI - 1.0 10VA, Resin Cast for Metering- 3 Nos</i>				
	<i>CTTB- 4 Nos</i>				
	<i>RY Phase Indication lamp Led Type - 2 Nos</i>				
	<i>B Phase Indication lamp Led Type- 1 Nos</i>				
	<i>On Indication lamp Led Type- 1 Nos</i>				
	<i>OFF Indication lamp Led Type- 1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB- 4 Nos</i>				
	<i>Neutral Link- 1 Nos</i>				
	<b>Outgoing</b>				
	<i>63A, 4P, 10kA, C-Curve MCB- 6 Nos</i>				
	<i>63A, DP, 10kA, C-Curve MCB- 3 Nos</i>				
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	<i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP- 1 Nos</i>				
	<i>E-91 Grade Main Busbar 500A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves - 1 Nos</i>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.1 5</b>	<b>Main Panel (Non Essential ) Academic Block (TTA 61439)</b>	Each	1	1443296.00	1443296
	<b>INCOMER FEEDER</b>				
	<i>1250A 4P 65KA EDO ACB MP Rel. LSING - 1 Nos</i>				
	<i>TNC Switch- 1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)- 1 Nos</i>				
	<i>CT's 1200/5A Cl - 1.0 15VA, Resin Cast for Metering- 3 Nos</i>				
	<i>CTTB - 4 Nos</i>				
	<i>RY Phase Indication lamp Led Type- 2 Nos</i>				
	<i>B Phase Indication lamp Led Type- 1 Nos</i>				
	<i>On Indication lamp Led Type - 1 Nos</i>				
	<i>OFF Indication lamp Led Type - 1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB - 4 Nos</i>				
	<i>Neutral Link - 1 Nos</i>				
	<b>Outgoing</b>				
	<i>1000A 4P 65KA EDO ACB MP Release O/L,S/C,E/F - 2 Nos</i>				
	<i>TNC Switch - 2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) - 2 Nos</i>				
	<i>CT's 1000A/5A Cl - 1.0 5VA, Resin Cast for Metering - 6 Nos</i>				
	<i>CTTB - 8 Nos</i>				
	<i>B Phase Indication lamp Led Type - 2 Nos</i>				
	<i>On Indication lamp Led Type - 2 Nos</i>				
	<i>OFF Indication lamp Led Type - 2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB - 8 Nos</i>				
	<i>Neutral Link - 2 Nos</i>				

	800A 4P 50KA MCCB MP Release ,O/L, S/C,E/F - 2 Nos				
	Extended ROH - 2 Nos				
	Aux. Contact for MCCB - 2 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) - 2 Nos				
	CT's 800A/5A Cl - 1.0 5VA, Resin Cast for Metering - 6 Nos				
	CTTB - 8 Nos				
	On Indication lamp Led Type - 2 Nos				
	OFF Indication lamp Led Type- 2 Nos				
	2A, 1P, 10kA, C-Curve MCB - 8 Nos				
	Neutral Link- 2 Nos				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP - 1 Nos</b>				
	<b>E-91 Grade Main Busbar 2000A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves - 1 Nos</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.1</b>					
<b>6</b>	<b>Main Emergency Panel(Academic Block) (TTA 61439)</b>	Each	1	475739.00	475739
	<b>INCOMER FEEDER</b>				
	1250A 4P 65KA EDO ACB MP Rel. LSING - 1 Nos				
	TNC Switch - 1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) - 1 Nos				
	CT's 1200/5A Cl - 1.0 15VA, Resin Cast for Metering - 3 Nos				
	CTTB - 4 Nos				
	RY Phase Indication lamp Led Type - 2 Nos				
	B Phase Indication lamp Led Type - 1 Nos				
	On Indication lamp Led Type- 1 Nos				
	OFF Indication lamp Led Type- 1 Nos				
	2A, 1P, 10kA, C-Curve MCB- 4 Nos				
	Neutral Link - 1 Nos				

	<b>Outgoing</b>				
	1000A 4P 65KA EDO ACB MP Release O/L,S/C,E/F - 2 Nos				
	TNC Switch - 2 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) - 2 Nos				
	CT's 1000A/5A CI - 1.0 5VA, Resin Cast for Metering - 6 Nos				
	CTTB - 8 Nos				
	B Phase Indication lamp Led Type - 2 Nos				
	On Indication lamp Led Type - 2 Nos				
	OFF Indication lamp Led Type - 2 Nos				
	2A, 1P, 10kA, C-Curve MCB - 8 Nos				
	Neutral Link - 2 Nos				
	800A 4P 50KA MCCB MP Release ,O/L, S/C,E/F- 2 Nos				
	Extended ROH- 2 Nos				
	Aux. Contact for MCCB- 2 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) - 2 Nos				
	CT's 800A/5A CI - 1.0 5VA, Resin Cast for Metering - 6 Nos				
	CTTB - 8 Nos				
	On Indication lamp Led Type - 2 Nos				
	OFF Indication lamp Led Type - 2 Nos				
	2A, 1P, 10kA, C-Curve MCB - 8 Nos				
	Neutral Link - 2 Nos				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP - 1 Nos</b>				
	<b>E-91 Grade Main Busbar 2000A 4P Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves - 1 Nos</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.1</b>	<b>UPS Panel-1 (Acadmic Block) GF Floor(TTA 61439)</b>	<i>Each</i>	<i>1</i>	<i>142995.00</i>	<i>142995</i>

<b>7</b>					
	<b>INCOMER FEEDER</b>				
	100A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos				
	100A Extended ROH-1 Nos				
	100A Spreader Set of 8-1 Nos				
	100A Aux. Contact for MCCB-1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos				
	CT's 100/5A Cl - 1.0 5VA, Resin Cast for Metering-3 Nos				
	CTTB-4 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	<b>Outgoing</b>				
	40A, 4P, 10kA, C-Curve MCB-8 Nos				
	-				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 240A 4P Cu. Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.1</b>					
<b>8</b>	<b>UPS Panel-2 (Acadmic Block) 1st Floor(TTA 61439)</b>	Each	1	129198.00	129198
	<b>INCOMER FEEDER</b>				
	100A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos				
	100A Extended ROH-1 Nos				
	100A Spreader Set of 8-1 Nos				
	100A Aux. Contact for MCCB-1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos				

	<i>CT's 100/5A Cl - 1.0 5VA, Resin Cast for Metering-3 Nos</i>				
	<i>CTTB-4 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing</b>				
	<i>40A, 4P, 10kA, C-Curve MCB-9 Nos</i>				
	<i>40A, DP, 10kA, C-Curve MCB-2 Nos</i>				
	-				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 240A 4P Cu. Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
<b>3.2.1.1</b>					
<b>9</b>	<b><i>UPS Panel-3(Acadmic Block) 2ndFloor(TTA 61439)</i></b>	<i>Each</i>	<i>1</i>	<i>147899.00</i>	<i>147899</i>
	<b><i>INCOMER FEEDER</i></b>				
	<i>100A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>100A Extended ROH-1 Nos</i>				
	<i>100A Spreader Set of 8-1 Nos</i>				
	<i>100A Aux. Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 100/5A Cl - 1.0 5VA, Resin Cast for Metering-3 Nos</i>				
	<i>CTTB-4 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				

	<b>Outgoing</b>				
	40A, 4P, 10kA, C-Curve MCB-11 Nos				
	40A, DP, 10kA, C-Curve MCB-4 Nos				
	-				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 240A 4P Cu. Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.2</b>	<b>UPS Panel-4(Acadmic Block) 3rd Floor(TTA 61439)</b>	Each	1	143908.00	143908
<b>0</b>	<b>INCOMER FEEDER</b>				
	100A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos				
	100A Extended ROH-1 Nos				
	100A Spreader Set of 8-1 Nos				
	100A Aux. Contact for MCCB-1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos				
	CT's 100/5A Cl - 1.0 5VA, Resin Cast for Metering-3 Nos				
	CTTB-4 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	<b>Outgoing</b>				
	40A, 4P, 10kA, C-Curve MCB-11 Nos				
	40A, DP, 10kA, C-Curve MCB-1 Nos				
	-				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				

	<i>E-91 Grade Main Busbar 240A 4P Cu. Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.2 1</b>	<b>UPS Panel-5(Acadmic Block) 4th &amp; 5th Floor(TTA 61439)</b>	Each	1	181766.00	181766
	<b>INCOMER FEEDER</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>125A Extended ROH-1 Nos</i>				
	<i>125A Spreader Set of 8-1 Nos</i>				
	<i>125A Aux. Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 125/5A Cl - 1.0 5VA, Resin Cast for Metering-3 Nos</i>				
	<i>CTTB-4 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing</b>				
	<i>40A, 4P, 10kA, C-Curve MCB-16 Nos</i>				
	<i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</i>				
	<i>E-91 Grade Main Busbar 300A 4P Cu. Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.2 2</b>	<b>UPS Outgoing Panel(Acadmic Block) 2nd Floor</b>	Each	1	1450936.00	1450936

	<b>INCOMER FEEDER</b>				
	125A 4P 25KA MCCB TM Release ,O/L, S/C-4 Nos				
	125A Extended ROH-4 Nos				
	125A Spreader Set of 8-4 Nos				
	125A Aux. Contact for MCCB-4 Nos				
	Shunt Release for MCCB -4 Nos				
	Castel Lock For MCCB-4 Nos				
	Aux. Contact 2NO+2NC-8 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-4 Nos				
	CT's 125/5A CI - 1.0 5VA, Resin Cast for Metering-12 Nos				
	CTTB-12 Nos				
	RY Phase Indication lamp Led Type-8 Nos				
	B Phase Indication lamp Led Type-4 Nos				
	On Indication lamp Led Type-4 Nos				
	OFF Indication lamp Led Type-4 Nos				
	2A, 1P, 10kA, C-Curve MCB-16 Nos				
	Neutral Link-4 Nos				
	<b>Bus-coupler</b>				
	125A 4P 25KA MCCB TM Release ,O/L, S/C-3 Nos				
	125A Extended ROH-3 Nos				
	125A Spreader Set of 8-3 Nos				
	125A Aux. Contact for MCCB-3 Nos				
	Shunt Release for MCCB -3 Nos				
	Castel Lock For MCCB-3 Nos				
	Aux. Contact 2NO+2NC-6 Nos				
	On Indication lamp Led Type-3 Nos				
	OFF Indication lamp Led Type-3 Nos				
	2A, 1P, 10kA, C-Curve MCB-6 Nos				
	Neutral Link-3 Nos				
	<b>Outgoing Section-1</b>				
	100A 4P 25KA MCCB TM Release ,O/L, S/C-3 Nos				
	100A Extended ROH-3 Nos				
	100A Spreader Set of 8-3 Nos				
	<b>Outgoing Section-2</b>				
	125A 4P 25KA MCCB TM Release ,O/L, S/C-2 Nos				
	125A Extended ROH-2 Nos				
	125A Spreader Set of 8-2 Nos				
	63A, 4P, 10kA, C-Curve MCB-1 Nos				
	<b>Outgoing Section-3</b>				
	100A 4P 25KA MCCB TM Release ,O/L, S/C-2 Nos				
	100A Extended ROH-2 Nos				
	100A Spreader Set of 8-2 Nos				

	63A, 4P, 10kA, C-Curve MCB-2 Nos				
	<b>Outgoing Section-4</b>				
	100A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos				
	100A Extended ROH-1 Nos				
	100A Spreader Set of 8-1 Nos				
	63A, 4P, 10kA, C-Curve MCB-3 Nos				
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	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 500A 4P Cu. Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.2</b>					
<b>3</b>	<b>Fire Fighting Panel</b>	Each	1	862420.00	862420
	<b>INCOMER FEEDER</b>				
	400A 4P Changeover Switch-1 Nos				
	400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F -2 Nos				
	Extended ROH-2 Nos				
	Spreader Set of 8-2 Nos				
	Aux Contact for MCCB-2 Nos				
	Digital Multifunction Meter RS485 -2 Nos				
	CT's 400/5A Cl - 1.0 15VA, Resin Cast for Metering-3 Nos				
	CTTB-4 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	On Indication lamp Led Type-2 Nos				
	OFF Indication lamp Led Type-2 Nos				
	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	<b>Outgoing</b>				
	<b>75KW Star Delta Starter -2 Nos</b>				
	250A 3Pole 50KA MCCB with Motor Duty Protection-2 Nos				
	Extended Rotary operating Handle-2 Nos				
	Spreader Terminals 3Pole Set of 6Links-2 Nos				

	<i>140A TP AC-3 Duty Power Contactor with 2NO+2NC Contact-4 Nos</i>				
	<i>80A TP AC-3 Duty Power Contactor with 2NO+2NC Contact-2 Nos</i>				
	<i>Add On Contact Block 2NO+2NC-6 Nos</i>				
	<i>60-100A Overload Relay-2 Nos</i>				
	<i>Star Delta Timer 0-60Sec.-2 Nos</i>				
	<i>On, Off, Trip Indication lamp Led Type-6 Nos</i>				
	<i>Start, Stop Push Button -4 Nos</i>				
	<i>Auto Manual Selector Switch-2 Nos</i>				
	<i>MCB 6A SP 10KA "C" Curve-2 Nos</i>				
	<i>Control Terminals 2.5sq.mm-30 Nos</i>				
	<i>Power Terminals 35sq.mm-12 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<b><i>5.5KW DOL Starter -1 Nos</i></b>				
	<i>32A 3Pole 50KA MCCB with Motor Duty Protection-1 Nos</i>				
	<i>Extended Rotary operating Handle-1 Nos</i>				
	<i>Spreader Terminals 3Pole Set of 6Links-1 Nos</i>				
	<i>50A TP AC-3 Duty Power Contactor with 2NO+2NC Contact-1 Nos</i>				
	<i>Add On Contact Block 2NO+2NC-1 Nos</i>				
	<i>9-45A Overload Relay-1 Nos</i>				
	<i>On, Off, Trip Indication lamp Led Type-3 Nos</i>				
	<i>Start, Stop Push Button -2 Nos</i>				
	<i>Auto Manual Selector Switch-1 Nos</i>				
	<i>MCB 6A SP 10KA "C" Curve-1 Nos</i>				
	<i>Control Terminals 2.5sq.mm-15 Nos</i>				
	<i>Power Terminals -6 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>160A 3P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 6-1 Nos</i>				
	<i>Aux. Contact for MCCB-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-1 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>100A 3P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 6-1 Nos</i>				
	<i>Aux. Contact for MCCB-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-1 Nos</i>				
	<i>Neutral Link-1 Nos</i>				

	63A 3P 25KA MCCB TM Release ,O/L, S/C-1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 6-1 Nos				
	Aux. Contact for MCCB-1 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-1 Nos				
	Neutral Link-1 Nos				
	<b>Engine Start Control-1 Nos</b>				
	MCB 10A 2P 10kA MCB, 'C' Curve-2 Nos				
	DC PLA Relay 12/24VDC-5 Nos				
	On/Off Delay Timer 12/24VDC-1 Nos				
	Auto / Manual Selector Switch 6A-1 Nos				
	Engine Start Relay 12/24VDC-1 Nos				
	Battery Charger 12/24VDC, 10A-1 Nos				
	Control Terminals 2.5sq.mm-25 Nos				
	DG On, DG Off, DC On Indication Lamp-3 Nos				
	Start, Stop Push Button with Element-4 Nos				
	Emergency Stop Push Button with Element-1 Nos				
	DC Volt Meter (0-50V)-1 Nos				
	DC Amp. Meter (0-30A)-1 Nos				
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	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 600A 4PAlluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.2</b>					
<b>4</b>	<b>425KVAR Capacitor Panel (TTA 61439)</b>	Each	3	1142424.00	3427272
	<b>INCOMER FEEDER</b>				
	800A 3P KA MCCB MP Release ,O/L, S/C,E/F -1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 6-1 Nos				
	Digital Amp Meter With Selector Switch -1 Nos				
	14STAGE APFC RELAY -1 Nos				
	CT's 800/5A Cl - 1.0 15VA, Resin Cast for Metering & APRCR-6 Nos				
	CTTB-1 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				

	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>6A 1P 3Way Multi Step Switch with OFF-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-9 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing</b>				
	<b>50 KVAR CAPACITOR BANK</b>				
	<i>125A 3P MCCB 25 KA TM Release -6 Nos</i>				
	<i>125 Extended ROH -6 Nos</i>				
	<i>50KVAR Capacitor Contactor With 1NO+1NC Contact-6 Nos</i>				
	<i>50KVAR(30X2) Capacitor Bank Heavy Duty 525 V.-12 Nos</i>				
	<i>50KVAR 14% Detune Reactor 440 V. Alu-6 Nos</i>				
	<i>Start Push Button With 1NO Element-6 Nos</i>				
	<i>Stop Push Button With 1NC Element-6 Nos</i>				
	<i>On Indication lamp Led Type-6 Nos</i>				
	<i>OFF Indication lamp Led Type-6 Nos</i>				
	<i>A/M Selector Switch-6 Nos-6 Nos</i>				
	<i>2A SP Control MCB C-Curve-6 Nos</i>				
	<i>Neutral Link-6 Nos</i>				
	<b>25KVAR CAPACITOR BANK</b>				
	<i>63A 3P MCCB 25 KA TM Release -4 Nos</i>				
	<i>63 Extended ROH -4 Nos</i>				
	<i>25KVAR Capacitor Contactor With 1NO+1NC Contact-4 Nos</i>				
	<i>25KVAR(30X1) Capacitor Bank Heavy Duty 525 V.-4 Nos</i>				
	<i>25KVAR 14% Detune Reactor 440 V. Alu-4 Nos</i>				
	<i>Start Push Button With 1NO Element-4 Nos</i>				
	<i>Stop Push Button With 1NC Element-4 Nos</i>				
	<i>On Indication lamp Led Type-4 Nos</i>				
	<i>OFF Indication lamp Led Type-4 Nos</i>				
	<i>A/M Selector Switch-4 Nos</i>				
	<i>2A SP Control MCB C-Curve-4 Nos</i>				
	<i>..</i>				
	<b>10KVAR CAPACITOR BANK</b>				
	<i>32A 3P MCCB 25 KA TM Release -2 Nos</i>				
	<i>32 Extended ROH -2 Nos</i>				
	<i>10KVAR Capacitor Contactor With 1NO+1NC Contact-2 Nos</i>				
	<i>10KVAR(13.2X1) Capacitor Bank Heavy Duty 525 V.-2 Nos</i>				
	<i>10KVAR 14% Detune Reactor 440 V. Alu-2 Nos</i>				
	<i>Start Push Button With 1NO Element-2 Nos</i>				
	<i>Stop Push Button With 1NC Element-2 Nos</i>				
	<i>On Indication lamp Led Type-2 Nos</i>				
	<i>OFF Indication lamp Led Type-2 Nos</i>				

	<i>A/M Selector Switch-2 Nos</i>				
	<i>2A SP Control MCB C-Curve-2 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<b>5KVAR CAPACITOR BANK</b>				
	<i>16A 3P MCCB 25 KA TM Release -1 Nos</i>				
	<i>16 Extended ROH -1 Nos</i>				
	<i>5KVAR Capacitor Contactor With 1NO+1NC Contact-1 Nos</i>				
	<i>5KVAR(6.6X1) Capacitor Bank Heavy Duty 525 V.-1 Nos</i>				
	<i>5KVAR 14% Detune Reactor 440 V. Alu-1 Nos</i>				
	<i>Start Push Button With 1NO Element-1 Nos</i>				
	<i>Stop Push Button With INC Element-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>A/M Selector Switch-1 Nos</i>				
	<i>2A SP Control MCB C-Curve-1 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Ventilation</b>				
	<i>Exhaust Fan With Filtrter-8 Nos</i>				
	<i>2A SP Control MCB C-Curve-8 Nos</i>				
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	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 1000A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
<b>3.2.1.2</b>					
<b>5</b>	<b>DG Panel(TTA 61439)</b>	<i>Each</i>	<i>1</i>	<i>2708246.00</i>	<i>2708246</i>
	<b>INCOMER Form LT Panel</b>				
	<i>1250A 4P 65KA EDO ACB MP Rel. LSING-2 Nos</i>				
	<i>Under Voltage Release for ACB -2 Nos</i>				
	<i>TNC Switch-2 Nos</i>				
	<i>Aux. Contact 2NO+2NC-4 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos</i>				
	<i>Digital Amp Meter Inbuild Selector Switch-2 Nos</i>				

	Digital Volt Meter Inbuild Selector Switch-2 Nos				
	CT's 1250/5 Cl - 1 15VA, for Metering-6 Nos				
	CTTB-6 Nos				
	Master Trip Relay 86-2 Nos				
	Trip Circuit Supervision Relay 95-2 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	On Indication lamp Led Type-2 Nos				
	OFF Indication lamp Led Type-2 Nos				
	Trip Indication lamp Led Type-2 Nos				
	Trip Circuit Healthy Indication Lamp-2 Nos				
	Spring Charge Indication Lamp-2 Nos				
	Auto Manual Selector Switch-2 Nos				
	63A 4P MCB 10KA c'curve-4 Nos				
	100VA Potential Trasformer 3P CL-1 415V Input 110V Output-2 Nos				
	2A SP MCB 10KA c'curve-14 Nos				
	Neutral Link-2 Nos				
	<b>INCOMER Form DG-750KVA 1 &amp; 2</b>				
	1250A 4P 65KA EDO ACB MP Rel. LSING -2 Nos				
	Under Voltage Release for ACB -2 Nos				
	TNC Switch-2 Nos				
	Aux. Contact 2NO+2NC-4 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos				
	Digital Amp Meter Inbuild Selector Switch-2 Nos				
	Digital Volt Meter Inbuild Selector Switch-2 Nos				
	CT's 1250/5 Cl - 1 15VA, for Metering-6 Nos				
	CT's 1250/5 Cl - 5P20 15VA, for Relay-6 Nos				
	CTTB-12 Nos				
	Master Trip Relay 86-2 Nos				
	Trip Circuit Supervision Relay 95-2 Nos				
	Under & Over Voltage Relay 27,59-2 Nos				
	Reverse Power Relay 32-2 Nos				
	Over Current & Earth Fault Relay (50/51)-2 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	On Indication lamp Led Type-2 Nos				
	OFF Indication lamp Led Type-2 Nos				
	Trip Indication lamp Led Type-2 Nos				
	Trip Circuit Healthy Indication Lamp-2 Nos				
	Spring Charge Indication Lamp-2 Nos				
	Auto Manual Selector Switch-2 Nos				
	63A 4P MCB 10KA c'curve-4 Nos				
	100VA Potential Trasformer 3P CL-1 415V Input 110V Output-2 Nos				

	<i>12 Window Annunciator-2 Nos</i>				
	<i>63A DP MCB 10KA c'curve-4 Nos</i>				
	<i>Battery Charger-2 Nos</i>				
	<i>2A SP MCB 10KA c'curve-14 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<b>Bus Coupler</b>				
	<i>1250A 4P 65KA EDO ACB MP Rel (LSING) -1 Nos</i>				
	<i>Under Voltage Release for ACB -1 Nos</i>				
	<i>TNC Switch-1 Nos</i>				
	<i>Aux. Contact 2NO+2NC-2 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>Spring Charge Indication Lamp-1 Nos</i>				
	<i>Trip Circuit Supervision Relay 95-1 Nos</i>				
	<i>A/M Selector Switch-1 Nos</i>				
	<i>2A SP MCB 10KA c'curve-2 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<b>Outgoing Section -1</b>				
	<i>630A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Trip Alarm Contact for MCCB-2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos</i>				
	<i>CT's 600/5 Cl - 1 15VA, for Metering-6 Nos</i>				
	<i>CTTB-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Trip Alarm Contact for MCCB-2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos</i>				
	<i>CT's 400/5 Cl - 1 15VA, for Metering-6 Nos</i>				
	<i>CTTB-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				

	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	160A 4P 36KA MCCB TM Release ,O/L, S/C-2 Nos				
	Extended ROH-2 Nos				
	Spreader Set of 8-2 Nos				
	Trip Alarm Contact for MCCB				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos				
	CT's 150/5 Cl - 1 15VA, for Metering-6 Nos				
	CTTB-6 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	Trip Indication lamp Led Type-2 Nos				
	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	100A 4P 36KA MCCB TM Release ,O/L, S/C-2 Nos				
	Extended ROH-2 Nos				
	Spreader Set of 8-2 Nos				
	Trip Alarm Contact for MCCB-2 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos				
	CT's 100/5 Cl - 1 15VA, for Metering-6 Nos				
	CTTB-6 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	Trip Indication lamp Led Type-2 Nos				
	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	125A 4P 36KA MCCB TM Release ,O/L, S/C-1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 8-1 Nos				
	Trip Alarm Contact for MCCB-1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos				
	CT's 125/5 Cl - 1 15VA, for Metering-3 Nos				
	CTTB-3 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	Trip Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				

	<i>Neutral Link-1 Nos</i>				
	<i>63A 4P 36KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 60/5 Cl - 1 15VA, for Metering-3 Nos</i>				
	<i>CTTB-3 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing Section -2</b>				
	<i>630A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 600/5 Cl - 1 15VA, for Metering-3 Nos</i>				
	<i>CTTB-3 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 400/5 Cl - 1 15VA, for Metering-3 Nos</i>				
	<i>CTTB-3 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				

	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>160A 4P 36KA MCCB TM Release ,O/L, S/C-3 Nos</i>				
	<i>Extended ROH-3 Nos</i>				
	<i>Spreader Set of 8-3 Nos</i>				
	<i>Trip Alarm Contact for MCCB-3 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-3 Nos</i>				
	<i>CT's 150/5 Cl - 1 15VA, for Metering-9 Nos</i>				
	<i>CTTB-9 Nos</i>				
	<i>RY Phase Indication lamp Led Type-6 Nos</i>				
	<i>B Phase Indication lamp Led Type-3 Nos</i>				
	<i>Trip Indication lamp Led Type-3 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-12 Nos</i>				
	<i>Neutral Link-3 Nos</i>				
	<i>200A 4P 36KA MCCB TM Release ,O/L, S/-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Trip Alarm Contact for MCCB-2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos</i>				
	<i>CT's 200/5 Cl - 1 15VA, for Metering-6 Nos</i>				
	<i>CTTB-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>63A 4P 36KA MCCB TM Release ,O/L, S/C-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Trip Alarm Contact for MCCB-2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos</i>				
	<i>CT's 60/5 Cl - 1 15VA, for Metering-6 Nos</i>				
	<i>CTTB-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				

	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	PLC For Sensing Mains , Auto Load Management ,operation of mains incommer buscoupler ACB interface with DG Sets PCC-1 Nos				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 1500A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -2 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.2</b>					
<b>6</b>	<b>Main LT Panel(TTA 61439)</b>	Each	1	4632527.00	4632527
	<b>INCOMER Form Transformer 1000KVA</b>				
	2000A(1600A) 4P 65KA EDO ACB MP Rel. LSING With Inbuilt Port-2 Nos				
	Under Voltage Release For Electrical interlocking-2 Nos				
	TNC Switch-2 Nos				
	Aux. Contact 2NO+2NC-4 Nos				
	Digital Multifunction Meter With RS 485(V, A, F, PF, kW, kVA, Old energy, On and Run hours,site selectable kWh/ kVAh)-2 Nos				
	Digital Amp Meter Inbuild Selector Switch-2 Nos				
	Digital Volt Meter Inbuild Selector Switch-2 Nos				
	CT's 1600/5 Cl - 1 15VA, for Metering-6 Nos				
	CT's 1600/5 Cl - 1 15VA, for APFC-6 Nos				
	CT's 1600/5 Cl - 5P10 15VA, for Relay-6 Nos				
	CT's 1600/1 Cl - PS 15VA, for Relay-6 Nos				
	CTTB-24 Nos				
	Master Trip Relay 86-2 Nos				
	Trip Circuit Supervision Relay 95-2 Nos				
	Under & Over Voltage Relay 27,59-2 Nos				
	Ristricted Earth Fault Relay 64R-2 Nos				

	<i>Over Current &amp; Earth Fault Relay (50/51)-2 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>On Indication lamp Led Type-2 Nos</i>				
	<i>OFF Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>Trip Circuit Healthy Indication Lamp-2 Nos</i>				
	<i>Spring Charge Indication Lamp-2 Nos</i>				
	<i>Accept/Reset Push Button-4 Nos</i>				
	<i>Hooter-2 Nos</i>				
	<i>Timer-2 Nos</i>				
	<i>Auto Manual Selector Switch-2 Nos</i>				
	<i>63A 4P MCB 10KA c'curve-4 Nos</i>				
	<i>100VA Potential Trasformer 3P CL-1 415V Input 110V Output-2 Nos</i>				
	<i>63A 4P MCB 10KA c'curve-2 Nos</i>				
	<i>Surge Protection Device 25KA(Type-1 10/350U Sec )- 2 Nos</i>				
	<i>2A SP MCB 10KA c'curve-14 Nos</i>				
	<i>Voltage Moniterring Relay-2 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>32A 3P MCCB 36 KA TM Release (For RTCC)-2 Nos</i>				
	<i>32Extended ROH -2 Nos</i>				
	<b>30KVAR Direct CAPACITOR BANK</b>				
	<i>63A 3P MCCB 36 KA TM Release -2 Nos</i>				
	<i>63 Extended ROH -2 Nos</i>				
	<i>Aux. Contact for MCCB-2 Nos</i>				
	<i>30KVAR Capacitor Bank Heavy Duty 440 V.-2 Nos</i>				
	<i>On Indication lamp Led Type-2 Nos</i>				
	<i>OFF Indication lamp Led Type-2 Nos</i>				
	<i>2A SP Control MCB C-Curve-2 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<b>INCOMER Form Transformer 1600KVA</b>				
	<i>2500A 4P 65KA EDO ACB MP Rel. LSING -1 Nos</i>				
	<i>Under Voltage Release for ACB -1 Nos</i>				
	<i>TNC Switch-1 Nos</i>				
	<i>Aux. Contact 2NO+2NC-2 Nos</i>				
	<i>Digital Multifunction Meter With RS 485(V, A, F, PF, kW, kVA, Old energy, On and Run hours,site selectable kWh/ kVAh)-1 Nos</i>				
	<i>Digital Amp Meter Inbuild Selector Switch-1 Nos</i>				

	Digital Volt Meter Inbuild Selector Switch-1 Nos				
	CT's 2500/5 Cl - 1 15VA, for Metering-3 Nos				
	CT's 2500/5 Cl - 1 15VA, for APFC-3 Nos				
	CT's 2500/5 Cl - 5P10 15VA, for Relay-3 Nos				
	CT's 2500/1 Cl - PS 15VA, for Relay-3 Nos				
	CTTB-12 Nos				
	Master Trip Relay 86-1 Nos				
	Trip Circuit Supervision Relay 95-1 Nos				
	Under & Over Voltage Relay 27,59-1 Nos				
	Ristricted Earth Fault Relay 64R-1 Nos				
	Over Current & Earth Fault Relay (50/51)-1 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	Trip Indication lamp Led Type-1 Nos				
	Trip Circuit Healthy Indication Lamp-1 Nos				
	Spring Charge Indication Lamp-1 Nos				
	Accept/Reset Push Button-2 Nos				
	Hooter-1 Nos				
	Timer-1 Nos				
	Auto Manual Selector Switch-1 Nos				
	63A 4P MCB 10KA c'curve-2 Nos				
	100VA Potential Trasformer 3P CL-1 415V Input 110V Output-1 Nos				
	63A 4P MCB 10KA c'curve-1 Nos				
	Surge Protection Device 25KA(Type-1 10/350U Sec )- 1 Nos				
	2A SP MCB 10KA c'curve-7 Nos				
	Voltage Moniterring Relay-1 Nos				
	Neutral Link-1 Nos				
	32A 3P MCCB 36 KA TM Release (For RTCC)-1 Nos				
	32Extended ROH -1 Nos				
	<b>50 KVAR CAPACITOR BANK</b>				
	125A 3P MCCB 35 KA TM Release -1 Nos				
	125 Extended ROH -1 Nos				
	50KVAR(25X2) Capacitor Bank Heavy Duty 440V.-2 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	2A SP Control MCB C-Curve-1 Nos				
	Neutral Link-1 Nos				
	<b>Bus Coupler 1&amp;2</b>				
	2500A 4P 65KA EDO ACB MP Rel (LSING) -2 Nos				
	Under Voltage Release for ACB -2 Nos				

	<i>TNC Switch-2 Nos</i>				
	<i>Aux. Contact 2NO+2NC-4 Nos</i>				
	<i>On Indication lamp Led Type-2 Nos</i>				
	<i>OFF Indication lamp Led Type-2 Nos</i>				
	<i>Spring Charge Indication Lamp-2 Nos</i>				
	<i>Trip Circuit Supervision Relay 95-2 Nos</i>				
	<i>A/M Selector Switch-2 Nos</i>				
	<i>2A SP MCB 10KA c'curve-4 Nos</i>				
	<i>Neutral Link-4 Nos</i>				
	<b>Outgoing Setion-1</b>				
	<i>1250A 4P 65KA EDO ACB MP Rel. LSING -2 Nos</i>				
	<i>TNC Switch-2 Nos</i>				
	<i>Digital KWH Meter With RS485-2 Nos</i>				
	<i>CT's 1250/5 Cl - 1 15VA, for Metering-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>2A SP MCB 10KA c'curve-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>800A 4P 65KA EDO ACB MP Rel. LSING -1 Nos</i>				
	<i>TNC Switch -1 Nos</i>				
	<i>RY Phase Indication lamp Led Type -2 Nos</i>				
	<i>B Phase Indication lamp Led Type -1 Nos</i>				
	<i>Trip Indication lamp Led Type -1 Nos</i>				
	<i>2A SP MCB 10KA c'curve -4 Nos</i>				
	<i>Neutral Link -1 Nos</i>				
	<i>630A 4P 36KA MCCB MP Release ,O/L, S/C,E/F -2 Nos</i>				
	<i>Extended ROH -2 Nos</i>				
	<i>Spreader Set of 8 -2 Nos</i>				
	<i>Trip Alarm Contact for MCCB -2 Nos</i>				
	<i>Digital KWH Meter With RS485 -2 Nos</i>				
	<i>CT's 600/5 Cl - 1 15VA, for Metering -6 Nos</i>				
	<i>CTTB -6 Nos</i>				
	<i>RY Phase Indication lamp Led Type -4 Nos</i>				
	<i>B Phase Indication lamp Led Type -2 Nos</i>				
	<i>Trip Indication lamp Led Type -2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -8 Nos</i>				
	<i>Neutral Link -2 Nos</i>				
	<i>400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F -1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				

	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital KWH Meter With RS485-1 Nos</i>				
	<i>CT's 400/5 Cl - 1 15VA, for Metering-3 Nos</i>				
	<i>CTTB-3 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>100A 4P 36KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital KWH Meter With RS485-1 Nos</i>				
	<i>CT's 100/5 Cl - 1 15VA, for Metering-3 Nos</i>				
	<i>CTTB-1 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing Setion-2</b>				
	<i>800A 4P 65KA EDO ACB MP Rel. LSING -1 Nos</i>				
	<i>TNC Switch-1 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A SP MCB 10KA c'curve-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>630A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Trip Alarm Contact for MCCB-2 Nos</i>				
	<i>Digital KWH Meter With RS485-2 Nos</i>				
	<i>CT's 600/5 Cl - 1 15VA, for Metering-2 Nos</i>				
	<i>CTTB-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				

	400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-2 Nos				
	Extended ROH-2 Nos				
	Spreader Set of 8-2 Nos				
	Trip Alarm Contact for MCCB-2 Nos				
	Digital KWH Meter With RS485-2 Nos				
	CT's 400/5 Cl - 1 15VA, for Metering-6 Nos				
	CTTB-6 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	Trip Indication lamp Led Type-2 Nos				
	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	250A 4P 36KA MCCB TM Release ,O/L, S/C-1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 8-1 Nos				
	Trip Alarm Contact for MCCB-1 Nos				
	Digital KWH Meter With RS485-1 Nos				
	CT's 250/5 Cl - 1 15VA, for Metering-3 Nos				
	CTTB-3 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	Trip Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	100A 4P 36KA MCCB TM Release ,O/L, S/C-1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 8-1 Nos				
	Trip Alarm Contact for MCCB-1 Nos				
	Digital KWH Meter With RS485-1 Nos				
	CT's 100/5 Cl - 1 15VA, for Metering-3 Nos				
	CTTB-3 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	Trip Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	<b>Outgoing Setion-3</b>				
	1250A 4P 65KA EDO ACB MP Rel. LSING -2 Nos				
	TNC Switch-2 Nos				
	Digital KWH Meter With RS485-2 Nos				
	CT's 1250/5 Cl - 1 15VA, for Metering-6 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				

	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>2A SP MCB 10KA c'curve-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>800A 4P 65KA EDO ACB MP Rel. LSING -1 Nos</i>				
	<i>TNC Switch-1 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A SP MCB 10KA c'curve-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>630A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Trip Alarm Contact for MCCB-2 Nos</i>				
	<i>Digital KWH Meter With RS485-2 Nos</i>				
	<i>CT's 600/5 Cl - 1 15VA, for Metering-6 Nos</i>				
	<i>CTTB-6 Nos</i>				
	<i>RY Phase Indication lamp Led Type-4 Nos</i>				
	<i>B Phase Indication lamp Led Type-2 Nos</i>				
	<i>Trip Indication lamp Led Type-2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital KWH Meter With RS485-1 Nos</i>				
	<i>CT's 400/5 Cl - 1 15VA, for Metering-3 Nos</i>				
	<i>CTTB-3 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>Trip Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<i>100A 4P 36KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Trip Alarm Contact for MCCB-1 Nos</i>				
	<i>Digital KWH Meter With RS485-1 Nos</i>				
	<i>CT's 100/5 Cl - 1 15VA, for Metering-3 Nos</i>				

	CTTB-3 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	Trip Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	PLC For Electrical Interlocking-1 Nos				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 3000A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.2</b>					
<b>7</b>	<b>Combine Hostel (G+9) Building Panel(Non-Essential)</b>	Each	1	489879.00	489879
	<b>INCOMER FEEDER</b>				
	630A 4P 36KA MCCB MP Release ,O/L, S/C, E/F -1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 8-1 Nos				
	Aux. Contact for MCCB-1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos				
	CT's 600/5A Cl - 1.0 10VA, Resin Cast for Metering-3 Nos				
	CTTB-4 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	<b>Outgoing</b>				
	400A 4P 36KA MCCB MP Release ,O/L, S/C,E/F-3				

	<i>Nos</i>				
	<i>Extended ROH-3 Nos</i>				
	<i>Spreader Set of 8-3 Nos</i>				
	<i>Aux. Contact for MCCB-3 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-3 Nos</i>				
	<i>CT's 400/5A CI - 1.0 10VA, Resin Cast for Metering-9 Nos</i>				
	<i>CTTB-9 Nos</i>				
	<i>On Indication lamp Led Type-3 Nos</i>				
	<i>OFF Indication lamp Led Type-3 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-12 Nos</i>				
	<i>Neutral Link-3 Nos</i>				
	<i>100A TPN 25KA MCCB TM Release ,O/L, S/C-2 Nos</i>				
	<i>Extended ROH-2 Nos</i>				
	<i>Spreader Set of 8-2 Nos</i>				
	<i>Aux. Contact for MCCB-2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-2 Nos</i>				
	<i>CT's 100/5A CI - 1.0 10VA, Resin Cast for Metering-6 Nos</i>				
	<i>CTTB-2 Nos</i>				
	<i>On Indication lamp Led Type-2 Nos</i>				
	<i>OFF Indication lamp Led Type-2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-8 Nos</i>				
	<i>Neutral Link-2 Nos</i>				
	<i>63A, 4P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Aux. Contact for MCCB-4 Nos</i>				
	<i>On Indication lamp Led Type-4 Nos</i>				
	<i>OFF Indication lamp Led Type-4 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-4 Nos</i>				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 1000A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat</i></b>				

	<i>Shrinkable PVC Sleeves -4 set</i>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.2</b>					
<b>8</b>	<b>Hostel Block Meter Board (Ground Floor)</b>	Each	1	96128.00	96128
	<b>INCOMER FEEDER</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Aux. Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum DemandRecording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 125/5A Cl - 1.0 5VA, Resin Cast for Metering-3 Nos</i>				
	<i>CTTB-4 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C</i>				
	<i>Extended ROH</i>				
	<i>Spreader Set of 8</i>				
	<i>63A, 4P, 10kA, C-Curve MCB-2 Nos</i>				
	<i>32A, 4P, 10kA, C-Curve MCB-1 Nos</i>				
	<i>32A, DP, 10kA, C-Curve MCB-2 Nos</i>				
	<b>-</b>				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 160A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets,</i>				

	<i>Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i>				
<b>3.2.1.2</b>					
<b>9</b>	<b>Hostel Block Meter Board Ground Floor</b>	<i>Each</i>	<i>1</i>	<i>84497.00</i>	<i>84497</i>
	<b>INCOMER FEEDER</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>Aux. Contact for MCCB-1 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos</i>				
	<i>CT's 125/5A CI - 1.0 5VA, Resin Cast for Metering-3 Nos</i>				
	<i>CTTB-4 Nos</i>				
	<i>RY Phase Indication lamp Led Type-2 Nos</i>				
	<i>B Phase Indication lamp Led Type-1 Nos</i>				
	<i>On Indication lamp Led Type-1 Nos</i>				
	<i>OFF Indication lamp Led Type-1 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB-4 Nos</i>				
	<i>Neutral Link-1 Nos</i>				
	<b>Outgoing</b>				
	<i>125A 4P 25KA MCCB TM Release ,O/L, S/C-1 Nos</i>				
	<i>Extended ROH-1 Nos</i>				
	<i>Spreader Set of 8-1 Nos</i>				
	<i>63A, 4P, 10kA, C-Curve MCB-2 Nos</i>				
	<i>32A, 4P, 10kA, C-Curve MCB-2 Nos</i>				
	<i>32A, DP, 10kA, C-Curve MCB-2 Nos</i>				
	<b>-</b>				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 200A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				

<b>3.2.1.3 0</b>	<b>Lift Panel (Non Essential) Combined Hostel Block (G+9) GF Floor</b>	Each	1	144877.00	144877
	<b>INCOMER FEEDER</b>				
	100A 4P ATS-1 Nos				
	100A TPN 25KA MCCB TM Release ,O/L, S/C-2 Nos				
	Extended ROH-2 Nos				
	Spreader Set of 8-2 Nos				
	Aux. Contact for MCCB-2 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-1 Nos				
	CT's 100/5A CI - 1.0 5VA, Resin Cast for Metering-3 Nos				
	CTTB-4 Nos				
	RY Phase Indication lamp Led Type-4 Nos				
	B Phase Indication lamp Led Type-2 Nos				
	On Indication lamp Led Type-2 Nos				
	OFF Indication lamp Led Type-2 Nos				
	2A, 1P, 10kA, C-Curve MCB-8 Nos				
	Neutral Link-2 Nos				
	<b>Outgoing</b>				
	63A, 4P RCBO 300mA-4 Nos				
	Aux. Contact for MCB-4 Nos				
	On Indication lamp Led Type-4 Nos				
	OFF Indication lamp Led Type-4 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-4 Nos				
	63A, 4P, 10kA, C-Curve MCB-1 Nos				
	-				
	<b>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP-1 Nos</b>				
	<b>E-91 Grade Main Busbar 160A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</b>				
	<b>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</b>				
<b>3.2.1.3</b>	<b>Combine Hostel Block (G+9) Building Panel (</b>	Each	1	278978.00	278978

<b>1</b>	<b>Essential)</b>				
	<b>INCOMER FEEDER</b>				
	160A 4P 36KA MCCB TM Release ,O/L, S/C -1 Nos				
	Extended ROH-1 Nos				
	Spreader Set of 8-1 Nos				
	Aux. Contact for MCCB-1 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos				
	CT's 150A/5A Cl - 1.0 10VA, Resin Cast for Metering-3 Nos				
	CTTB-4 Nos				
	RY Phase Indication lamp Led Type-2 Nos				
	B Phase Indication lamp Led Type-1 Nos				
	On Indication lamp Led Type-1 Nos				
	OFF Indication lamp Led Type-1 Nos				
	2A, 1P, 10kA, C-Curve MCB-4 Nos				
	Neutral Link-1 Nos				
	<b>Outgoing</b>				
	100A 4P 25KA MCCB TM Release -3 Nos				
	Extended ROH-3 Nos				
	Spreader Set of 8-3 Nos				
	Aux. Contact for MCCB-3 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port)-3 Nos				
	CT's 100/5A Cl - 1.0 10VA, Resin Cast for Metering-9 Nos				
	CTTB-9 Nos				
	On Indication lamp Led Type-3 Nos				
	OFF Indication lamp Led Type-3 Nos				
	2A, 1P, 10kA, C-Curve MCB-12 Nos				
	Neutral Link-3 Nos				
	63A 4P 25KA MCCB TM Release -2 Nos				
	Extended ROH -2 Nos				
	Spreader Set of 8 -2 Nos				
	Aux. Contact for MCCB -2 Nos				
	Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -2 Nos				
	CT's 63/5A Cl - 1.0 10VA, Resin Cast for Metering -6 Nos				
	CTTB -6 Nos				
	On Indication lamp Led Type -2 Nos				

	<i>OFF Indication lamp Led Type -2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -8 Nos</i>				
	<i>Neutral Link -2 Nos</i>				
	<i>32A, 4P, 10kA, C-Curve MCB -7 Nos</i>				
	<i>-</i>				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 250A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
<b>3.2.1.3</b>	<b><i>Lift Panel (Essential) Combined Hostel Block (G+9) GF Floor</i></b>	<i>Each</i>	<i>1</i>	<i>143851.00</i>	<i>143851</i>
<b>2</b>	<b><i>INCOMER FEEDER</i></b>				
	<i>100A 4P ATS -1 Nos</i>				
	<i>100A TPN 25KA MCCB TM Release ,O/L, S/C -2 Nos</i>				
	<i>Extended ROH -2 Nos</i>				
	<i>Spreader Set of 8 -2 Nos</i>				
	<i>Aux. Contact for MCCB -2 Nos</i>				
	<i>Digital Multifunction Meter (with provision of readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum Demand Recording and inbuilt selector switch with RS 485 port) -1 Nos</i>				
	<i>CT's 100/5A CI - 1.0 5VA, Resin Cast for Metering -3 Nos</i>				
	<i>CTTB -4 Nos</i>				
	<i>RY Phase Indication lamp Led Type -4 Nos</i>				
	<i>B Phase Indication lamp Led Type -2 Nos</i>				
	<i>On Indication lamp Led Type -2 Nos</i>				
	<i>OFF Indication lamp Led Type -2 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -8 Nos</i>				
	<i>Neutral Link -2 Nos</i>				
	<b><i>Outgoing</i></b>				
	<i>63A, 4P RCBO 300mA -4 Nos</i>				
	<i>Aux. Contact for MCB -4 Nos</i>				
	<i>On Indication lamp Led Type -4 Nos</i>				
	<i>OFF Indication lamp Led Type -4 Nos</i>				
	<i>2A, 1P, 10kA, C-Curve MCB -4 Nos</i>				

	<i>Neutral Link -4 Nos</i>				
	<i>63A, 4P, 10kA, C-Curve MCB -1 Nos</i>				
	<i>-</i>				
	<b><i>Powder Coated Siemens Grey RAL 7035 shade MS Enclosure made out of 2MM &amp; GLAND PLATE 3MM thickness CRCA Sheet with with Base chanel of 75mm, gaskets, Lifting Hooks, Locks &amp; Hinged Door Cable Entry for all cables- BOTTOM/TOP -1 Nos</i></b>				
	<b><i>E-91 Grade Main Busbar 160A 3P+N Alluminium Busbar and Horizontal and Vertical Busbar as per load for Outgoing MCCB's with Color Coded Heat Shrinkable PVC Sleeves -1 set</i></b>				
	<b><i>Accessories including control wire, power Wire, Thimbles, Cable Ties, Ferul Numbers, Gromets, Locks, I-Hooks, Gaskets, Hinges, Nut Bolt, Washers Etc.</i></b>				
<b>4</b>	<b><i>S.H.-IV CABLE TRAY</i></b>				
<b>4.1</b>	<b><i>Erection of hot dip G.I. cable tray perforation not more than 17.5% for specific dimensions along with tees, bends,cross member, reducer,. The cable tray shall be hang from ceiling/ fixed to wall with necessary angle/flat iron / hanging rod, for ceiling suspensions, clamps, anchor fastner, nuts, bolts, washers, not mor than 1.5 mtr. apart complete as per specification to complete the job. The tray shall be as follows :-</i></b>				
i)	<i>100 mm width X 50 mm depth X 1.6 mm thickness</i>	<i>Metre</i>	<i>102</i>	<i>282.00</i>	<i>28764</i>
ii)	<i>150 mm width X 50 mm depth X 1.6 mm thickness</i>	<i>Metre</i>	<i>5</i>	<i>282.00</i>	<i>1410</i>
iii)	<i>600mm width X 50 mm depth X 2 mm thickness</i>	<i>Metre</i>	<i>45</i>	<i>282.00</i>	<i>12690</i>
iv)	<i>100 mm width X 25 mm depth X 1.6 mm thickness</i>	<i>Metre</i>	<i>25</i>	<i>282.00</i>	<i>7050</i>
v)	<i>150 mm width X 25 mm depth X 1.6 mm thickness</i>	<i>Metre</i>	<i>20</i>	<i>282.00</i>	<i>5640</i>
vi)	<i>200 mm width X 25 mm depth X 2 mm thickness</i>	<i>Metre</i>	<i>40</i>	<i>282.00</i>	<i>11280</i>
vii)	<i>225mm width X 50 mm depth X 2 mm thickness</i>	<i>Metre</i>	<i>12</i>	<i>282.00</i>	<i>3384</i>
viii)	<i>250mm width X 50 mm depth X 2 mm thickness</i>	<i>Metre</i>	<i>30</i>	<i>282.00</i>	<i>8460</i>
ix)	<i>300mm width X 50 mm depth X 2 mm thickness</i>	<i>Metre</i>	<i>92</i>	<i>282.00</i>	<i>25944</i>
x)	<i>1000mm width X 62.5 mm depth X 2 mm thickness</i>	<i>Metre</i>	<i>35</i>	<i>352.00</i>	<i>12320</i>
<b>4.2</b>	<b><i>Installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts &amp; nuts, fastner etc as required.</i></b>				
i)	<i>100mmX50mmX1.6mm (WxDXT)</i>	<i>nos</i>	<i>5</i>	<i>211.00</i>	<i>1055</i>
ii)	<i>200mmX50mmX2mm (WxDXT)</i>	<i>nos</i>	<i>5</i>	<i>211.00</i>	<i>1055</i>
<b>4.3</b>	<b><i>Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts &amp; nuts, fastner etc as required.</i></b>				

i)	500mmX75mmX2mm (WxDXT)	nos	5	338.00	1690
4.4	<i>Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts &amp; nuts, fastner etc as required.</i>				
i)	100mmX50mmX1.6mm (WxDXT)	nos	6	1252	7512
ii)	200mmX25mmX1.6mm (WxDXT)	nos	5	1252	6260
iii)	500mmX75mmX2mm (WxDXT)	nos	3	3966	11898
4.5	<i>Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts &amp; nuts, fastner etc as required.</i>				
i)	150mmX50mmX1.6mm (WxDXT)	nos	6	1427	8562
ii)	400mmX25mmX2mm (WxDXT)	nos	2	2097	4194
iii)	500mmX75mmX2mm (WxDXT)	nos	5	5084	25420
4.6	<i>Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Cross member" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts &amp; nuts, fastner etc as required.</i>				
i)	500mmX50mmX2mm (WxDXT)	nos	8	3448	27584
4.7	<i>Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Reducer" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with two numbers GI Suspenders i/c base of suitable size GI angle, GI bolts &amp; nuts, fastner etc as required.</i>				
i)	200mmX50mmX1.6mm (WxDXT)	nos	2	2572	5144
ii)	400mmX50mmX2mm (WxDXT)	nos	5	3624	18120
4.8	<b>Supply &amp; Erection</b> of hot dip G.I. cable tray perforation not more than 17.5% for specific dimensions along with tees, bends, cross member, reducer,. The cable tray shall be hang from ceiling/ fixed to wall with necessary angle/flat iron / hanging rod, for ceiling suspensions, clamps, anchor fastner, nuts, bolts, washers, not more than 1.5 mtr. apart complete as per specification to complete the job. The tray shall be as follows :-				
i)	500mmX50mmX2mm (WxDXT)	Metre	15	1439	21585
ii)	600mmX50mmX2mm (WxDXT)	Metre	15	1925	28875
iii)	100mmX25mmX1.6mm (WxDXT)	Metre	25	754	18850
iv)	150mmX25mmX1.6mm (WxDXT)	Metre	10	803	8030
v)	200mmX25mmX1.6mm (WxDXT)	Metre	8	803	6022.5
vi)	300mmX25mmX2mm (WxDXT)	Metre	30	1062	31860
vii)	400mmX25mmX2mm (WxDXT)	Metre	8	1322	9915
viii)	200mmX50mmX2mm (WxDXT)	Metre	20	991	19820
ix)	225mmX50mmX2mm (WxDXT)	Metre	12	991	11892
x)	250mmX50mmX2mm (WxDXT)	Metre	15	1062	15930
xi)	300mmX50mmX2mm (WxDXT)	Metre	50	1062	53100
4.9	<b>Installation</b> of G.I. floor trunking of following sizes complete with all accessories including junction box with 3 mm thick cover plate, neoprene gasket in joints ,cutting the floor and jamming the raceway with all necessary hardware (including civil works) as required.				

i)	75x38x1.6 mm	Metre	180.0 0	119.00	21420
ii)	225x38x1.6 mm	Metre	100.0 0	119.00	11900
4.10	<b>Supply &amp; Installation of G.I. floor trunking of following sizes complete with all accessories in joints ,cutting the floor and jamming the raceway with all necessary hardware (including civil works) as required.</b>				
i)	75x38x1.6 mm	Metre	20.00	2062.00	41240
ii)	300x38x1.6 mm	Metre	50.00	2553.00	127650
4.11	Providing and fixing of fire retardant sealant on wall / floor crossings	sqmtr	20.00	7783	155660
<b>TOTAL : S.H.-IV CABLE TRAY</b>					
<b>5</b>	<b>S.H.-V EARTHING &amp; LIGHTING CONDUCTOR</b>				
5.1	Earthing with copper earth plate 600 mm X 600mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long, etc. (with charcoal or coke and salt) as required	Set	20	15004	300080
5.2	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/coke and salt as required.	Set	42	8351	350742
5.3	Earthing with Existing G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/coke and salt as required.	set	10	1745.00	17450
5.4	Providing and fixing 25 mm x 5 mm copper strip on surface or in recess for connections etc. as required.	meter	100	1246	124600
5.5	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required	meter	1200	287	344400
5.6	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required	meter	500	755	377500
5.7	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	meter	250	1638	409500
5.8	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	meter	1000	50	50000
5.9	Providing and fixing of lightning conductor finial,made of 25 mm dia 300 mm long ,GI tube,having single prong at top,with 85mm dia 6 mm thick G.I. base plate including holes etc. complete as required	each	6	609	3654
5.10	Jointing Copper/GI tape (with another Copper/GI tape, base of the Finial or any other metallic object) by riveting/nut bolting/sweating and soldering etc. as required.	each	6	139	834
5.11	Providing and fixing 20 mm x 3 mm thick GI strip on parapet or surface of wall/roof or in recess for lightning conductor complete as required(For Vertical Run).	meter	200	238	47600
5.12	Providing and Fixing testing of Test Joints made out of 25 x 3 mm thick copper strip 125 mm long,with 4 nos. of brass bolts, nuts, chuck nuts and spring washers etc. in 250 x 180 x 110 mm (minimum) IP 65 Poly carbonate top transparent box including, testing commissioning as required.	each	8	5945	47560
<b>TOTAL S.H.-V EARTHING &amp; LIGHTING CONDUCTOR</b>					
<b>6</b>	<b>S.H.-VI MV CABLE</b>				

6.1	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
i)	Upto 35 sq. mm	Metre	50	443	22150
ii)	Above 185 sq. mm and upto 400 sq. mm	Metre	50	564	28200
6.2	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size in the existing RCC/ HUME/ METAL/DWC pipe as required.				
i)	Upto 35 sq. mm	Metre	1500	47	70500
ii)	Above 35 sq. mm and upto 95 sq. mm	Metre	300	72	21600
iii)	Above 95 sq. mm and upto 185 sq. mm	Metre	700	97	67900
iv)	Above 185 sq. mm and upto 400 sq. mm	Metre	8000	170	1360000
6.3	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size in the existing masonry open duct as required.				
i)	Upto 35 sq. mm	Metre	100	36	3600
ii)	Above 35 sq. mm and upto 95 sq. mm	Metre	100	58	5800
iii)	Above 95 sq. mm and upto 185 sq. mm	Metre	100	80	8000
iv)	Above 185 sq. mm and upto 400 sq. mm	Metre	500	146	73000
6.4	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size on cable tray as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	2500	64	160000
ii)	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	Metre	300	151	45300
iii)	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/ 40x3mm MS flat clamp)	Metre	100	180	18000
iv)	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	Metre	500	271	135500
6.5	Supplying and making cable route marker with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) of size 60 cm X 60 cm at the bottom and 50 cm X 50 cm at the top with a thickness of 10cm including inscription duly engraved as required.	Nos	30	683	20490
6.6	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
i)	3½ X 300 sq. mm (70 mm)	Set	44	1336	58784
ii)	3½ X 240 sq. mm (62 mm)	Set	4	1160	4640
iii)	3½ X 185 sq. mm (57 mm)	Set	6	1001	6006
iv)	3½ X 50 sq. mm (32 mm)	Set	10	484	4840
v)	3½ X 35 sq. mm (32 mm)	Set	6	437	2622
vi)	3½ X 25 sq. mm (32 mm)	Set	4	371	1484
vii)	4X16 sq. mm	Set	120	366	43920
viii)	4X10 sq. mm	Set	50	325	16250
6.7	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc..direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
(i)	63 mm dia (OD-63 mm & ID-51 mm nominal)	Metre	200	136	27200
(ii)	120 mm dia (OD-120 mm & ID-103 mm nominal)	Metre	2000	264	528000

(iii)	200 mm dia (OD-200 mm & ID-175 mm nominal)	Metre	400	580	232000
6.8	Supply of following size of 1.1KV grade multicore aluminium conductor XLPE insulated PVC sheathed armoured power cable as per IS: 7098 (Part-1) 1988 complete as required.				
i)	3.5 core, 300 Sq.mm.	Metre	4930	3473.00	17121890
ii)	3.5 core, 240 Sq.mm.	Metre	1590	2801.00	4453590
iii)	3.5 core, 120 Sq.mm.	Metre	100	1489.00	148900
iv)	3.5 core, 95 Sq.mm.	Metre	100	1188.00	118800
v)	3.5 core, 70 Sq.mm.	Metre	500	929.00	464500
vi)	3.5 core, 50 Sq.mm.	Metre	100	682.00	68200
vii)	3.5 core, 35 Sq.mm.	Metre	500	516.00	258000
6.9	Supply of following size of 1.1KV grade multicore copper conductor XLPE insulated PVC sheathed armoured power cable as per IS: 7098 (Part-1) 1988 complete as required.				
(i)	4 core, 25 Sq.mm.	Metre	600	1480.00	888000
(ii)	4 core, 16 Sq.mm.	Metre	500	363.00	181500
(iii)	4 core, 10 Sq.mm.	Metre	1000	938.00	938000
(iv)	4 core, 6 Sq.mm.	Metre	3000	242.00	726000
6.10	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
(i)	250 mm dia	Metre	30	1120	33600
(ii)	300 mm dia	Metre	30	1293	38790
<b>TOTAL S.H.-VI MV CABLE</b>					
<b>7</b>	<b>S.H.-VII HT CABLE</b>				
7.1	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/ HUME/METAL/DWC pipe as required.				
(i)	Above 120 Sqmm. and upto 400 sqmm	Metre	250	170	42500
7.2	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing masonry open duct as required.				
(i)	Above 120 Sqmm. and upto 400 sqmm	Metre	50	146	7300
7.3	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required:				
(i)	300 Sqmm	Set	4	17414	69656
7.4	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :				
(i)	300 Sqmm	Set	4	24255	97020
7.5	Supply of following sizes of 11 KV XLPE grade multicore stranded aluminium conductor (Earthed), XLPE insulated PVC sheathed armoured cable conforming to IS: 7098 (Part-I) 1988 complete as required and as per specification enclosed.				
(i)	3 Core, 300 Sq.mm	Metre	300	1590.00	477000
<b>TOTAL S.H.-VII HT CABLE</b>					
<b>8</b>	<b>S.H.-VIII LIGHT FIXTURES &amp; FANS</b>				

8.1	Supplying, installation, testing & commissioning of heavy duty metallic exhaust fan of 300mm sweep having speed, 1400 RPM with louver shutter on the existing opening/wall/surface making good the same etc. complete as per direction of Engineer-in-charge. a) Sweep : 300mm b) Speed : 1400rpm c) Wattage(Max) : 100 W d) Air Delivery(Min-Max) : 1000-1710 CMH	Each	21	4417.00	92757
8.2	Supplying and fixing two module five stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required	Each	6	402	2412
8.3	<b>Fixing</b> two module five stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required	Each	779	88.00	68552
8.4	<b>Installation, Testing &amp; Commissioning</b> of size approximately 600 mm X 600 mm recessed/surface mounted Panel LED light fitting, including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required	Each	357	221	78897
8.5	<b>Installation Testing and Commissioning</b> of LED recessed /surface mounted linear light including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required. Luminaire should have option for both standalone as well as continuous mounting	Each	550	221	121550
8.6	<b>Installation Testing and Commissioning</b> of surface mounted LED batten light of 1200mm length approximately, having System Efficacy >100 lm/W, including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required.	Each	244	221	53924
8.7	Supply, Installation Testing and Commissioning of recessed mounted High quality polycarbonate diffuser and PDC Al housing recessed Downlighter delivering > 1200 Lumen, including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required.	Each	173	624	107952
8.8	<b>Installation, Testing and Commissioning</b> of Surface mounted High quality polycarbonate diffuser and PDC Al housing Downlighter delivering >1000 Lumen, including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in	Each	1810	221	400010

	<i>flexible GI conduit etc. as required.</i>				
8.9	<b>Installation</b> Testing and Commissioning of recessed mounted High quality polycarbonate diffuser and PDC Al housing visual comfort Downlighter delivering >1000 Lumen,including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required.	Each	44	221	9724
8.10	<b>Installation</b> Testing and Commissioning of surface mounted High quality polycarbonate diffuser and PDC Al housing Downlighter delivering >1200 Lumenincluding making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required.	Each	57	221	12597
8.11	<b>Installation</b> Testing and Commissioning of surface mounted High quality polycarbonate diffuser and PDC Al housing Downlighter delivering >2000 Lumen, including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required.	Each	22	221	4862
8.12	<b>Installation, Testing &amp; Commissioning of Wall Mounted Al/polycarbonate housing 1150 Lumen approximately 2 Feet Mirror Battern ,3 including making suitable arrangement for fixing on wall/ceiling &amp; connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor etc. as required.</b>	Each	232	221	51272
8.13	Supply, Installation, Testing & Commissioning of surface mounted Bulk head light having minimum efficacy 100 lumens/watt and system lumen output of 1000 lumen (minimum). including making suitable arrangement for fixing on wall/ceiling & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor, etc. as required.	Each	50	2903.00	145150
8.14	<b>Installation, Testing &amp; Commissioning of surface mounted Bulk head light having minimum efficacy 100 lumens/watt and system lumen output of 1000 lumen (minimum)I including making suitable arrangement for fixing on wall/ceiling &amp; connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor, etc. as required.</b>	Each	53	221	11713
8.15	Supply, Installation, Testing & Commissioning of Step light having minimum efficacy 10 lumens/watt and system lumen output of 50 lumens(minimum). including making suitable arrangement for fixing & connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC	Each	6	1144.00	6864

	<i>sheathed copper conductor, etc. as required.</i>				
8.16	<i>Supply, Installation, Testing &amp; Commissioning of recessed indoor downlight fitting made of die cast aluminium housing &amp; PMMA diffuser having minimum efficacy -100 lumens/watt including making suitable arrangement for fixing on wall/ceiling &amp; connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper conductor in flexible GI conduit etc. as required</i>	<i>Each</i>	<i>324</i>	<i>1439</i>	<i>466236</i>
8.17	<i>Supply, Installation, Testing &amp; Commissioning of Decorative Wall mounted Light with die cast aluminium housing &amp; PMMA diffuser efficacy -100 lumens/watt including making suitable arrangement for fixing on wall/ceiling &amp; connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper, etc. as required.</i>	<i>Each</i>	<i>12</i>	<i>1238.00</i>	<i>14856</i>
8.18	<i>S.I.T.C of LED High bay light with minimum lumen output of 8000 with minimum system Efficacy 100 Lm/w. including making suitable arrangement for fixing on wall/ceiling &amp; connection with 3x1.5 Sq.mm. PVC insulated FRLS PVC sheathed copper, etc. as required.</i>	<i>Each</i>	<i>2</i>	<i>4543.00</i>	<i>9086</i>
8.19	<i>Supply, installation, testing and Commissioning of Aviation obstruction light with LEDs. Red, 32cd, with builtin photo cell Fully complaint to ICAO guidelines suitable for 230 V AC complete as required</i>	<i>Each</i>	<i>2</i>	<i>5116.00</i>	<i>10232</i>
8.20	<i>Supply, Installation, Testing and Commissioning of 1200 mm sweep, BEE 5 star rated, ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. blades, 30 cm long down rod, 2nos. canopies, shackle kit, safety rope, copper winding, Power Factor not less than 0.9, Service Value (CM/M/W) minimum 6.00, Air delivery minimum 210 Cum/Min , 350 RPM (tolerance as per IS : 374-2019), THD less than 10%, remote or electronic regulator unit for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Supply, earthing etc. complete as required.</i>	<i>Each</i>	<i>403</i>	<i>2695</i>	<i>1086085</i>

8.21	Supply, Installation, Testing and Commissioning of following size sweep, BEE 5 star rated, ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, Power Factor not less than 0.9, Service Value (CMM/W) minimum 6.00, Air delivery minimum 135 CMM for 600 mm and minimum 280 CMM for 1400 mm, 350 RPM (tolerance as per IS : 374-2019), THD less than 10% & to be operated by electronic regulator unit for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Supply, earthing etc. complete as required.				
i)	600 mm Sweep (BLDC Fan)	Each	16	2695	43120
8.22	Supplying installation testing & commissioning of 200mm sweep size exhaust/fresh air fan with louver shutter having robust motor for continuous operation having following specifications including cutting holes of required size in existing structure including masonry work for fixing of fan and making good the damages etc. complete as per direction of Engineer-incharge. (a) Sweep-200mm, (b) Speed -1350 RPM,(c) Power Consumption <40W (d) Air Delivery->520 m <sup>3</sup> /hr.	Each	21	2320.00	48720
8.23	Supplying & Fixing 16" (400 mm Sweep) 3 Blades wall mounted cabin fan with built in I.R remote control having speed of 1360 RPM, minimum air delivery 72 m <sup>3</sup> /min having Aerodynamically designed & Balanced Blade, Thermal overload protector (TOP) helps in protecting the motor in case of any high voltage fluctuation, Jerk free oscillation suitable for use on single phase 230 V AC etc as required.	Each	60	5396.00	323760
8.24	<b>Installation</b> , testing and commissioning of Passive Infrared (PIR) technology based occupancy sensor having high performance, non regulating programmable type, suitable for connected load upto 10Amp, for mounting height up to 2.8 mtr and for 5 m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	Each	30	221	6630
<b>TOTAL S.H.-VIII LIGHT FIXTURES &amp; FANS</b>					
<b>9</b>	<b>S.H.-IX LED EXIT SIGNAGES</b>				
9.1	Supply,Installation,testing and Commissioning of Single sided exit sign for wall / ceiling / pendant mounting power consumption less than 2 W LED having ABS housing complete in itself, with non maintained battery backup emergency lighting for 2200mAH etc	each	77	7325.00	564025
Insertion : Nil      Correction : Nil      Omission : Nil      AE(P)...      ..... / EE.....      404					

	as required.				
9.2	Supply,Installation,testing and Commissioning of double sided exit sign for wall / ceiling / pendant mounting power consumption less than 2 W LED having ABS housing complete in itself, with non maintained battery backup emergency lighting for 2200mAH etc as required.	each	77	9879.00	760683
	<b>TOTAL S.H.-IX LED EXIT SIGNAGES</b>				
<b>10</b>	<b>SH-X: UPS</b>				
10.1	Online UPS- Input supply: Three Phase, Output supply: Three Phase. Supplying, installation, Testing & Commissioning of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 0C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swapable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of modules required for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch along with provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction. The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for reliable operation using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect (ITHD) on the input grid shall be < 5% at 50 %load. (The required LC ( inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor (PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1 ), however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming				

supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC  
 Output voltage: 3Phase 415 Volt, 50 Hz +/- 0.2Hz,  
 Overload capacity of 120% for 10 mins,

*Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI)-type UPS. . Communication RS232/RS485/SNMP port open protocol for BMS integration, all hardware & software for IoT Communication as per approved by Engineering in charge. Required battery racks and interconnecting copper conductor cables of suitable size and connectors and all required accessories are inclusive of the cost). This system must provide a means for logging and alarming of all monitored points plus email notification. Forced air-cooling with integral inbuilt fans with redundancy (if one fan fail UPS should be able to handle at least 80% of the load, Noise Level 65 DB at 1 meter distance. The system shall be in compliance IEC 62040- 1,2 & 3, IS: 16242 and CPWD Specification. Display Panel (minimum) (In-build 5 inch or more LC Display / LED) to display : a) Input: Voltage, current, Frequency. b) Bypass: Voltage, Frequency. c) Output: Voltage, frequency, Current. d) Battery: Voltage, Capacity. e) Load: KVA, KW, Percentage. f) Temperature: STS, Inverter, PFC. g) Event Logging & Statistical Data (On LCD/LED): UPS should capture and display up to 3000 events like:*

	Over temperature / DC Bus Fail / Fan Fail / Fuse Fail / Overload / Short-circuit / Device Fail / Inverter Fail / Rectifier Fail / Bypass Fail, etc. h) Statistical Data: No. of power failures / Transfers to Bypass / Total Running time, etc. i) Mains Mode of Operation / Battery Mode of Operation / Bypass feeding the load / UPS Fault / Battery charging and discharging, overload, battery voltage and battery capacity. j) Audible Alarms : Mains Failure, Battery Low Alarm, UPS Overload, Fault, Shutdown, Input Over, Under Voltage, Output Over, Under Voltage, Battery Over, Under Voltage, Over Load and short circuit, Over Temperature. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc				
	<b><u>40KVA (Each Power module shall be &lt; 10 KVA)</u></b>	each	4	599469	2397876
	<b>TOTAL : S.H.-X UPS SYSTEM</b>				
11	<b>S.H.-XI SAFETY EQUIPMENTS</b>				
11.1	Supply & fixing of Rubber hand gloves of 11 KV Tested in Substation/HT Room complete etc. as required.	Each	2	1232.00	2464
11.2	Supply & fixing of glass framed shock treatment chart in Hindi, English and Regional language for treating person suffering due to electric shock mounted on wall hooks.	Each	14	1306.00	18284
11.3	Providing & fixing of Carbon dioxide (CO2) type fire extinguishers conforming to IS 2878-1976 and cylinder fully charged of 4.5 Kg capacity hanged on wall with bracket component as required.	Each	100	8394.00	839400
11.4	Supply and fixing safety instruction chart in word duly framed with 5mm thick glass required. (Approx Front area 1.20 sq.mt.)	Each	14	1306.00	18284
11.5	Providing of set of 4 Nos. 9.5 Litre capacity GI bucket painted in post office red colour with prior coat of red - oxide paint and written with white paint 'Fire' and mounted on MS angle iron frame with bracket made of size not less than 40mmx 5mm including filling sand complete etc as required.	Each	2	4449.00	8898
11.6	Providing First Aid box as approved by St. John Ambulance Brigade / Indian red Cross conforming to IS 2217 – 1963 complete etc. as required.	Each	6	2479.00	14874

11.7	Supply & fixing of fire retardant/ extinguishing Electrical insulated synthatic mat of 2.0 mm thick +/- 10% confirming to BIS: DOC NO. ET-02 (5440) meeting requirments of IS: 15652 :2006 (with upto date amendment), suitable for all voltages not exceeding 3.3 KV and having minimum width of 1000 mm +/- 20mm and including supply of required quantity of adhensive/ compound and fixing the same at size as per site requirments.	Sq.m	260	2280.00	592800
11.8	Supply & fixing of fire retardant/ extinguishing Electrical insulated synthatic mat of minimum 3.0 mm thick +/- 10% confirming to BIS: DOC NO. ET-02 (5440) meeting requirments of IS: 15652 :2006 (with upto date amendment),, suitable for all voltages not exceeding 33 KV and having minimum width of 1000 mm +/- 20mm and including supply of required quantity of adhensive/ compound and fixing the same at size as per site requirments.	Sq.m	30	2691.00	80730
11.9	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	10	315	3150
11.10	Providing and fixing H.T. danger notice plate of 250 mm X 200 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required	Each	6	340	2040
11.11	Supply and fixing position the approved single line diagram framed in 1000mm x 800mm size glass frame and installed in main switch room.	Each	2	1306.00	2612
<b>TOTAL S.H.-XI SAFETY EQUIPMENTS</b>					
<b>12</b>	<b>S.H.-XII 11 KV HT PANEL BOARD</b>				
12.1	<b>Installation</b> , testing & commissioning of indoor type floor mounted metal clad, 11 KV VCB panel, totally enclosed & fully interlocked, horizontal drawout horizontal/ vetical isolation type breaker as per IS 13118, as amended up to date and additional specifications, having capacities as mentioned below, single break, trip free mechanism, manually charged and auto/ manually closing breaker suitable for use on 11 KV, 3 Phase, 50 Hz A.C. supply with short circuit fault level of 350 MVA, complete with self contained, fully interlocked, rack in and rack out mechanism, air insulated but encapsulated copper bus bars of 630Amps capacity, breaker featured with mechanical ON/OFF indicator with hand trip device, spring release coil, shunt trip coil and auxiliary switch of 4 NO+4NC and equipped with following switchgears and accessories i/c connections suitable for 3x300sq. mm	set	1	13427.00	13427

*XLPE 11 KV cable (cable entry from bottom/ top/ side) end termination with head shrinkable jointing material, getting approval and calibration as required by local Electricity board etc. as required.*

***Incomers/out goings-1Set.***

*Each feeder shall consist of :*

*630 Amps.,11KV horizontal draw out type VCB with motorized spring charge mechanism and required safty switchgears complete.*

*ii) 11 KV / 110 volt PT of class 0.5 accurancy & 100 VA burden.*

*iii) Set of dual core dual ratio CTs of 150/75/5/5 Amps. of 15 VA burden and accurancy class 0.5 for metering and class 5 P 10 for protection.*

*iv) 96mm x 96mm type 630 Amp ammeter Digital type with ASS*

*v) 96mm x 96mm square Digital type Voltmeter protected by HRC fuses / MCBs with inbuilt VSS*

*vi) Digital Trivector Meter (Smart Controller) having 30 days memory, Class 0.5 with MDI & RS 485 port.*

*vii) Frequency meter*

*viii) Set of LED indication lamp protected by MCB for RYB Phases, trip, ON & OFF, spring charge, auto trip / trip healthy of breaker complete.*

*ix) Master trip & trip circuit supervision relay, Antipumping Relay, Auxiliary Relay etc.*

*x) Limit Switch for tests and service position, circuit breaker control switch (T/N/C).*

*xi) Trip coil operation at 24 Volts DC through battery bank.*

*xii) Limit switch for tests & service position, circuit breaker control switch (T/N/C)*

*xiii) Trip / Closing coil operation at 24 Volts DC through battery bank*

***B) Busbar***

*i) 630 A TP copper busbar with coloured heat shrinkable sleeve and i/c DMC/SMC bus bar cross section, side supports & their spacing, etc. for withstanding fault level of 31 MVA for 1 sec.*

12.2	<b>Installation, testing &amp; commissioning of indoor type floor mounted metal clad, 11 KV VCB panel with 3 No. VCBs, totally enclosed &amp; fully interlocked, extendable type, horizontal drawout horizontal/ vertical isolation type breaker as per IS 13118, as amended up to date and additional specifications, having capacities as mentioned below, single break, trip free mechanism, manually charged and auto/ manually closing breaker suitable for use on 11 KV, 3 Phase, 50 Hz A.C. supply with short circuit fault level of 350 MVA, complete with self contained, fully interlocked, rack in and rack out mechanism, air insulated but encapsulated copper bus bars of 630Amps capacity, breaker featured with mechanical ON/OFF indicator with hand trip device, spring release coil, shunt trip coil and auxiliary switch of 4 NO+4NC and equipped with following switchgears and accessories i/c connections suitable for 3x240sq. mm. XLPE 11 KV cable (cable entry from bottom/ top/side) end termination with head shrinkable jointing material etc. as required.</b>				
<b>A</b>	<b>Incomers-1Set.</b>				
A1)	Each feeder shall consist of :				
i)	630 Amps.,11KV horizontal draw out type VCB with motorized spring charge mechanism and required safety switchgears complete				
ii)	11 KV / 110 volt PT of class 0.5 accuracy & 100 VA burden.	SET	1	13427.00	13427
iii)	Set of dual core dual ratio CTs of 150/75/5/5 Amps. of 15 VA burden and accuracy class 0.5 for metering and class 5 P 10 for protection.				
iv)	96mm x 96mm type 630 Amp ammeter Digital type with ASS				
v)	96mm x 96mm square Digital type Voltmeter protected by HRC fuses / MCBs with inbuilt VSS				
vi)	Digital Trivector Meter (Smart Controller) having 30 days memory, Class 0.5 with MDI & RS 485 port.				
vii)	Frequency meter				
viii)	Set of LED indication lamp protected by MCB for RYB Phases, trip, ON & OFF, spring charge, auto trip / trip healthy of breaker complete.				
ix)	Master trip & trip circuit supervision relay, Antipumping Relay, Auxiliary Relay etc.				
x)	Limit Switch for tests and service position, circuit breaker control switch (T/N/C).				
xi)	Trip coil operation at 24 Volts DC through battery bank.				
xii)	Limit switch for tests & service position, circuit breaker control switch (T/N/C)				
xiii)	Trip / Closing coil operation at 24 Volts DC through battery bank				

B)	<b>Busbar</b>				
i)	630 A TP copper busbar with coloured heat shrinkable sleeve and i/c DMC/SMC bus bar cross section, side supports & their spacing, etc. for withstanding fault level of 31 MVA for 1 sec.				
C)	<b>OUTGOINGS-2Sets</b>				
	Each feeder shall consist of :				
	i) 630 Amps.,11KV horizontal draw out type VCB with motorized spring charge mechanism and required safty switchgears complete.				
	ii) Set of dual core CTs of 40/ 5 Amps.CT for 1000 KVA TRF, of 15 VA burden & accurancy class 1.0 for metering and class 5 P 10 for protection.				
	iii) 96mm x 96mm square Digital Ammeter with inbuilt ASS				
	iv) Micro processor based feeder protection numerical relay with adjustable O/L, E/F and short circuit protection with communication port. (O/L Setting 50-200% and E/F setting 20-80%)				
	v) Set of LED indication lamp protected by MCB for RYB Phases, trip, ON & OFF, spring charge, auto trip / trip healthy of breaker complete.				
	vi)Annunciator window (with minimum 6 window) for feeder alarm / tripping annunciations with electronic hooter.				
	vii) Master trip & trip circuit supervision relay, Antipumping Relay, Auxiliary Relay complete.				
	viii) Limit switch for tests & service position, circuit breaker control switch (T/N/C)				
	ix) Trip coil operation at 24 Volts DC through battery bank				
12.3	<b>Installation</b> , testing & commissioning of indoor type floor mounted metal clad, 11 KV VCB panel with 4 Nos. VCBs, totally enclosed & fully interlocked, extendable type, horizontal drawout horizontal/ vetical isolation type breaker as per IS 13118, as amended up to date and additional specifications, having capacities as mentioned below, single break, trip free mechanism, manually charged and auto/ manually closing breaker suitable for use on 11 KV, 3 Phase, 50 Hz A.C. supply with short circuit fault level of 350 MVA, complete with self contained, fully interlocked, rack in and rack outmechanism, air insulated but encapsulated copper bus bars of 630Amps capacity, breaker featured with mechanical ON/OFF indicator with hand trip device, spring release coil, shunt trip coil and auxiliary switch of 4 NO+4NC and equipped with following switchgears and accessories i/c connections suitable for 3x240sq. mm. XLPE 11 KV cable (cable entry from bottom/ top/side)	SET	1	13427.00	13427

	<i>end termination with head shrinkable jointing material etc. as required.</i>				
<b>A</b>	<b><i>Incomers-1 Set.</i></b>				
<b>A1)</b>	<i>Each feeder shall consist of :</i>				
<b>i)</b>	<i>630 Amps.,11KV horizontal draw out type VCB with motorized spring charge mechanism and required safty switchgears complete</i>				
<b>ii)</b>	<i>11 KV / 110 volt PT of class 0.5 accurancy &amp; 100 VA burden.</i>				
<b>iii)</b>	<i>Set of dual core dual ratio CTs of 150/75/5/5 Amps. of 15 VA burden and accurancy class 0.5 for metering and class 5 P 10 for protection.</i>				
<b>iv)</b>	<i>96mm x 96mm type 630 Amp ammeter Digital type with ASS</i>				
<b>v)</b>	<i>96mm x 96mm square Digital type Voltmeter protected by HRC fuses / MCBs with inbuilt VSS</i>				
<b>vi)</b>	<i>Digital Trivector Meter (Smart Controller) having 30 days memory, Class 0.5 with MDI &amp; RS 485 port.</i>				
<b>vii)</b>	<i>Frequency meter</i>				
<b>viii)</b>	<i>Set of LED indication lamp protected by MCB for RYB Phases, trip, ON &amp; OFF, spring charge, auto trip / trip healthy of breaker complete.</i>				
<b>ix)</b>	<i>Master trip &amp; trip circuit supervision relay, Antipumping Relay, Auxiliary Relay etc.</i>				
<b>x)</b>	<i>Limit Switch for tests and service position, circuit breaker control switch (T/N/C).</i>				
<b>xi)</b>	<i>Trip coil operation at 24 Volts DC through battery bank.</i>				
<b>xii)</b>	<i>Limit switch for tests &amp; service position, circuit breaker control switch (T/N/C)</i>				
<b>xiii)</b>	<i>Trip / Closing coil operation at 24 Volts DC through battery bank</i>				
<b>B)</b>	<b><i>Busbar</i></b>				
<b>i)</b>	<i>630 A TP copper busbar with coloured heat shrinkable sleeve and i/c DMC/SMC bus bar cross section, side supports &amp; their spacing, etc. for withstanding fault level of 31 MVA for 1 sec.</i>				
<b>C)</b>	<b><i>OUTGOINGS-3 Sets</i></b>				
	<i>Each feeder shall consist of :</i>				
	<i>i) 630 Amps.,11KV horizontal draw out type VCB with motorized spring charge mechanism and required</i>				

	safty switchgears complete.				
	ii) Set of dual core CTs of 40/ 5 Amps.CT for 1000 KVA TRF, of 15 VA burden & accurancy class 1.0 for metering and class 5 P 10 for protection.				
	iii) 96mm x 96mm square Digital Ammeter with inbuilt ASS				
	iv) Micro processor based feeder protection numerical relay with adjustable O/L, E/F and short circuit protection with communication port. (O/L Setting 50-200% and E/F setting 20-80%)				
	v) Set of LED indication lamp protected by MCB for RYB Phases, trip, ON & OFF, spring charge, auto trip / trip healthy of breaker complete.				
	vi)Annunciator window (with minimum 6 window) for feeder alarm / tripping annunciations with electronic hooter.				
	vii) Master trip & trip circuit supervision relay, Antipumping Relay, Auxiliary Relay complete.				
	viii) Limit switch for tests & service position, circuit breaker control switch (T/N/C)				
	ix) Trip coil operation at 24 Volts DC through battery bank				
	<b>TOTAL S.H.-XII 11 KV HT PANEL BOARD</b>				

**13 S.H.-XIII DISTRIBUTION TRANSFOMER**

13.1	Supplying, installation, testing and commissioning of following capacity (continuous loading) BEE 3 Star rated (Corresponding Level as per BIS amended upto date of receipt of tender) , 11/0.433 KV step down, 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for out door/indoor applications with On Load Tap Changer (OLTC) on HV side having AVR				
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*relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote and manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade, including bus trunking arrangement on LV side including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/panel for safety tripping, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil, i/c supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180 and as per CPWD specifications complete in all respects etc as required at site. The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise shall not exceed 35 OC for oil and 40 OC up to 200 KVA and 40 OC for oil and 45 OC for above 200 KVA for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge. Design ambient condition: a) air temperature 50 OC, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running*

measured as per IEC 551 / NEMA standard. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminium/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾" nominal size thread, IS 554) preferably steel with plug for three phase transformers; g) Thermometer pocket with cap; h) Oil filling holes having (1¼" nominal size thread) with cover (for sealed type transformers without conservator); i) Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent above 200 kVA; k) One filter valve on the upper side of the tank (for transformers above 200 kVA); l) Unidirectional flat rollers (for transformers above 200 kVA); m) Inspection hole (for transformers above 200 kVA); n) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); o) Buchholz relay for transformers above 800 kVA. p) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. q) Bird guard; r) Oil temperature indicator and winding temperature indicators for transformers above 200 kVA with suitable tripping mechanism above permissible limit s) Jacking pads (for transformer above 1 600 kVA); t) Additional Neutral separately brought out on bushing for earthing. u) Magnetic oil level gauge (for transformer above 1600 kVA) with low oil level alarm contact; v) Non return valve (for conducting pressure test); w) Pressure relief device or explosion vent x). Monogram Plate y) Inspection cover z). Detachable type radiators with top and bottom shutoff valve. aa) Oil Conservator with Oil level indicator, minimum level marking and drain plug for all transformers of capacity 50 KVA and above. bb) Necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers.

i)	1000KVA	Each	2	1749171	3498342
ii)	1600KVA	Each	1	2798673	2798673

**TOTAL : S.H.-XIII DISTRIBUTION TRANSFORMER**

<b>14</b>	<b>S.H.-XIV INTELLIGENT FIRE ALARM &amp; PA SYSTEM</b>				
14.1	<i>Installation, testing and commissioning of microprocessor based intelligent addressable main fire alarm panel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics/ LCD display with touch screen or other keypad and minimum 4000 events history log in the non-volatile memory (EPROM), power supply unit (230 ± 5 % V, 50 Hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger. The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evacuation system (which is part of the schedule of work under SH: PA System) and shall be complete with all accessories. The panel shall be compatible for IBMS system with open protocol BACnet/ Modbus over IP complete as per specifications.</i>				
i)	Ten Loop Panel.	Each	1	8528.00	8528
ii)	Two Loop Panel.	Each	1	4264.00	4264
14.2	<i>Installation, testing &amp; commissioning of central graphical fire alarm management system to centrally monitor and operate the fire alarm system complete as required.</i>	Each	1	5888.00	5888
14.3	<i>Supplying, installation, testing &amp; commissioning of repeater panel with 320 character/ Touch screen LCD display with inbuilt reset, acknowledge and silence switches complete as required.</i>	Each	1	113734	113734
14.4	<i>Installation, testing &amp; commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required.</i>	Each	722	88.00	63536
14.5	<i>Supply, Installation, testing &amp; commissioning of intelligent analog addressable photothermal detector complete with mounting base complete as required.</i>	Each	5	2787	13935
14.6	<i>Installation, testing &amp; commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.</i>	Each	35	88.00	3080
14.7	<i>Supplying, installation, testing &amp; commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.</i>	Each	349	306.00	106794
14.8	<i>Installation, testing &amp; commissioning of intelligent addressable programmable sounder complete as required.</i>	Each	68	253.00	17204
14.9	<i>Supplying, installation, testing &amp; commissioning of intelligent addressable programmable sounder complete as required.</i>	Each	4	2787	11148
14.10	<i>Supplying, installation, testing &amp; commissioning of fault isolator complete with base as required.</i>	Each	50	3434	171700
14.11	<i>Installation, testing &amp; commissioning of intelligent addressable thermal detector with rate of rise cum fixed temperature thermistor complete with base as required.</i>	Each	20	88.00	1760
14.12	<i>Installation, testing &amp; commissioning of addressable fire control module complete as required.</i>	Each	50	88.00	4400
14.13	<i>Supplying, installation, testing &amp; commissioning of addressable fire control module complete as required.</i>	Each	20	3156	63120
14.14	<i>Installation, testing &amp; commissioning of addressable phone control module/ Monitor Module complete as required.</i>	Each	54	88.00	4752
14.15	<i>Supplying, installation, testing &amp; commissioning of addressable beam detector with short circuit isolator (inbuilt or separate) complete with emitter and receiver including connections with remote test features etc complete as required.</i>	Each	10	78525	785250
14.16	<i>Supplying, installation, testing &amp; commissioning of intelligent addressable duct detector including suitable Photo detector complete with base as required.</i>	Each	10	8183	81830
14.17	<i>Installation, testing &amp; commissioning of addressable manual call point complete as required.</i>	Each	68	88.00	5984

14.18	<i>Supplying, installation, testing &amp; commissioning of addressable manual call point complete as required.</i>	Each	4	4063	16252
14.19	<i>Supplying, installation, testing &amp; commissioning of addressable horn cum strobe complete as required.</i>	Each	28	3682	103096
14.20	<i>Installation, testing &amp; commissioning of fire fighter telephone handset complete as required.</i>	Each	2	88.00	176
14.21	<i>Supplying, installation, testing &amp; commissioning of fire fighter telephone handset complete as required.</i>	Each	26	6016	156416
14.22	<i>Supplying, installation, testing &amp; commissioning of intelligent interface unit BACnet/ Modbus protocol i.e. Supplying communication links between building management system and fire alarm control panel complete as required.</i>	Each	2	196207	392414
14.23	<i>Installation, testing &amp; commissioning of fire fighter phone jack complete as required.</i>	Each	68	88.00	5984
	<b>PUBLIC ADDRESS SYSTEM</b>				
14.24	<i>Installation, testing &amp; commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.</i>	Each	1	253.00	253
14.25	<i>Supplying, installation, testing &amp; commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.</i>	Each	1	132115	132115
14.26	<i>Installation, testing &amp; commissioning of 1.5/3/6W ceiling/ wall mounted speaker complete as required.</i>	Each	448	88.00	39424
14.27	<i>Supplying, installation testing &amp; commissioning of metal box for 1.5/3/6W wall mounted speaker complete as required.</i>	Each	241	1891	455731
14.28	<i>Supplying, installation, testing &amp; commissioning of ceiling/wall mounted loud speaker, 3/1.5 Watt in ABS enclosure complete as required.</i>	Each	10	2555	25550
14.29	<i>Installation, testing &amp; commissioning of digital audio amplifier 500 Watts x 2 channel, 25V rms operating at 240 Volt AC Supply complete as required.</i>	Each	6	88.00	528
14.30	<i>Supplying, installation, testing &amp; commissioning of digital audio amplifier 500 Watts x 2 channel, 25V rms operating at 240 Volt AC Supply complete as required.</i>	Each	11	379117.00	4170287
	<b>CABLING &amp; WIRING</b>				
14.31	<i>Supplying &amp; laying of 2x1.5 sqmm fire survival armoured cable, 600/1000V rated with annealed copper conductor having glass mica fire barrier tape covered by an extruded layer of Cross Linkable Ethylene Propylene Rubber (EPR) insulation and LSZH inner bedding, steel wire armouring &amp; LSZH outer sheath complete as required.</i>	Metre	6000	386	2316000
14.32	<i>Supplying and fixing 25 mm dia MS flexible pipe with PVC coating along with all ancillaries and accessories like coupler etc. as required.</i>	Metre	200	60	12000
	<b>TOTAL S.H.-XIV INTELLIGENT FIRE ALARM &amp; PA SYSTEM</b>				
<b>15</b>	<b>S.H.-XV CCTV SURVILLANCE &amp; SECURITY:</b>				

**Installation Testing and Commissioning of 2 MP IP IR Dome Camera having following specifications, type of lens and features etc :-** 1) Signal System: PAL/NTSC, Signal to Noise Ratio: >50 dB, Camera should display Camera title, Date & Time in live & recorded video 2)Image Sensor: 1/2.8" or better progressive Scan CMOS to get color image even at night condition(Minimum Illumination: 0.006 Lux@ F1.4, AGC ON, 0 lux with IR or better) True Day & Night High Performance Mechanical IR cut filter with auto switch, Integrated IR Source (Auto, Manual)- Inbuilt IR LED's with effective distance upto 50 meter or better and 30 meter for colour view in night, Imaging: 1/3s to 1/30000s electronic shutter support, Auto Gain Control , White Balance- Auto, Back Light Compensation, Multi zone Privacy Masking, HLC, Digital Watermarking. 3) Compression (Minimum):- Video:- H.265 or better, H.264H, H.264, Audio:- G.711U/A, G.711Mu, G.726, AAC, G.723 4) Wide Dynamic Range:- WDR (120db or more) 5) Digital Noise Reduction:- DNR (3D) On/Off 6) Video Streaming & Frame Rates :- Triple streaming , configurable ×1080)@25/30 720P@25/30 fps). (Main fps,Sub stream: streams 2MP (1920 minimum)

15.1

7) Image Setting: Rotate Mode, saturation, brightness, contrast, sharpness adjustable through client software or web browser, Edge Analytics: Tripwire, Intrusion, Motion Detection 8) Cyber Security: AES 256-bit Encryption, Configuration encryption, trusted execution, Digest, security logs, account lockout, syslog, video encryption, IP/MAC filtering, HTTPS, trusted upgrade, trusted boot. 9) Onboard Storage: Camera should support built-in Micro SD/SDHC/SDXC Card slot upto 512 GB. It should be supplied with minimum 128GB memory Card 10) Recording Management: Format SD, overwrite, storage management, video to NAS device 11) Alarm Trigger : Motion/tampering detection; audio detection; network disconnection detection; IP conflict detection; memory card state detection; memory space detection 12)Network Protocol: SFTP, IPv6, IPv4, DNS,RTCP, NTP, RTP, HTTP, HTTPS, SNMP TCP/IP, PPPoE, NFS, UDP, ICMP, SSL, DHCP, SMTP, RTSPS, unicast 13) System Capability: ONVIF, Camera shall support open source VMS 14) Ethernet: 1 RJ 45 10/100 Ethernet port 15) Audio : It should support 1 x Built-In Mic and 1/1 Alarm In/ Out for External Mic. and Speakers as per site requirement.

	16) Power Input: The camera should support simultaneous dual power input—12 VDC (via power adapter) and PoE (802.3af)—to ensure continuous operation in the event of a failure in one power source. 17) Power Requirement: 12VDC/24 VAC/PoE (802.3af)/ePoE 18) Housing/ Enclosure:- IP67 weather proof, IK10,Metallic body, 19) Operating Condition:- Ambient Temperature:- ( )05°C to 50°C, humidity 95% (max) (non-condensing) 20) IR life: 40000 hours or higher 21) Video Bit rate: 32 KBPS - 8 MBPS or better 22) Standards: BIS with ER, STQC Certified, CE, FCC and RoHS				
<b>j)</b>	2MP (@ 25/30fps@1080P (1920×1080)) IP IR Dome Camera with 2.8/ 3.6mm fixed lens	Each	248	1,085.00	269080
<b>15.2</b>	<b>Installation, testing and commissioning of VMS</b> Support live view and recording network video Cameras in H.264,H.265, MPEG-4 Part 2 or Motion JPEG., video management software shall support traditional network cameras and video encoders as well as thermal network cameras, Support multiple screens ,drag and drop ,Recording functionality, PTZ functionality, Multiple user access levels with password protection using local or Windows domain users (Active directory),Events triggered by video motion detection, active tampering alarm, Cross Line Detection, external I/O, action button, external HTTPS, system triggers and device event triggers, Alarm, event and audit logs, Supports all camera resolutions up to 20 megapixels including 4K Ultra HD, Digital signature on exported recordings, standalone player,Manual and scheduled export, Up to 36 cameras synchronized playback, visualization, smart search, video scrubbing, bookmarks, locking of prioritized recordings ( Material shall be issued by the Department)	Each	1	8,528.00	8528
	<b>Hard Disk Drive</b>				
<b>15.3</b>	Supplying, Installation, Testing and Commissioning following capacity Surveillance grade Hard Disk with upto 256MB/s Transfer Rate, 256 MB Cache, 7200 RPM Disk Speed, 3.5 inch form factor, SATA Interface, BSMI, ICES-003/NNB-003, CE, FCC, KC, Maghreb, RCM, UKCA, VCCI, CB-Scheme, TUV, UL Certifications.				
<b>a)</b>	a) 10TB (Terabytes)	Each	2	24,798.00	49596

15.4	<p>Supplying, installation, Testing and commissioning of following capacity 24 port Layer 2 indoor Network Switch having features and specifications etc. as mentioned here under: At least 24 X RJ-45 Gigabit Ethernet Ports and additional 2 X 10G Base -T with 4 X SFP Ports with non-blocking architecture by having Switching capacity of min. 168Gbps and packet forwarding rate of 125Mpps or higher, 16K MAC table. Console Port, USB port, Stacking support of min. 8 units per stack. Internal dual AC Power supply, STP, RSTP, MSTP, BPDU Filter, BPDU Restriction, Min. 9K Jumbo Frame, LBD, IGMP Snooping V1/V2/V3, MLD Snopping V1/V2. IGMP /MLD Groups 1K or more, IPv4/IPv6 Loopback Interface, 16 L3 IP Interface, Ipv6 ND, VRRPv3, UDP Helper, ECMP. VLAN: 802.1Q, Port based, Q-in-Q, Multicast VLAN, Protocol VLAN, VLAN Trunking, DHCP Snopping, Server, server Screening. RADIUS , TACACS+ Authentication, QoS: 802.1P, 8 queues per port, QoS : WRR, Strict+WRR, WRED, 802.1p. ACL: MAC based, IPv4C IPv6, TCP/UDP Port number, time based ACL, TFTP Client, SNMP V1, v2c, v3, SNMP traps, RMON, DHCP server, relay, client, LLDP, LLDP-MED, OAM, Dying Gasp, 802.3ah, sflow, RIP, OSPF v2/v3, policy based route, SSL, SSH. 6 kV surge protection on all Gigabit Ethernet ports and on all GE RJ-45 access ports. Certifications: UL, CE, FCC, RoHS, MTCTE, OEM/Product must be on Trusted Telecom Portal of Department of Telecommunication, Government of India etc. complete as required.</p>			
i)	<p>24 port PoE Layer 2 Network Switch with PoE Support of 370W or higher with each copper port supporting 802.3at PoE+ min.</p>	Each	15	1,25,393.00 1880895
15.5	<p>Supplying, installation, Testing and commissioning of following capacity 8 port Layer 2 indoor Network Switch having features and specifications etc. as mentioned here under: Minimum 8 X RJ-45 Gigabit Ethernet Ports and additional 2 X 1G SFP Ports with non-blocking architecture by having Switching capacity of minimum 20Gbps and packet forwarding rate of 14Mpps or higher, 8K MAC table. Internal dual AC Power supply with operating temperature of -5 0C to +50 0C. Jumbo frame: 10KB or higher, IGMP Snooping, IGMP snooping querier and support for IGMP Snooping Fast Leave, Should create 250 or more MLD groups, MLD Snooping, Per VLAN MLD Snooping C MLD Snooping Fast Leave, STP, RSTP, MSTP, Loopback detection, Multicast filtering, VLAN Tagging, QOS: 8 Que per port, WRR, IPv4/IPv6 Interface : minimum 100 IPv4 static route entries and minimum 50 IPv6 static route entries, 700 Access Control entries, SSH CSSL for IPv4 and IPv6, 802.1x, ARP Spoofing,</p>			

	<i>DHCP Snooping and server screening, IP+MAC+Port Binding, Per Port Bandwidth Control, 802.1X Authentication (Supports local/RADIUS database, Port-based Access Control and EAP, OTP, TLS, TTLS, PEAP Support) Cable Diagnostic feature, LLDP, LLDP-MED, SNTN/NTP, RMON, SNMP v1,v2c, v3 and SNMP Traps. Certifications: UL, CE, FCC, RoHS, MTCTE, OEM/Product must be on Trusted Telecom Portal of Department of Telecommunication, Government of India etc. complete as required.</i>				
<b>i)</b>	<i>8 port PoE Layer 2 Network Switch with PoE Support of 130W or higher with each copper port supporting 802.3at PoE+</i>	<i>each</i>	<i>11</i>	<i>35,091.00</i>	<i>386001</i>
<b>15.6</b>	<i>Supplying and fixing of following size Wall Mount Rack having Fixed Structure with 0.8mm CRCA Sheet, completely knocked-down condition (CKD) Shape, Vertical Mounting Rail 1.6 mm with 'U'Marking, Minimum 2 cable entry/exit provision at Top and bottom with rubber protection, Front 5mm Toughened Glass with lock, wall mounting kit, Powder coated Color- RAL- 7035, complied with UL &amp; RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.</i>				
<b>i)</b>	<i>6U Rack</i>	<i>Each</i>	<i>7</i>	<i>6,939.00</i>	<i>48573</i>
<b>ii)</b>	<i>9U Rack</i>	<i>Each</i>	<i>13</i>	<i>8,960.00</i>	<i>116480</i>
<b>15.7</b>	<i>Supplying and fixing 24U Rack with 4 inch Castor wheels and front brake Floor Standing Rack with Main Frame Pillar of 1.25mm Powder Coated CRCA Sheet with removable side panels, L- Shape adjustable Vertical Mounting Rail of 2mm with 'U'Marking completely knocked-down condition (CKD) Shape, fitted with 4 number cooling fans, minimum 5nos two line cable entry/exit provision at top and bottom with rubber protection, Front door 5mm Toughened Glass with MS frame or MS perforated with lock, Rear MS vented or perforated door, Powder coated Color- RAL- 7035 or black, complied with UL &amp; RoHS, 2 x 6 sockets 16A power distribution units, 3 numbers closed cable organizer, Hardware mounting screws packet of 20 x 1 number, etc. complete as required.</i>	<i>Each</i>	<i>9</i>	<i>21,201.00</i>	<i>190809</i>

<b>15.8</b>	<i>Supplying Installation Testing and Commissioning of 24 port Cat6 Patch Panel loaded. Must be of 1U height with clear label holders and white label with the panel. 24 Ports Cat-6 Patch Panel should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required.</i>	<i>Each</i>	<i>15</i>	<i>5,278.00</i>	<i>79170</i>
<b>15.9</b>	<i>Supply and fixing following port Rack Mount loaded LIU with pigtail, Front-mounted cable saddles for jumper management, suitable to manage both splices and terminations, Pre-assembled shelves in multiple configurations, Rubber fiber slotted bracket built-in, metal splice shelf to protect the fibers, 2 fiber spools built-in for 900µm tight buffered fiber storing, Capable of storing up to 3 meters of 900µm tight buffered fiber per adapter, Removable front and rear covers for better access to interior of LIU, Should be Single / Multi mode LC Type fully loaded. Accessory kit consists of cable ties, mounting ear screws, and spiral wrap tube etc complete as required</i>				
<b>i)</b>	<i>12Port LIU</i>	<i>Each</i>	<i>8</i>	<i>7,040.00</i>	<i>56320</i>
<b>ii)</b>	<i>24 Port LIU</i>	<i>Each</i>	<i>14</i>	<i>10,049.00</i>	<i>140686</i>
	<b>Storage</b>				
<b>15.10</b>	<i>Supply, Installation, Testing &amp; Commissioning of Enterprise-Class Block Storage System with minimum 300 TB usable storage capacity after RAID configuration, supporting iSCSI and/or Fibre Channel host connectivity protocols. The storage system shall be equipped with dual redundant Active-Active Storage Controllers, each having minimum dual-core 2.2 GHz processor or higher, with no single point of failure.</i>				
	<i>The storage system shall support RAID-6 data protection and shall be configured with dedicated Global Hot Spare drive(s). The storage architecture shall utilize 12 Gbps SAS backend connectivity and enterprise-grade SAS/NL-SAS drives as per OEM design requirements.</i>				
	<i>The storage system shall support online capacity expansion, logical volume management, storage pooling, snapshots, performance monitoring, controller failover, redundant power supplies, redundant cooling modules and non-disruptive firmware upgrades.</i>				
	<i>The storage system shall be supplied complete with all required controllers, disk enclosures, hard disk drives, host interface cards, software licenses, rack-mounting hardware, interconnecting cables, accessories, installation, testing and commissioning, complete in</i>	<i>Set</i>	<i>1</i>	<i>37,45,483.2</i>	<i>3745483.2</i>

	<i>all respects for satisfactory operation</i>				
	<b>Workstation</b>				
<b>15.11</b>	<i>Supply, Installation, Testing &amp; Commissioning (SITC) of Workstation with Client License, comprising Intel Core i7 processor or higher, minimum 8 GB DDR4/DDR5 RAM, 500 GB SSD or higher, dedicated graphics processing unit (GPU) with minimum 2 GB video memory or higher, Windows 11 Professional (64-bit) operating system or higher version, capable of supporting display resolution up to 2560 × 1600 with DirectX 32-bit True Color. The workstation shall support dual-monitor operation through HDMI and/or DisplayPort interfaces. The system shall be compatible with the proposed Video Management Software (VMS) and capable of simultaneous viewing of up to 64 cameras per workstation with programmable camera sequencing, live monitoring, playback and event management functions, complete with all necessary hardware, software, client licenses, accessories, installation, testing and commissioning as required for satisfactory operation.</i>	<i>Set</i>	<i>5</i>	<i>1,48,630.00</i>	<i>743150</i>
	<b>Display</b>				
<b>15.12</b>	<i>Supply, Installation, Testing &amp; Commissioning of 55-inch or higher commercial-grade LED display monitor with minimum 3840 × 2160 (4K) resolution, 24×7 operation capability, HDMI/DisplayPort inputs, suitable for CCTV surveillance monitoring, complete with mouse, keyboard, mounting arrangement, cables, accessories and all necessary components required for satisfactory operation and commissioning. The display shall be compatible with the proposed workstation and Video Management System (VMS), complete in all respects.</i>	<i>Each</i>	<i>4</i>	<i>59,452.00</i>	<i>237808</i>
<b>15.13</b>	<i>Supplying and drawing following core Multi mode Fiber Optic Cable having corrugated steel armoring, lesser optimize 50/125 μm with HDPE jacket, LSZH (Low smoke Zero Halogen), Tight-buffered or loose tube, maximum attenuation: &lt; 3.5 dB/km at 850 nm, &lt; 1.5 dB/km at 1300 nm, bandwidth &gt; 2000 MHz-km at 850 nm, &gt; 500 MHz-km at 1300 nm compliance and certifications: ISO/IEC 11801 Ed. 2.2, ANSI/TIA-568 C.3, ITU-T G.651.1 RoHS compliant. Multi Mode Fiber shall be Central-loose tube filled with Thixotropic jelly, duly following Standards: ISO 11801, IEC 60793 1/60794-1-2, ITU-T-REC G.652D and Telecordia GR 20-core, High quality Electro Chromium Coated Corrugated Steel tape (ECCS ) and HDPE- Sheath, Operating ambient Temperature should be – 5 OC to</i>				

	+50 OC and Storage Temperature should be – 5 OC to +50 OC, Maximum Attenuation ± 3.5 dB/km at Operational Wavelength 850 nm and ± 1.5 dB / km at Operational Wavelength 1300 nm . type of fiber should be 50/125 / G.652D & Refractive Index should be 1.483/1.478, The value for Mode-field, Cladding Diameter 50 ± 2.5 µm and 125 ± 1µm correspondingly i/c splicing & marking etc complete as required.				
i)	6 Core Multi Mode Optical Fiber Cable	Metre	560	87.00	48720
15.14	Supplying, Installation, Testing and commissioning of following CAT6 Patch Cord should have ETL/UL verification program certificate for compliance with ANSI/TIA-568.2-D etc. complete as required				
i)	Copper Patch Cords of length 1m (3ft)	Each	312	151.00	47112
ii)	Copper Patch Cords of length 3m (10ft)	Each	22	227.00	4994
<b>TOTAL : S.H.-XV CCTV SURVILLANCE &amp; SECURITY:</b>					
<b>16</b>	<b>S.H.-XVI DG SET WORKS &amp; Exhaust System</b>				
16.1	<u>DG SET (750 KVA)</u>				
	<u>Diesel Engine:</u>				
	Supplying, Installation, Testing & Commissioning of 'Silent Type Diesel Generating set as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual ,Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings: <b>(A) Diesel Engine:</b> Turbo charged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 0C, 50% RH & at 1000 Meter MSL , capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528.The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications. <b>(B) Engine mounted Instrument Panel</b> fitted with and having digital dis Plate for following: (i) Start-stop switch with key (ii) Water temperature indication (iii) Lubrication oil pressure indication (iv) Lubrication oil temperature indication (v) Battery charging indication and Voltage indication (vi) RPM indication (vii) Over				

	<p>speed indication (viii) Low lubrication Oil trip indication (ix)  Engine Running Hours indication (x) Fuel Level</p>				
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	<p><i>(C) Alternator: Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 0C, 50% RH &amp; at 1000 Meter MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation. (D) Base Frame &amp; Foundation: Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer. (E) FUEL TANK: Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications &amp; accessories as required as per specifications. (F) Exhaust System: Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor. (G) Starting System: 12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be housed inside the acoustic enclosure of DG Set. (H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine &amp; alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure.</i></p>				
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The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications.

(I) AMF Panel: Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reative Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminium) and control (copper) cabling of suitable size upto 15 meter between AMF panel, LT Panel and DG Set including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG Set OEM make etc. as per approved by Engineering in charge and including the following: 1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip. 2. Auto/Manual/Test/Off selector switch 3. Protection for under and over voltage phase reversal (2 nos Over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay). 4. 3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering 5. Energy analyser unit to indicate current, Voltage(L N & L\_L), kW, kVA (Phase & Total), Frequency, KWH, PF. 6. LED Indicating lamps for load on mains and load on set 7. Fuse/ MCB for instruments 8. Battery charger, complete with transformer/ rectifier D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment. 9. Main supply failure monitor 10. Supply failure timer 11. Restoration timer 12. Control unit with three impulse automatic engine start/stop and failure to start lockout. 13. Impulse counter with locking and reset facility. 14. ON/OFF/Control circuit switch with indicator 15. Audio/Video annunciation for (i) High water temperature (ii) Low lubricating oil pressure (iii) Engine over speed (iv) Engine fails to start (v) Full load/maximum load warning 16. Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories 17. Maintenance notification based on Engine Run Hour & due date. 18. Load Management through PLC to achieve auto opening and closing of incomer breakers, bus coupler switching of essential panel, interlocking providing signal to AMF Panel for load status and AMF shall give command to DG Set to auto start / auto stop depending upon load status and requirement etc. and necessary hardware and software required to perform the operation shall be provided by the contractor including all control wiring etc as required.

**Fuel Tank:**

Daily service fuel tank of 990 litres capacity fabricated out of 3 mm thick M.S. Sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.

**Exhaust System:**

Dry exhaust manifold with hospital exhaust silencer.

**Starting System:**

24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation

	<i>complete with 2 nos. of batteries (180 Amp. Hour capacity lead acid type) as required as per specifications.</i>				
	<i>Accoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine &amp; alternator, extraction, discharging hot air in to the atmosphere as per specifications.</i>				
	<b>TOTAL: S.H.-XVI DG SET WORKS &amp; Exhaust System</b>	<i>set</i>	<i>1</i>	<b>6406428</b>	<i>6406428</i>
<b>17</b>	<b>S.H.-XVII EXTERNAL LIGHTING WORKS</b>				
17.1	<i>Installation,testing and commissioning of 6 meter Height hot dipped galvanized pole continuously tapered (bolt fixing type) octagonal Pole with top 70 mm dia. (minimum) and bottom 130 mm dia. (minimum) made of 3 mm (minimum) thick High Tensile sheet Steel conforming to grade S 355 complete with G I base plate of size not less than 220 mm (L) X 220 mm (B) X 12 mm thickness welded at bottom of pole complete with 4 Nos 20 mm dia 600 mm long foundation bolts confroming to EN 8 grade, inbuilt / Vandal resistance, weathproof electrical junction box having terminal block, MCB etc mounted on bakelite sheet for looping in /looping out of cables, with flush door having locking arrangement,earthing arrangement (at atleast 0.5 m height) and mounted on 1:2:4 RCC foundation of size not less than 500 mm x 500 mm x 1200 mm in ground and minimum 200 mm above ground level with foundation bolt duly embeded before casting and supply and embedding of suitable size DWC HDPE pipe sleeve for cable entry and exit, complete including erection of Pole complete in all respect as per specification as reqd.</i>	<i>each</i>	<i>6</i>	<i>6123</i>	<i>36738</i>
17.2	<i>Installation,testing and commissioning of 12 meter Height hot dipped galvanized pole continuously tapered (bolt fixing type) octagonal Pole with top 90 mm dia. (minimum) and bottom 240 mm dia. (minimum) made of 3 mm (minimum) thick High Tensile sheet Steel conforming to grade S 355 complete with G I base plate of size not less than 320 mm (L) X 320 mm (B) X 16 mm thickness welded at bottom of pole complete with 4 Nos 24 mm dia 750 mm long foundation bolts confroming to EN 8 grade, inbuilt / Vandal resistance, weathproof electrical junction box having terminal block, MCB etc mounted on bakelite sheet for looping in /looping out of cables, with flush door having locking arrangement, earthing arrangement (at atleast 0.5 m height)  as per specification as reqd.(without foundation)</i>	<i>each</i>	<i>19</i>	<i>2315.00</i>	<i>43985</i>

17.3	<p><i>Installation,testing and commissioning of 12 meter Height hot dipped galvanized pole continuously tapered (bolt fixing type) octagonal Pole with top 90 mm dia. (minimum) and bottom 240 mm dia. (minimum) made of 3 mm (minimum) thick High Tensile sheet Steel conforming to grade S 355 complete with G I base plate of size not less than 320 mm (L) X 320 mm (B) X 16 mm thickness welded at bottom of pole complete with 4 Nos 24 mm dia 750 mm long foundation bolts confroming to EN 8 grade, inbuilt / Vandal resistance, weathproof electrical junction box having terminal block, MCB etc mounted on bakelite sheet for looping in /looping out of cables, with flush door having locking arrangement, earthing arrangement (at atleast 0.5 m height) and mounted on 1:2:4 RCC foundation of size not less than 750 mm x 750 mm x 1800 mm in ground and minimum 200 mm above ground level with foundation bolt duly embeded before casting and supply and embedding of suitable size DWC HDPE pipe sleeve for cable entry and exit, complete including erection of Pole complete in all respect as per specification as reqd.( with foundation)</i></p>	each	21	8761.00	183981
17.4	<p><i>Supply of of 12 meter Height hot dipped galvanized pole continuously tapered (bolt fixing type) octagonal Pole with top 90 mm dia. (minimum) and bottom 240 mm dia. (minimum) made of 3 mm (minimum) thick High Tensile sheet Steel conforming to grade S 355 complete with G I base plate of size not less than 320 mm (L) X 320 mm (B) X 16 mm thickness welded at bottom of pole complete with 4 Nos 24 mm dia 750 mm long foundation bolts confroming to EN 8 grade, inbuilt / Vandal resistance, weathproof electrical junction box having terminal block, MCB etc mounted on bakelite sheet for looping in /looping out of cables, with flush door having locking arrangement, earthing arrangement (at atleast 0.5 m height) a as per specification as reqd.</i></p>	each	21	39348.00	826308
17.5	<p><i>Installation, testing &amp; commissioning of 16 mtr high mast complete in all respects including electrically operated raising and lowering gears double drum winch with steel wire ropes, integral power tool, lantern carriage, top pulley arrangement complete with hot dip galvanised finished, and providing RCC foundation in grade M-25 and TMT reinforcement with excavation in soil, foundation bolts, anchor plates, nuts, washers including multicore copper conductor cable (Trailing cable) in two circuits (Each for 5 Nos LED Light Fixture) of suitable current carrying capacity between top carriage and the base terminal (inside mast) including termination of incoming cables, interconnecting copper wiring etc as</i></p>	each	1	9816.00	9816

	<i>required suitable for operation on 415 V, 3 phase, 50 Hz, AC power supply including as per CPWD Specifications complete etc. as required.LED obstruction light fixtures erected with lantern carriage &amp; connected in two separate wiring/ connections from mast control board, extending earth strip from feeder pillar to mast body, connections, interconnections, complete as required and as specified..</i>				
	<b>EXTERNAL LIGHTING FIXTURE</b>	<i>each</i>			
17.6	<i>Supply, Installation , Testing &amp; Commissioning of minimum IP65 LED street light fitting having system lumen output not less than 7000, efficacy not less than 110 lumens per watt and life expectancy of 50000 burning hours@ L70, Power Factor &gt; 0.90 &amp; THD &lt;10%,System lumen efficacy≥120 &lt;135 lm/Watt ,CRI better than 70,CCT 4500-6500K as required and made of pressure die cast / extruded Aluminium housing with separate optics and control gear compartment, toughened glass protector, permanently sealed and a removable control gear plate, , mounting spigot suitable for 6m GI Pole with tilt flexibility of (+)(-) 10 degrees, suitable for operation on 230 V +/-10 % single phase 50 Hz AC Supply , surge protection of not less than 10 KV and driver efficiency more than 85% and with mounting accessories, painting etc. complete in all respect i/c connections etc. as reqd. (a) 72 Watt</i>	<i>each</i>	12	2128	25536
17.7	<i>Supply Installation , Testing &amp; Commissioning of minimum IP65 LED street light fitting having system lumen output not less than 36K, efficacy not less than 120 lumens per watt, CCT 4500-6500K as required and minimum life expectancy of 50000 burning hours@ L70, Power Factor &gt; 0.90 &amp; THD &lt;10%,System lumen efficacy≥120 &lt;135 lm/Watt, CRI better than 70, made of pressure die cast / extruded Aluminium alloy housing with separate optics and control gear compartment, toughened glass protector, permanently sealed and a removable control gear plate, , mounting spigot suitable for 12 m GI Pole with tilt flexibility of (+)(-) 10 degrees, suitable for operation on 230 V +/- 10 % single phase 50 Hz AC Supply , surge protection of not less than 10 KVand driver efficiency more than 85% and with mounting accessories, painting etc. complete in all respect i/c connections etc as reqd (a) 72 watt</i>	<i>each</i>	19	2128	40432

17.8	<p>Supply, Installation, testing and commissioning of LED flood light fixture suitable for Surface / Wall type mounting with powder coated Pressure die -cast aluminium housing with heat Sink, toughened glass, complete with inbuilt electronics driver, mounting bracket, System lumen efficacy<math>\geq 120 &lt; 135</math> lm/Watt, minimum 100 Lumen /watt efficacy, min 10000 Lumen output, surge protection of not less than 4 KV , THD<math>&lt; 10\%</math>, P.F. <math>&gt; 0.95</math>, IP65(minimum) suitable for operation on 230 V +/- 10 % single phase 50 Hz AC Supply and with mounting accessories, painting etc. complete in all respect etc. as required</p> <p>(a) 100 watt</p>	each	10	2467	24670
17.9	<p>Supply Installation , Testing &amp; Commissioning of minimum IP65 LED post top light fitting having system lumen output not less than 6000, efficacy not less than 100 lumens per watt and life expectancy of 50000 burning hours@ L70, Power Factor <math>&gt; 0.90</math>, CRI better than 70, CCT 4500-6500 as required and made of pressure die cast / extruded Aluminium housing with mounting arrangement including suitable size and diameter medium class Gi Pipe and other accessories as per requirement, suitable for operation on 230 V +/- 10 % single phase 50 Hz AC Supply , surge protection of not less than 4 KV and with mounting accessories, painting etc. complete in all respect i/c connections etc as reqd.</p>	each	6	5048.00	30288
17.10	<p>Supplying, Installation, Testing &amp; Commissioning of Flood Light, powder coated pressure die cast aluminium body with built in or separate driver as per the requirement with Driver efficiency <math>&gt; 85\%</math>, Input voltage: Input voltage: 140-270 Volt AC, frequency 50/60 hz, Operating temp range <math>-5^{\circ}C</math> to <math>50^{\circ}C</math>, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency <math>&gt; 85\%</math>, THD <math>&lt; 10\%</math> as per IEC 61000-3-2, P. F. <math>\geq 0.95</math>, IP-66, IK-10, CRI <math>&gt; 70</math>, under voltage and over voltage protection, EMI-EMC as per CISPR-15, lenses for beam angle 30 deg-120deg as per the application and the project requirement, suitable tilt able fitting, life time (LED, Driver &amp; electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT <math>3000^{\circ}K</math> / <math>4000^{\circ}K</math> / <math>5700^{\circ}K</math> / <math>6500^{\circ}K</math> (As per ANSI Bin), SDCM(Standard Deviation Colour Matching) <math>&lt; 5</math>, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc.</p>				

	as required with Minimum 5 year OEM warranty. System lumen efficacy $\geq 120$ and $< 135$ lm/Watt output .				
	LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted.. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C).				
		each	10	4689	46890
	<b>TOTAL S.H.-XVII EXTERNAL LIGHTING WORKS</b>				
18	<b>S.H.-XVIII LIFTS</b>				
18.1	Installation, testing, commissioning of following <b>Omega make</b> passenger lifts including handling, assembling, installing in correct assigned position, effecting proper connections, having speed of 1.5 MPS 10 stops and 10 openings and total travel of 36.00 meters approx. with VVVF drive, full collective Triplex control on 415 V, 50 cycles, 3 phase power complete in accordance with specifications and drawings as required with Car, Car Door & Hoistway Door inclusive of built in ARD and as per specification . (All material are lying at site.)				
i)	16 Passenger Lift (Hostel Block -G+9)	each	2	192428.00	384856
ii)	10 Passenger Lift (Hostel Block -G+9)	each	3	155149.00	465447
18.2	Installation, testing, commissioning of following <b>Omega make</b> passenger lifts including handling, assembling, installing in correct assigned position, effecting proper connections, having speed of 1.5 MPS 6 stops and 6 openings and total travel of 24.00 meters approx. with VVVF drive, full collective Duplex control on 415 V, 50 cycles, 3 phase power complete in accordance with specifications and drawings as required with Car, Car Door & Hoistway Door inclusive of built in ARD and as per specification etc as required. (All material are lying at site.)				
i)	16 Passenger Lift (Academic Building-G+5)	each	2	151859.00	303718
Insertion : Nil      Correction : Nil      Omission : Nil      AE(P)...      ..... / EE.....					
					431

ii)	13 Passenger Lift (Academic Building-G+5)	each	4	151859.00	607436
18.3	Design, manufacturing, testing at works, supply and delivery, receiving, unloading, storing, inspection, handling, assembling, installing in correct assigned position, effecting proper connections, testing and commissioning of following capacity passenger-lifts, having speed of 1.5 MPS 10 stops and 10 openings and total travel of 36.00 meters approx. with VVVF drive, full collective Triplex control on 415 V, 50 cycles, 3 phase power complete in accordance with specifications and drawings as required with Car, Car Door & Hoistway Door in stainless steel hairline finish, inclusive of built in ARD and as per specification including cat 6 wiring for CCTV.				
i)	10 Passenger Lift (Hostel Block -G+9)	each	1	1920155.00	1920155
	<b>TOTAL : S.H.-XVIII LIFT</b>				
<b>19</b>	<b>S.H.XIX IPABX/EPABX SYSTEM</b>				
19.1	Supplying, installation, testing and Commissioning of IP based voice communication system with 04 Port Voicemail, 04 Port FXS, 04 Port FXO, 1 PRI Trunk lines (30 Channels) Circuit with CLIP Facility, min 100 IP users License with provision for further additions, 100 analog users, 01 Number IP based Operator Console, 100 Party Conference, Speed Dial, Music on Hold, Internal/ External ring difference, Call Barring, Call Pickup, Redundant server in active -Active mode and as per technical specification including supporting accessories etc complete as required. The system should have valid TEC GR approval from DoT.	Each	1	1578920	1578920
19.2	Supplying, Installation, Testing & Commissioning of Type 1 IP Phone having 2 VoIP account, 120 x40 DOT matrix screen with backlight, Full HD duplex speaker phone, IPV6, Gigabit Etherent, PoE etc. complete as required.	Each	11	11698	128678
19.3	Supplying, Installation, Testing & Commissioning of Analog phones having standard feautres like 16 digit LCD display, 2 way speaker, caller ID and number storage facility etc. complete as required.				
i)	Analog Telephone	Each	129	1544	199176
19.4	Supplying and drawing 20 Pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC Conduit etc. complete as required.	mtr	1600	344	550400
	<b>TOTAL : S.H.-XIX IPABX/EPABX SYSTEM</b>				
<b>20</b>	<b>SH-XX FIRE FIGHTING SYSTEM</b>				

	Supplying, installation, testing and commissioning of Electric driven Main Fire Pump suitable for automatic operation and consisting of following, complete in all respects, as required :				
20.1	Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-12615:2018.M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.Suitable cement concrete foundation duly plastered with anti vibration pads. <b>The head of</b>				
i)	2280 LPM at 88 m Head	set	1	424172	424172
	Supplying, installation, testing and commissioning of diesel engine driven main fire pump suitable for automatic operation and consisting of following, complete in all respects, as required : <b>(Diesel Driven Pump)</b>				
	Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.				
20.2	Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12 /24 volts electric starting equipment, diesel tank, exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required.M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.				
	Suitable cement concrete foundation duly plastered with anti vibration pads				
i)	2280 LPM at 88 m Head	set	1	718247	718247
	Supplying, installation, testing and commissioning of electric driven pressurisation pump suitable for automatic operation and consisting of following, complete in all respects, as required : <b>(Jockey Pump)</b>				
20.3	Horizontal type, multistage, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft,mechanical seal conforming to IS : 1520.				

	<i>Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</i>				
	<i>M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.</i>				
	<i>Suitable cement concrete foundation duly plastered with anti vibration pads</i>				
i)	<i>180 LPM at 88 m Head</i>	<i>set</i>	<i>1</i>	<i>134171</i>	<i>134171</i>
20.4	<i>Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump)</i>				
	<i>Horizontal type, multistage, centrifugal, split casing pump of cast iron body &amp; bronze impeller with stainless steel shaft, mechanical confirming to IS : 1520</i>				
	<i>Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase, 50 Hz, AC supply with IP55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</i>				
	<i>M.S.fabricated common base plate, coupling, coupling guard, foundation bolts etc.as required.</i>				
	<i>Suitable cement concrete foundation duly plastered and with anti vibration pads.</i>				
i)	<i>900 LPM at 35 m Head</i>	<i>set</i>	<i>2</i>	<i>107744</i>	<i>215488</i>
20.5	<b>Providing</b> <i>laying, testing &amp; commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding, excavation &amp; providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required.</i>				
i)	<i>150 mm dia.</i>	<i>mtr</i>	<i>100</i>	<i>5104</i>	<i>510400</i>
20.6	<b>Laying</b> , <i>testing &amp; commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding, excavation &amp; providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required.</i>				
i)	<i>150 mm dia.</i>	<i>mtr</i>	<i>60</i>	<i>481.00</i>	<i>28860</i>
20.7	<b>Providing</b> , <i>laying, testing &amp; commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on</i>				

	<i>the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :</i>				
i)	<i>25 mm dia.</i>	<i>mtr</i>	<i>50</i>	<i>920</i>	<i>46000</i>
ii)	<i>80 mm dia.</i>	<i>mtr</i>	<i>50</i>	<i>2277</i>	<i>113850</i>
iii)	<i>100 mm dia.</i>	<i>mtr</i>	<i>50</i>	<i>3077</i>	<i>153850</i>
iv)	<i>150 mm dia.</i>	<i>mtr</i>	<i>50</i>	<i>4299</i>	<i>214950</i>
20.8	<i>Laying, testing &amp; commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :</i>				
i)	<i>80 mm dia.</i>	<i>mtr</i>	<i>50</i>	<i>481.00</i>	<i>24050</i>
20.9	<i>Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required :</i>				
i)	<i>Single headed Stainless steel</i>	<i>set</i>	<i>68</i>	<i>6632</i>	<i>450976</i>
20.10	<i>Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Stainless Steel coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal/Stainless Steel cap and chain as required :</i>				
i)	<i>Single headed Stainless steel</i>	<i>set</i>	<i>7</i>	<i>6632</i>	<i>46424</i>
20.11	<i>Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :</i>				
i)	<i>25 mm dia.</i>	<i>set</i>	<i>60</i>	<i>3526</i>	<i>211560</i>
ii)	<i>80 mm dia.</i>	<i>set</i>	<i>70</i>	<i>5406</i>	<i>378420</i>
iii)	<i>100 mm dia.</i>	<i>set</i>	<i>10</i>	<i>7271</i>	<i>72710</i>
iv)	<i>150 mm dia.</i>	<i>set</i>	<i>10</i>	<i>9737</i>	<i>97370</i>
20.12	<i>Supplying and fixing orifice plate made out of 6 mm thick stainless steel (Grade 304) with orifice of required size to be fitted between flange &amp; landing valve of external and internal hydrants to reduce pressure at the outlet to the level of 3.5 kg/cm<sup>2</sup> complete as required.</i>	<i>each</i>	<i>68</i>	<i>1436</i>	<i>97648</i>
20.13	<i>Providing, installation, testing and commissioning of non-return valve of PN 1.6 rating with bronze / gun metal seat of following sizes confirming to IS:5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :</i>				
i)	<i>100 mm dia.</i>	<i>set</i>	<i>8</i>	<i>11853</i>	<i>94824</i>
ii)	<i>150 mm dia.</i>	<i>set</i>	<i>4</i>	<i>18884</i>	<i>75536</i>

20.14	<i>Providing, installation, testing and commissioning of stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel flange.</i>				
i)	<i>150 mm dia.</i>	<i>each</i>	<i>8</i>	<i>11682</i>	<i>93456</i>
20.15	<b>Fixing</b> <i>63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :</i>				
i)	<i>Stainless Steel (Grade 304)</i>	<i>set</i>	<i>100</i>	<i>95.00</i>	<i>9500</i>
20.16	<b>Supply &amp; Fixing</b> <i>63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :</i>				
i)	<i>Stainless Steel (Grade 304)</i>	<i>set</i>	<i>54</i>	<i>4667</i>	<i>252018</i>
20.17	<b>Fixing</b> <i>first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585. 20 mm nominal internal dia gun metal globe valve &amp; nozzle. Drum and brackets for fixing the equipments on wall. Connections from riser with 25 mm dia stop gun metal valve &amp; M.S. Pipe and socket.</i>				
i)	<i>40 m</i>	<i>set</i>	<i>40</i>	<i>221.00</i>	<i>8840</i>
20.18	<i>Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red, conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585. 20 mm nominal internal dia gun metal globe valve &amp; nozzle. Drum and brackets for fixing the equipments on wall. Connections from riser with 25 mm dia stop gun metal valve &amp; M.S. Pipe and socket.</i>				
	<i>40 m</i>	<i>set</i>	<i>30</i>	<i>17034</i>	<i>511020</i>
20.19	<i>Supplying &amp; fixing 63 mm dia gun metal short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS 903 suitable for instantaneous connection to interconnect hose pipe coupling as required :</i>				
i)	<i>Stainless Steel (Grade 304)</i>	<i>set</i>	<i>77</i>	<i>3402</i>	<i>261954</i>
20.20	<b>fixing</b> <i>of fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete with cap and chain as reqd. for suitable dia MS pipe connection conforming to IS 904 as required :</i>				
i)	<i>2 way - 100 mm dia M.S. Pipe</i>	<i>set</i>	<i>3</i>	<i>221.00</i>	<i>663</i>
20.21	<i>Supplying and fixing of fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete with cap and chain as reqd. for suitable dia MS pipe connection conforming to IS 904</i>				

	<i>as required :</i>				
i)	<i>4 way - 150 mm dia M.S. Pipe</i>	<i>set</i>	<i>1</i>	<i>14820</i>	<i>14820</i>
20.22	<i>Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia gun metal wheel valve with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.</i>	<i>each</i>	<i>1</i>	<i>19402</i>	<i>19402</i>
20.23	<i>Providing &amp; fixing of pressure switch in M.S. pipe line including connection etc. as required</i>	<i>each</i>	<i>1</i>	<i>1670</i>	<i>1670</i>
20.24	<i>fixing of Weather proof hose cabinets fabricated from 16 SWG M.S. Sheet with full glass door and mortise locking arrangement , suitable to accommodate one Hydrant landing valve, 2 nos. 15 M long hose and 1 No branch pipe. The cabinet shall be painted with one coat of primer and finished stove enamelled "Fire Red", "Fire Hose" written on front including suitably mounted on a raised masonry platform as required. (minimum 0.75mx0.6 m x 0.25 m).</i>	<i>each</i>	<i>7</i>	<i>221.00</i>	<i>1547</i>
20.25	<i>Fixing dial type pressure gauge with isolation cock and pipe at hydrant station. Dial diameter 100 mm caliberation, 0-15 kg</i>	<i>each</i>	<i>76</i>	<i>221.00</i>	<i>16796</i>
20.26	<i>Providing and fixing carbon-di-oxide type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:15683 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.</i>				
i)	<i>Capacity 4.5 Kg.</i>	<i>each</i>	<i>131</i>	<i>8394.00</i>	<i>1099614</i>
20.27	<i>Providing and fixing ABC Powder type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:15683 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.</i>				
i)	<i>Capacity 6 kg</i>	<i>each</i>	<i>131</i>	<i>4366.00</i>	<i>571946</i>
	<b><i>Total SH-XX FIRE FIGHTING SYSTEM</i></b>				
21	<b><i>S.H.-XXI Water Supply, Drainage Pumps &amp; Water Treatment Equipments</i></b>				

21.1	<p><i>Design, manufacture, supplying, fixing in position, testing and commissioning of the following front operated cubicle type, front access 2mm thick mild steel sheet, free standing, dust and vermin proof, switchboard with IP42 protection with hinged and lockable doors complete with interconnections, tinned copper crimping lugs, bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system and suitable for a fault level of 25 MVA symmetrical at 415 volts. All switchboards shall have provision for entry of cables from the top or bottom as required. All live accessible parts shall be shrouded and all equipment shall be finger touch proof. The busbars insulation shall be with heat shrinkable sleeves. SMC/DMC shrouds and busbar supports shall be used. Padlocking facility shall be provided on all outgoing feeders doors and switch handles shall be lockable in OFF position.</i></p>				
(i)	<p><i>Electric Panel For Water Supply Pumps at Water Supply Pump Room</i></p>				
	<p><b>INCOMING</b></p>				
	<p><i>1 No. 200 amps TPN MCCB with the following accessories:</i></p>				
	<p><i>1 No. square flush mounting 0-500 volts scaled voltmeter with three way and OFF switch.</i></p>				
	<p><i>Three phase indicating lights.</i></p>				
	<p><i>Electrolytic high conductivity three phase and neutral tinned copper bus bar rated at 300 amps having a current density of 1 amp per Sqmm suitable to with stand symmetrical fault level of 25 MVA at 415 volts. The neutral bus bar is to be of 100% capacity.</i></p>				
	<p><b>OUTGOING UNITS</b></p>				
	<p><i>Two 25 Amp. TP + NL M.C.C.B. with rotary handle of breaking capacity 25KA</i></p>				
	<p><i>Two 63 Amp. TP + NL M.C.C.B. with rotary handle of breaking capacity 25KA</i></p>				
	<p><i>02 Nos. TPN MCCB of 100 A with 25 KA service breaking capacity for Domestic water hydropneumatic pumps. (Only connection to inbuilt panel of Domestic water hydropneumatic system)</i></p>				
	<p><i>4 Nos. fully automatic DOL starters with push buttons and ON/OFF indicating lights and overload relays for 1.5 to 25 HP pump .</i></p>				
	<p><i>4 Nos. rotary selector switch for selecting mode of operation i.e. auto/manual/off.</i></p>				
	<p><i>4 Nos. cyclic relay for automatic duty changeover of pumps.</i></p>				
	<p><i>4 No. single phase preventors.</i></p>				

	4 Nos. square flush mounting 0-30 amps scaled ammeters with three way and OFF selector switch. Space for 2 Nos. Level Controllers. Switchgear shall be suitable for the HPS of various motors. 4 Nos. 32 Amp. TPN MCB Spare.				
	The motor control panel shall be prewired with colour coded wires with identification labels complete in all respects as required.	Set	1	2,05,000.00	205000
(ii)	Electric Panel For Water Supply Pumps at STP Pump Room				
	INCOMING				
	1 No. 200 amps TPN MCCB with the following accessories:				
	1 No. square flush mounting 0-500 volts scaled voltmeter with three way and OFF switch.				
	Three phase indicating lights.				
	Electrolytic high conductivity three phase and neutral tinned copper bus bar rated at 200 amps having a current density of 1 amp per Sqmm suitable to withstand symmetrical fault level of 25 MVA at 415 volts. The neutral bus bar is to be of 100% capacity.				
	OUTGOING UNITS				
	Two 25 Amp. TP + NL M.C.C.B. with rotary handle of breaking capacity 25KA				
	02 Nos. TPN MCCB of 100 A with 25 KA service breaking capacity for Flushing water hydropneumatic pumps. (Only connection to inbuilt panel of Domestic water hydropneumatic system)				
	02 Nos. TPN MCCB of 63 A with 25 KA service breaking capacity for Irrigation water hydropneumatic pumps. (Only connection to inbuilt panel of Domestic water hydropneumatic system)				
	2 Nos. fully automatic DOL starters with push buttons and ON/OFF indicating lights and overload relays for 1.5 to 25 HP pump .				
	2 Nos. rotary selector switch for selecting mode of operation i.e.auto/manual/off.				
	2 Nos.cyclic relay for automatic duty changeover of pumps.				
	2 No. single phase preventors.				
	2 Nos. square flush mounting 0-30 amps scaled ammeters with three way and OFF selector switch. Space for 1 No. Level Controllers. Switchgear shall be suitable for the HPS of various motors. 4 Nos. 32 Amp. TPN MCB Spare.				
	The motor control panel shall be prewired with colour coded wires with identification labels complete in all	Set	1	1,90,000.00	190000

	<i>respects as required.</i>				
21.2	<i>Providing, laying, testing &amp; commissioning of 'B' class medium duty G.I. pipe conforming to IS 1239 including welding, fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :</i>				
(i)	<i>50 mm dia</i>	<i>Metre</i>	<i>20</i>	<i>745</i>	<i>745</i>
(ii)	<i>65 mm dia</i>	<i>Metre</i>	<i>20</i>	<i>1001</i>	<i>1001</i>
(iii)	<i>80 mm dia</i>	<i>Metre</i>	<i>20</i>	<i>1478</i>	<i>1478</i>
(iv)	<i>100 mm dia</i>	<i>Metre</i>	<i>15</i>	<i>1985</i>	<i>1985</i>
21.3	<i>Supplying, fixing, testing and commissioning of butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required :</i>				
(i)	<i>50 mm dia</i>	<i>Set</i>	<i>2</i>	<i>4114</i>	<i>8228</i>
(ii)	<i>65 mm dia</i>	<i>Set</i>	<i>6</i>	<i>4712</i>	<i>28272</i>
(iii)	<i>80 mm dia</i>	<i>Set</i>	<i>8</i>	<i>5406</i>	<i>43248</i>
(iv)	<i>100 mm dia</i>	<i>Set</i>	<i>5</i>	<i>7271</i>	<i>36355</i>
21.4	<i>Providing, installation, testing and commissioning of non-return valve of PN 1.6 rating with bronze/ gun metal seat of following sizes conforming to IS:5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :</i>				
(i)	<i>50 mm dia</i>	<i>Each</i>	<i>2</i>	<i>6257</i>	<i>12514</i>
(ii)	<i>65 mm dia</i>	<i>Each</i>	<i>4</i>	<i>6913</i>	<i>27652</i>
(iii)	<i>80 mm dia</i>	<i>Each</i>	<i>2</i>	<i>8255</i>	<i>16510</i>
21.5	<i>Providing and fixing resilient rubber neoprene lined style arch vibration eliminators suitable for raw water upto 45 deg.C. Temperature working pressure upto 25 Kg/Sqcm.</i>				
(i)	<i>50 mm dia</i>	<i>Each</i>	<i>2</i>	<i>5545</i>	<i>11090</i>
(ii)	<i>65 mm dia</i>	<i>Each</i>	<i>6</i>	<i>7548</i>	<i>45288</i>
(iii)	<i>80 mm dia</i>	<i>Each</i>	<i>4</i>	<i>9477</i>	<i>37908</i>
21.6	<i>Providing and fixing heavy duty armoured cables 1.1 KV grade including necessary support clamps at ceiling level and connection lugs complete in all respects.</i>				
(i)	<i>Power cable Copper 3 core 10 sq.mm</i>	<i>Metre</i>	<i>35</i>	<i>656</i>	<i>22960</i>
(ii)	<i>Power cable Copper 3 core 6 sq.mm</i>	<i>Metre</i>	<i>30</i>	<i>468</i>	<i>14040</i>
(iii)	<i>Power cable Copper 3 core 4 sq.mm</i>	<i>Metre</i>	<i>25</i>	<i>395</i>	<i>9875</i>
(iv)	<i>Control cable copper 2 core 1.5 sq.mm</i>	<i>Metre</i>	<i>50</i>	<i>304</i>	<i>15200</i>
21.7	<i>Providing and fixing CI Y type suction strainer with gunmetal or brass internal parts installed outside water tanks.</i>				
(i)	<i>100 mm dia.</i>	<i>Each</i>	<i>2</i>	<i>15475</i>	<i>30950</i>

	<b>Tubewell</b>				
21.8	Supplying and lowering of 50 mm dia. Heavy duty UPVC Column pipe of length 3 mtrs. having pressure not less than 27kg/Sq.cm in the existing borewell i/c all accessories and connection with pumpsets complete etc as reqd.	meter	100	824	82400
21.9	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required				
(i)	50 mm dia	Set	2	7639	15278
21.10	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
(i)	50 mm dia	Set	2	6257	12514
21.11	Supplying, Installation, Testing and Commissioning of ISI Marked vertical Multi Stage submersible pump set contain with stainless steel shaft and cast iron/SS body, the pump shall be designed to prevent over loading and having dynamically balanced rotating parts etc. the pump capable of delivering following capacities discharge at suitable head and lowering th0e pumps in water bodies and suitable for operation on 415V(+/-10%), 3- phase AC supply including providing required no's of heavy duty M.S clamps made of flat iron and suitable size top cover made of suitable thick MS sheet as required. suitable for 1200LPM at14 mtr. head etc. complete as required.	set	2	67996.00	135992
21.12	Fabrication, supplying, installation, testing and commissioning of suitable size dust and vermin proof totaly enclosed cubical wall/floor mounted panel board made out from 16 SWG CRCA Sheet & MS flat iron of 25 mm x 3 mm thick as intermediate member duly phosphated powder coated painting including supplying and fixing the following switch gear in approved manner incoming and outgoing connections,interconnections with suitable size copper wire and copper thimble/lugs,gland plate,danger notice plate earthing the body complete as required. (Drawing is to be approved by E-in-C before execution) <b>(Pumpset Panel)</b> <b>Incoming:-</b>				
	a) 63 amps FP MCCB , 415 volts,50 Hz, 25 KA (B.C.) - 1 No				
	b) 100 Amp 4 strip copper bus bar suitable length				

	c) 3 phase digital ammeter with CT's - 1set				
	d) 3 phase digital Volt meter -1 set				
	e) Set of LED type indicating lamp,fuse & toggle switch				
	<b>Out Going:-</b>				
	a) 40 Amps TP MCB 10 KA (B.C.) - 02 Nos.				
	b) Star Delta starter/ DOL Starter suitable for pump set with no voltage and over load protection - 2 Nos.				
	c) Single phasing preventor - 2 Nos.				
	d) time switch 24 hrs dailing - 2 Nos	set	1	101987	101987
21.13	SITC of DOL starter for operation of 5 HP submersible pump having relay range 6-10 A including of single phase preventer and having inbuilt amp. & volt meter complete with connections etc as required.	set	2	6704	13408
21.14	Supplying and Fixing of PVC covered 6 mm dia flexible steel rope for handling/protecting the submersible Pump set including U-lock arrangement etc. complete as required.	meter	100	71	7100
21.15	Supplying and fixing / laying of 3 core 6.0 sqmm PVC insulated, copperconductor flat submersible cable in existing DWC pipe/along with column pipe i/c connection with waterproof tape etc. as reqd.	meter	110	266	29260
21.16	Supplying, Installation, testing and commissioning of SS 304 500 LPH reverse osmos (RO) commercial plant having provision to adjust TDS, UV disinfection and automatic back washing capable for treatement of water having TDS upto 500 ppm with raw water feed pumpset, Pressure Sand Filter, Activated Carbon Filter (ACF), Antiscalant Dosing System, Micron cartridge Filter with housing, RO System, SS Vertical Centrifugal Multistage high pressure pump set, reverse osomosis membrane with TFC Polyamide, UV System SS304 500 LPH, Pressure gauges, Rotameter, Conductivity meter, Level Switch, Pressure switches, Control Panel, Product Water Tank complete with all accessories required to achieve parameters as per technical specification attached i/c control panel, connection with CPVC pipe from raw water tank and filterd water tank with water level controller,control valves and other accessories as per OEM etc. as required.	Job	3	486756.00	1460268

21.17	Supplying, Installation, testing and commissioning of 2 TR air/water cooled reciprocating B-PHE type skid mounted chiller plant suitable to deliver outlet drinking water temperature upto 10 degree centigrade operating on 3 phase 415 V,50 HZ AC supply complete with reciprocating compressor having high pressure/low pressure cut out with display, chilled water flow failure trip, digital temperature controller, compressor & pump overload trip, under voltage protection/over voltage protection/single phase preventor/reverse phasing preventor, fully automatic standard control panel as per OEM, condenser with inner grooved copper tube and corrosive preventive blue fins, brazed type plate heat exchanger, thermostatic expansion valves, inter connecting refrigerant copper piping and structural stand for compressor, condenser, liquid receiver and chiller complete with pressure testing with nitrogen for leakage test, vacuum test and fully charged with green refrigerant gas into chiller and refrigerant piping to achieve required outlet water temperature as per technical specification attached With all accessories i/c inter connecting pipe lines for inlet from filtered water tank complete with suitable valves duly insulated and water level controller as per OEM standard practice etc. as required.	Job	3	138414.00	415242
21.18	Supplying, Installation, testing and commissioning of PVC water tank with 3 layer capacity 2000 litre etc as required	Each	3	34604.00	103812
	<b>Total S.H.-XXI Water Supply, Drainage Pumps &amp; Water Treatment Equipments</b>				
22	<b>S.H.-XXII Sewage Treatment Plant (MBR Technology)</b>				
22.1	Designing, Supplying, installing, testing & commissioning of fully automatic MBR based Sewage Treatment Plant of 160 KLD which included preparation of Drawings and got approval from Engineer-in-charge before execution of work for the following duty:				
	Nature of effluent - Domestic Sewage from toilet, kitchen waste water, domestic Laundry waste (if any) shall be discharged into the STP. Design to take consideration of same.				
	INLET EFFLUENT CHARACTERISTICS				
	pH - 6.5 – 8.5				
	BOD - 500 Mg/L				
	S. Solids - 250 Mg/L				
	COD - 750 Mg/L				
	Oil & Grease - 50 Mg / L (after oil and grease trap)				

	<b>DISCHARGE EFFLUENT CHARACTERISTICS AFTER TREATMENT</b>				
	pH - 6.0 – 8.0				
	BOD - Less than 5 Mg/L				
	S. Solids - Less than 50 Mg/L				
	COD - Less than 20 Mg/L				
	Oil & Grease - below detectable level				
	Turbidity - Less than 1 NTU				
	E coli Removal - below detectable level				
	Above STP plant includes all accessories like SS-304 Screen bars, various pumps, Air Blowers, Filters, Softeners, Sludge handling system, UV Disinfectant system, Membranes, Diffusers, "C" Cals Heavy duty MS Pipes, SS Heads with accessories, Electrical panels, cabling etc. as required to complete the work.				
	The Switchboard shall be complete with all interconnections, risers, internal wiring, labels etc complete as required. Electric Panel -1 No.				
	Supplying & laying of following 1100 volt grade XLPE insulated PVC sheathed copper conductor armoured cables as per specification in existing trenches, cable trays, ducts, clamped to wall with suitable clamps including providing and fixing of all fixing accessories, connecting, testing and commissioning. Lot-1				
	Electrical Works for STP as above	Set	1	8821576.00	8821576
22.2	Installation of filter feed pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	16170.00	16170
22.3	Installation of Submersible pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	5000.00	5000
22.4	Installation of Sewage sump pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	7200.00	7200
22.5	Installation of Hyd system for Domestic water pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	21200.00	21200
22.6	Installation of Hyd system for Irrigation water pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	13000.00	13000
22.7	Installation of Hyd system for Flushing water pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	11960.00	11960
22.8	Installation of Hyd system for Domestic water pump i/c connecting with water pipelines and testing, commissioning etc as required.	Set	1	12348.00	12348
	<b>Total S.H.-XXII Sewage Treatment Plant (MBR Technology)</b>				

23	<b>S.H.-XXIII VRF/VRV AC SYSTEM</b>				
23.1	<b>OUT DOOR UNITS:</b>				
23.1.1	<p>Supplying, Installation, Testing &amp; Commissioning of Modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling having 100% hermetically sealed inverter type twin Rotary/Scroll Compressor(s), minimum two compressors (with individual separate PCB) for above 14HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R-410-A Refrigerant or equivalent, vibration Isolators with suitable foundation etc. complete as required. To have better efficiency condenser fan shall be capable to operate at different speed with respect to load. The unit shall deliver the rated capacity and in confirmation as per IS 18728:2024 and CPWD Specifications and work even at 50°C ambient temperature without tripping. The system shall be able to deliver 100% of the rated capacity upto 39 0C. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply and BMS compatible. The unit shall be filled with first charge of the refrigerant and ready for use as required. The condenser should be coated with a hydrophilic film to prevent water accumulation on the surface of the heat exchanger, enhance water dispersion, and reduce the risk of degradation, thereby improving overall performance and durability. The Indian Seasonal Energy Efficiency Ratio (ISEER) of the unit shall be as per Energy Conservation and Sustainable Building Code (ECSBC) 2024 as below and complete as per CPWD specification, connections, inter connections etc. as required. (For capacity 40 and 70 ISEER 6.6 for ECSBC+ Building) For Cooling).</p>				
a)	6 HP to 8 HP	per HP	6.00	22343.00	134058
b)	10 HP to 12 HP	per HP	18.00	21422.00	385596
c)	14 HP to 22 HP	per HP	28.00	20385.00	570780
23.2	<b>VRV/VRV INDOOR UNITS:</b>				
23.2.1	<b>INDOOR UNIT-CASSETTE TYPE</b>				
	<p>Supplying, Installation, Testing and Commissioning of following minimum capacity 4-way compact VRV/VRV Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 0C DB and 19 0C WB temperature. (Make will be same as of Outdoor)</p>				
(i)	0.8 TR	Each	42	25122.00	1055124
(ii)	1.2 TR	Each	28	39950.00	1118600
(iii)	1.6 TR	Each	15	39950.00	599250

23.2.2	Supplying, Installation, Testing and Commissioning of following minimum capacity 4 way Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan/ dynamically balanced blower, multispeed motor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration Isolation, Corded remote control etc., suitable for operation on single phase 230 V ± 10%, 50Hz AC supply, complete, as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement in auto mode. The cooling capacity of indoor unit will be at air inlet conditions of 27 0C DB and 19 0C WB temperature. (Make will be same as of Outdoor)				
(i)	2.0 TR	Each	9	39734.00	357606
(ii)	2.4 TR	Each	8	40814.00	326512
(iii)	2.6 TR	Each	17	40814.00	693838
(iv)	3.6 TR	Each	38	44269.00	1682222
(v)	4.1 TR	Each	3	45781.00	137343
23.3	<b>INDOOR UNIT-DUCTABLE TYPE</b>				
23.3.1	Supplying, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted high ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The cooling capacity of indoor unit will be at air inlet conditions of 27 0C DB and 19 0C WB temperature. (Make will be same as of Outdoor) High Static Ductable units (minimum 78 pascal external static pressure)				
(i)	5.5 TR	Each	10	74394.00	743940
(ii)	8.0 TR	Each	20	85191.00	1703820
23.3.2	Supplying, Installation, Testing and Commissioning of following minimum capacity and external static pressure VRF/VRV ceiling mounted mid high static ductable type Indoor unit equipped with washable synthetic media pre filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration Isolators, drain pan, drain pump, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The Indoor units must shut down upon receiving a signal from the BMS System/Fire Signals. The system shall be capable to adjust air flow as per room requirement automatically. The cooling capacity of indoor unit will be at air inlet conditions of 27 0C DB and 19 0C WB temperature. (Make will be same as of Outdoor) High Static Ductable units (minimum 49 to 77 pascal external static pressure)				

(i)	4.0 TR	Each	10	45997.00	459970
(ii)	3.2 TR	Each	6	40166.00	240996
23.4	<b>VRV/VRF TFA INDOOR UNITS:</b>				
23.4.1	Supply, installation, testing and commissioning of mentioned capacity VRF Ductable TFA type indoor air conditioners ceiling suspended chilled water double skin type horizontal/vertical TFAs of following capacity, IE3 motor efficiency or better made of min 25mm thick panels complete evaporator with coil, fan and fan motor, fresh air inlet/outlet control panel with cordless remote control, drain pump, cabling, power cabling, vibration isolation, necessary galvanized steel supports etc. as per specifications and drawings. (Capacity upto +5% can be considered in case of non availability of above mentioned indoor units.)				
(i)	4.0 TR 635cfm TFA unit	Each	6	118713.00	712278
(ii)	6.3 TR 980cfm TFA unit	Each	13	119620.00	1555060
(iii)	7.9 TR 988cfm TFA unit	Each	5	119620.00	598100
23.5	<b>MAIN INTELLIGENT PROGRAMMABLE CENTRAL CONTROLLER:</b>				
23.5.1	Supply, installation, testing & commissioning of Central Controller of digital type of latest generation capable of controlling of all VRV/VRF equipments/AHU/ IDUs complete with necessary hardware, accessories etc. to perform the following functions: Control of IDUs with monitoring of vital parameters such as temperature sensing & setting, ON/OFF, status.scheduling programme, Operation of units in individually or in group, Fault indication with Alarm, scheduling of units, the central controller will be complete including all hardware & software (including wiring, programming) suitable to perform above function etc as required.	Each	3	128488.00	385464
23.6	<b>Y-JOINTS:</b>				
23.6.1	Supplying, Installation, Testing and Commissioning of Y/T/Multi Joints. Joints shall be of same Original Equipment Manufacturer (OEM) make as of ODUs and IDUs				
i)	Indoor Units	Set	190	4535.00	861650
ii)	Outdoor Multi Joint	Set	60	8098.00	485880
23.7	<b>REFRIGERANT PIPING:</b>				
23.7.1	Supplying, Installation, testing and commissioning including vacuumization and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of 19 mm thick insulation as given below for Suction and Liquid lines, all accessories as per specifications etc. as required :				
(i)	6.4mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	165	256.00	42240
(ii)	9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	760	346.00	262960
(iii)	12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	440	487.00	214280
(iv)	15.9 mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	540	615.00	332100
(v)	19.1 mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	1200	739.00	886800
(vi)	22.2 mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	310	904.00	280240
(vii)	28.6 mm dia (OD) (Soft drawn) with tube thickness 1.2mm	Metre	300	1157.00	347100
(viii)	34.9 mm dia (OD) (Soft drawn) with tube thickness 1.62mm	Metre	720	1286.00	925920
(ix)	41.3 mm dia (OD) (Soft drawn) with tube thickness 1.62mm	Metre	430	1368.00	588240
23.8	<b>AIR HANDLING UNIT KIT:</b>				

23.8.1	Supplying, Installation, testing and commissioning of Factory built ceiling suspended chilled water double skin type horizontal/vertical air handling units of following capacity, made of 25mm thick panels consisting of pre plasticized G.I. casing of thickness 0.8mm outside layer and 0.8 mm inside layer with Polyurethane Foam (PUF) insulation factory injected between them by injection moulding machine, complete with blower section with blower suitable for static pressure as required, minimum 2 bend PVC eliminators, cooling coil section with aluminium finned copper tubes (tubes thickness not less than 0.5mm) cooling coil of 4 row deep, filter section with 50mm thick metal viscous/ washable synthetic type air prefilters, belt drive package with Totally Enclosed Fan Cooled (TEFC) drive motor of efficiency class IE3 suitable for 415 ± 10% volts, 50Hz, 3 Phase AC supply suitably designed for Variable Frequency Drive (VFD) applications, drain connections, stainless steel (18G) drain pan with PUF insulation, 150 mm dia. dial type pressure gauges (2 nos.) and industrial type thermometres (2 nos.) at the inlet and outlet of coil, auto purge valve wherever required, necessary vibration Isolation arrangement, noise level shall not exceed 70 dB. AHU shall be AHRI/Eurovent certified, fan shall be AMCA certified etc. Complete as per CPWD specification/drawings and as directed by Engineer-in-Charge. (Total static pressure considered is 50 mm WG).				
(i)	10000 CFM	Each	1	254530.00	254530
23.9	<b>DRAIN PIPING :</b>				
23.9.1	Providing and fixing of uPVC drain pipe suitable for minimum 4 Kg/Sq compressure rating pressure rating ,complete with 6mm thick closed cell XLPE insulation of class 'O' fire rating having uniform density not less than 25 kg/cum (Aluminium laminated face), fittings, supports, valves as per specifications & drawings with any other item required to make the system complete. (Nominal Diameters of Pipes in mm as indicated below:-)				
(i)	25 mm dia with min 9mm insulation	Metre	350	237.00	82950
(ii)	32 mm dia with min 9mm insulation	Metre	675	313.00	211275
(iii)	40 mm dia with min 9mm insulation	Metre	170	333.00	56610
(iv)	50 mm dia with min 9mm insulation	Metre	20	350.00	7000
(v)	65 mm dia with min 9mm insulation	Metre	35	410.00	14350
23.10	Providing, fixing, testing and commissioning of 25 mm dia Bronze Non-Return Valve (NRV) in the condensate drain pipe connection of each Indoor Unit (IDU) of the air-conditioning system, complete with all fittings, jointing materials, supports and accessories as required, in accordance with approved drawings and specifications, etc. complete in all respects as reqd.	Each	200	981.00	196200
23.11	<b>SHEET METAL DUCT:</b>				
23.11.1	Supplying, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/ round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports, bends, transitions, reducers, end caps, collars etc as required complete in all respect in confirmation to IS : 655 and approved drawings and specifications of following sheet thickness complete as required.				
(i)	Thickness 0.63 mm sheet	Sqm	30	1191.00	35730
(ii)	Thickness 0.80 mm sheet	Sqm	10	1382.00	13820
(iii)	Thickness 1.00 mm sheet	Sqm	5	1488.00	7440
(iv)	Thickness 1.25 mm sheet	Sqm	5	2013.00	10065
23.12	Installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and				

	<i>specifications of following sheet thickness complete as required.</i>				
(i)	<i>Thickness 0.63 mm sheet</i>	<i>Sqm</i>	<i>65</i>	<i>320.00</i>	<i>20800</i>
(ii)	<i>Thickness 0.80 mm sheet</i>	<i>Sqm</i>	<i>65</i>	<i>320.00</i>	<i>20800</i>
(iii)	<i>Thickness 1.00 mm sheet</i>	<i>Sqm</i>	<i>5</i>	<i>181</i>	<i>905</i>
(iv)	<i>Thickness 1.25 mm sheet</i>	<i>Sqm</i>	<i>2</i>	<i>265.00</i>	<i>530</i>
23.13	<i>Supply, installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.</i>				
(i)	<i>Thickness 0.63 mm sheet</i>	<i>Sqm</i>	<i>10</i>	<i>1213.00</i>	<i>12130</i>
(ii)	<i>Thickness 0.80 mm sheet</i>	<i>Sqm</i>	<i>5</i>	<i>1415.00</i>	<i>7075</i>
23.14	<i>Installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.</i>				
(i)	<i>Thickness 0.63 mm sheet</i>	<i>Sqm</i>	<i>10</i>	<i>327.00</i>	<i>3270</i>
(ii)	<i>Thickness 0.80 mm sheet</i>	<i>Sqm</i>	<i>10</i>	<i>327.00</i>	<i>3270</i>
23.15	<i>Supplying, fixing, testing commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc, in accordance with approved shop drawings and specifications complete as required.</i>	<i>Sqm</i>	<i>10</i>	<i>7580.00</i>	<i>75800</i>
23.16	<i>Supplying, Fixing, installation, testing and commissioning of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>	<i>Sqm</i>	<i>30</i>	<i>9623.00</i>	<i>283878.5</i>
23.17	<i>Supplying &amp; fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers complete in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>	<i>Sqm</i>	<i>6</i>	<i>6285.00</i>	<i>37710</i>
23.18	<i>Supplying, Fixing, installation, testing and commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring &amp; removable core in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>	<i>Sqm</i>	<i>18</i>	<i>12841.00</i>	<i>231138</i>
23.19	<i>Supplying, Fixing, installation, testing and commissioning of Return air diffusers of powder coated aluminium without volume control dampers with anti smudge ring &amp; removable core in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>	<i>Sqm</i>	<i>18</i>	<i>8595.00</i>	<i>154710</i>
23.20	<i>Supplying, Fixing, installation, testing and commissioning of thermal insulated flexible duct of following sizes duly supported at regular interval as per site requirement etc. in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>				
(i)	<i>200 mm dia</i>	<i>mtr</i>	<i>100</i>	<i>633.00</i>	<i>63300</i>
(ii)	<i>100 mm dia</i>	<i>mtr</i>	<i>200</i>	<i>509.00</i>	<i>101800</i>
23.21	<i>Supplying, Fixing, testing and commissioning of fire dampers of minimum 90 minutes fire rated in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring, the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal and, in confirmation to IS and as per specifications complete etc. as required.</i>				
(i)	<i>Fire Damper</i>	<i>Sqm</i>	<i>25</i>	<i>11355.00</i>	<i>283875</i>

(ii)	Actuator	each	10	10645.00	106450
23.22	Supplying and fixing of acoustic lining of supply air duct and plenum with 25 mm thick resin bonded glass wool having density of 32 kg/m <sup>3</sup> , with 25 mm X 25 mm GI section of 1.25 mm thick, at 600 mm centre to centre covered with Reinforced Plastic tissue paper and 0.5 mm thick perforated aluminium sheet fixed to inside surface of ducts with cadmium plated nuts, bolts, stick pins, CPRX compound in confirmation to SMACNA/IS and as per specifications complete etc. as required.	Sqm	450	890.00	400500
23.23	Supplying, fixing acoustic lining on wall and ceiling of AHU rooms with 50mm thick, density 32 kg/cu.m resin bonded glass fiber insulation friction fixed in 610mm x 610 mm frame work made of 25X50X50X50X25 mm made out of 0.6mm thick GI sheet U shaped channel and covered with reinforced fiber glass tissue and finished with 0.80 mm perforated aluminium sheet etc. complete as required and as per specifications.	Sqm	50	1057.00	52850
23.24	Supplying and fixing of following thickness duly laminated aluminium foil of mat finish closed cell Nitrile rubber (Class "O") insulation on existing duct after applying suitable adhesive for Nitrile rubber. The joints shall be sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.				
(i)	19 mm	Sqm	2275	810.00	1842750
23.25	Supplying and fixing Installation, Testing and commissioning of 50mm thick aluminium foil faced resin bonded fibre glass insulation (on duct) of density 24 kg/cu.m or mineral wool insulation(non combustible) of density 44 kg/cu m after applying two coats of cold setting adhesive (CPRX compound) sealing all joints with self adhesive aluminium tape & covering with 0.63mmx19mm GI wire mesh netting & butting all joints and laced with GI wire complete and finally covered with one layer of tar felt stuck with hot bitumen as per specifications and as required. (for outdoor applications)	Sqm	100	629	62900
23.26	Supplying, installing and testing of extruded Aluminium Louvers with bird screen in accordance with approved shop drawings and specifications complete as required.	Sqm	6	4248.00	25488
23.27	Supply, installation, testing & commissioning of Constant Volume Flow Limiters, Mechanically System Powered with High-quality plastic control damper and casing stainless steel, leaf spring & silicon free oscillation damper. It should be Factory Calibrated and can be Adjusted at Site with Independent of orientation in installation. Control range should be ± 10 % of Set Flow. complete as per specifications. etc complete as required.				
(i)	50 -100 CFM	Each	100	3651.00	365100
23.28	Supplying, fabricating, installing and testing of fire retardent double Canvas Flexible Connection for constructed of standard material as per the drawings/specifications.	Each	13	2528.00	32864
23.29	Supplying, fixing testing commissioning of Round supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core.	Sqm	5	11233.00	56165
23.30	<b>VRV/VRF ELECTRICAL WORK</b>				
23.30.1	Design, fabrication, supply, installation, testing and commissioning of CPRI approved LT Panel/Sub-Distribution Panel for VRV Outdoor Units, suitable for 415V ±10%, 3-Phase, 4-Wire, 50 Hz AC supply system, fabricated from CRCA sheet steel of minimum 2.0 mm thickness for load-bearing structural members and 1.6 mm thickness for doors, covers and partitions, in cubicle compartmentalized, floor-mounted, free-standing, dust and vermin-proof construction, DMC/ SMC bus bar supports, with short circuit withstand capacity of 31 MVA for 1 Sec. It shall be provided with 9-tank pre-treatment process followed by powder coating of approved shade. All sheet steel parts shall undergo anti-corrosive treatment prior to painting. The panel				

	shall be complete with suitably rated incoming MCCB, outgoing MCCBs/MPCBs for individual VRV outdoor units, copper busbars of suitable current rating, digital multifunction meter, R-Y-B phase indication lamps, FRLSH/HFFR 2.5 sqmm copper control wiring, surge protection device (SPD Type-II), earthing terminals, cable alleys, 3mm thick gland plates, internal wiring, neutral link, ferruling and all accessories required for safe operation and protection of VRV outdoor units				
	The panel shall be provided with cable entry provisions from both top and bottom. Two continuous copper earthing strips of minimum size 25 mm × 5 mm shall be provided throughout the width of the panel. Suitable lifting hooks shall be provided for handling and erection of large panels. The panel shall have a minimum degree of protection of IP-54 and shall conform to IEC 61439-1 & IEC 61439-2, relevant IS standards and CPWD General Specifications. The panel shall be complete with danger notices, name plates, hardware, interconnections, testing and commissioning, complete in all respects etc as required. bottom base channel of MS section not less than 100 mm x 75 mm x 5 mm thick				
<b>(a)</b>	<b>ODU Panel at Terrace (left Side)</b>				
	Incomer (1 No.):				
	1 No. 800 Amp FP EDO Air Circuit Breaker fault breaking 50 KA (Ics = Icu) up to 433 V fitted with interlock door, automatic safety shutters, mechanical ON/ OFF and service/ test/ isolated positions indication and frame earthing contact confirming to IS 1397-2:1993 as amended up to date complete with microprocessor release (EMI & EMC certified) for O/L, S/C & E/F protection complete as required.				
	Metering:				
	96mm x 96mm Digital type ammeter with suitable rated CTs & inbuilt ASS				
	96mm x 96mm Digital type Voltmeter protected by MCBs with inbuilt VSS				
	Set of LED indication lamp protected by SPMCB "c" curve for RYB phases, ON / OFF indication.				
	<b>Bus Bars:</b>				
	1000 Amp TPN Aluminium busbar with coloured heat shrinkable sleeve and i/c DMC/ SMC bus bar cross section, side supports & their spacing, etc. for withstanding fault level of 31 MVA for 1 sec				
	OutGoings-				
	Each O/G shall have on/off LED indicator protected with 2amp SPMCB "c" curve .				
	Each O/G shall have Digital Multifunction Meter having 30 day memory and parameters of voltage, current, active power (kW), reactive power (KVAh), apparent power (KVA), power factor, phase angle, frequency, power demand, active energy (kWh), reactive energy (KVAh), apparent energy (KVAh), voltage & current harmonic etc compatible with PC through RS 485 communication cable.				
	4 Nos. 4 pole 100A MCCB (Ics=Icu) with spreader link & rotary handle.				
	12 Nos. 4 pole 63A MCCB				
	1 Nos. 32A MCB spare	Set	1	324780.00	324780
<b>(b)</b>	<b>ODU Panel at Terrace (Right Side)</b>				
	Incomer (1 No.):				

	<i>1 No. 800 Amp FP EDO Air Circuit Breaker fault breaking 50 KA (Ics = Icu) up to 433 V fitted with interlock door, automatic safety shutters, mechanical ON/ OFF and service/ test/ isolated positions indication and frame earthing contact confirming to IS 1397-2:1993 as amended up to date complete with microprocessor release (EMI &amp; EMC certified) for O/L, S/C &amp; E/F protection complete as required.</i>				
	<i>Metering:</i>				
	<i>0-500 Volts, digital Voltmeter and shall be protected by 2Amps MCBs.</i>				
	<i>0-800 Amps digital Ammeter and 800/5A, 10VA, CL-1 CTs and selector switch.</i>				
	<i>R,Y,B,On/Off LED Indicator protected with 2amp SPMCB "c" curve</i>				
	<b>Bus Bars:</b>				
	<i>1000 Amp TPN Aluminium busbar with coloured heat shrinkable sleeve and i/c DMC/ SMC bus bar cross section, side supports &amp; their spacing, etc. for withstanding fault level of 31 MVA for 1 sec.</i>				
	<i>OutGoings-</i>				
	<i>Each O/G shall have on/off LED indicator protected with 2amp SPMCB "c" curve .</i>				
	<i>Each O/G shall have Digital Multifunction Meter having 30 day memory and parameters of voltage, current, active power (kW), reactive power (KVAh), apparent power (KVA), power factor, phase angle, frequency, power demand, active energy (kWh), reactive energy (KVAh), apparent energy (KVAh), voltage &amp; current harmonic etc compatible with PC through RS 485 communication cable.</i>				
	<i>7 Nos. 4 pole 100A MCCB (Ics=Icu) with spreader link &amp; rotary handle.</i>				
	<i>5 Nos. 4 pole 63 MCCB</i>				
	<i>1 Nos. 32A MCB Spare</i>	<i>Set</i>	<i>1</i>	<i>300850.00</i>	<i>300850</i>
<b>(c)</b>	<b>ODU Panel at Terrace (Right Side)</b>				
	<i>Incomer (1 No.):</i>				
	<i>1 No.150 Amp 4P MCCB fault breaking 25 KA (ICS = Icu upto 433 Vmanually operated, fitted with interlock door, automatic safty shutters, mechanical ON/ OFF and service/ test/ isolated positions indication and frame earthing contact confirming to IS 1397-2:1993 as amended upto date complete with thermomagnetic release (EMI &amp; EMC certified) for O/L, S/C &amp; E/F protection with RS 485 communication port, complete as required.</i>				
	<i>1 Set of phase indicating lamps with 2A Single Pole MCB.</i>				
	<i>1 Set of ON / OFF indicating lamps with 2A Single Pole MCB.</i>				
	<i>1 Set of Three Phase Digital Multi function meter (MFM) with provision of</i>				
	<i>readings of KWH, Amp, Voltage, Frequency, Power Factor and Maximum</i>				
	<i>Demand Recording and inbuilt selector switch with RS 485 port &amp; CT's etc.</i>				
	<i>Shunt trip coil 220 V AC</i>				

	<b>BUS BARS</b>				
	200 Amp TPN ALUMINIUM busbar with coloured heat shrinkable sleeve and i/c DMC/ SMC bus bar cross section, side supports & their spacing, etc. for withstanding fault level of 31 MVA for 1 sec.				
	<b>Out Goings</b>				
	02 Nos. TP+N 100A MCCB				
	01 Nos. TP+N 63 MCCB				
	Panel as described above.	Set	1	58050.00	58050
23.31	<b>CABLES</b>				
	Supplying & laying of following 1100 volt grade XLPE insulated PVC sheathed copper conductor armoured cables including, anchor fastners on wall with suitable clamps, saddles fixing bolts connecting testing and commissioning etc as per specification complete as required.				
(i)	4.0 core 6 Sq mm	Metre	30	1702.00	51060
(ii)	4.0 core 10 Sq mm	Metre	340	2797.00	950980
(iii)	4.0 core 16 Sq mm	Metre	200	4098.00	819600
	<b>TOTAL S.H.-XXIII VRF/VRV AC SYSTEM</b>				
<b>24</b>	<b>S.H.-XXIV MECHANICAL VENTILATION SYSTEM</b>				
24.1	<b>AXIALS FANS</b>				
24.1.1	Supply, Installation, Testing and commissioning of AMCA certified for sound and air performance (FEG) Tube Axial fan complete with tube casing in MS standard construction powder coated, aluminium impeller with adjustable blade angles,vibration isolator and directly coupled TEFC to Sq.cage induction motor, class-F insulation & motor-IE3 (min) suitable for 415V±10%, 50 Hz. 3 phase electric supply complete with required hardware etc. as per specification complete as required.				
(i)	Air Qty. = 1500 CFM				
	Static Pressure = 20mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	4	56738.00	226952
(ii)	Air Qty. = 6000 CFM (lift well)				
	Static Pressure = 25mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	2	86667.00	173334
(iii)	Air Qty. = 7000 CFM (lift well)				
	Static Pressure = 25mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	4	92330.00	369320
(iv)	Air Qty. = 9000 CFM (lift well)				
	Static Pressure = 25mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	6	123972.00	743832
(v)	Air Qty. = 12500 CFM(Lift lobby)				
	Static Pressure = 25mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	2	138721.00	277442
(vi)	Air Qty. = 13500 CFM (STP)				
	Static Pressure = 25mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	2	159775.00	319550
(vii)	Air Qty. = 5000 CFM (Pump Room)				
Insertion : Nil Correction : Nil Omission : Nil AE(P)... / EE..... 453					

	Static Pressure = 25mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	1	72123.00	72123
(viii)	Air Qty. = 19000 CFM (Lift lobby)				
	Static Pressure = 30mm Wg				
	Fan Speed = Not exceeding 1450 rpm	Each	2	225304.00	450608
24.2	<b>INLINE FANS</b>				
24.2.1	Supply, installation, testing and commissioning of AMCA certified for sound and air performance ducted Inline Fans of GSS construction duly powder coated (rectangular box type for upto 20 mm WG SP and circular type for 10 mm WG SP) with centrifugal blower and motor encased in sheet metal casing, canvas connection etc. The Fan motor shall be suitable for operation on 220 V± 10%, 50 Hz, 1 phase AC supply. The Fan assembly shall conform to specifications and in accordance with requirements of drawings and Schedule of Quantities.				
(i)	100 cfm capacity with 10 mm static pressure	Each	2	8920.00	17840
(ii)	400 cfm capacity with 10 mm static pressure	Each	21	14547.00	305487
(iii)	700 cfm capacity with 10 mm static pressure	Each	1	22754.00	22754
(iv)	850 cfm capacity with 15 mm static pressure	Each	12	34985.00	419820
(v)	1000 cfm capacity with 15 mm static pressure	Each	18	38087.00	685566
24.3	<b>PROPELLER FANS</b>				
24.3.1	Supply, Installation, Testing and commissioning of wall mounted propeller type exhaust fans of Axial Flow type with light weight type PVC / aluminium impellers with aerofoil contours for high efficiency and low noise. The fan shall be supplied complete with gravity louvers and suitable for single phase, 230 volts, 50Hz AC. supply Squirrel cage induction motor.				
(i)	225 mm dia	Each	38	16066.00	610508
(ii)	300 mm dia	Each	4	17527.00	70108
(iii)	450 mm dia	Each	4	17527.00	70108
24.4	<b>SHEET METAL DUCT:</b>				
24.4.1	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
(i)	Thickness 0.63 mm sheet	Sqm	50	1191.00	59550
(ii)	Thickness 0.80 mm sheet	Sqm	40	1382.00	55280
24.4.2	Installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
(i)	Thickness 0.63 mm sheet	Sqm	100	360.00	36000
(ii)	Thickness 0.80 mm sheet	Sqm	100	360.00	36000
24.4.3	Supply, installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
(i)	Thickness 0.63 mm sheet	Sqm	20	1213.00	24260
(ii)	Thickness 0.80 mm sheet	Sqm	10	1415.00	14150
24.4.4	Installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes,				

	<i>hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.</i>				
(i)	<i>Thickness 0.63 mm sheet</i>	<i>Sqm</i>	<i>20</i>	<i>548.00</i>	<i>10960</i>
(ii)	<i>Thickness 0.80 mm sheet</i>	<i>Sqm</i>	<i>15</i>	<i>640.00</i>	<i>9600</i>
24.4.5	<i>Supplying, Fixing, installation, testing and commissioning of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>	<i>Sqm</i>	<i>8</i>	<i>9623.00</i>	<i>72172.5</i>
24.4.6	<i>Supplying &amp; fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers complete in confirmation to SMACNA/IS and as per specifications complete etc. as required.</i>	<i>Sqm</i>	<i>14</i>	<i>6285.00</i>	<i>89247</i>
24.4.7	<i>Supplying, installing and testing of extruded Aluminium Louvers with bird screen in accordance with approved shop drawings and specifications complete as required.</i>	<i>Sqm</i>	<i>11</i>	<i>7583.00</i>	<i>83413</i>
	<b>ELECTRICAL PANEL:</b>				
24.5	<i>Design, fabrication, supply, installation, testing and commissioning of LT Panel / Sub-distribution panels fabricated out of 2mm thick for structural members and 1.6mm thick for door and covers CRCA sheet in cubicle compartmentalize free standing floor mounted, dust and vermin proof Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications 2 Nos. earthing terminals shall be provided for all distribution panels. Panels shall be suitable for 415V, 3-phase, 4-wire, 50Hz supply system and lifting hooks shall also be provided in case of large panels. Degree of ingress protection of IP-54.</i>				
24.5.1	<b>Pressurization Fan Starter Panel at Terrace (Academic)</b>				
	<i>Incomer (1 No.):</i>				
	<i>63A, 4 pole MCCB (15 KA)</i>				
	<i>Metering:</i>				
	<i>0-500 Volts, digital Voltmeter and shall be protected by 2Amps MCBs.</i>				
	<i>0-63 Amps digital Ammeter and 63/5A, 10VA, CL-1 CTs and selector switch. Phase indicating lamps and shall be protected by 2Amps MCBs.</i>				
	<i>Bus Bars:</i>				
	<i>63 Amps TP Aluminium busbars, colour coded with heat shrinkable insulation sleeves</i>				
	<i>Out Goings</i>				
	<i>1 nos in each feeder and Auto Manual Selector Switch as required (FAN)</i>				
	<i>4 Nos. 4 pole MPCB DOL Starter for 2.2 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)</i>	<i>Set</i>	<i>1</i>	<i>255800.00</i>	<i>255800</i>
24.5.2	<b>Pressurization Fan Starter Panel at Terrace (Academic)</b>				
	<i>Incomer (1 No.):</i>				
	<i>40A, 4 pole MCCB (15 KA)</i>				
	<i>Metering:</i>				
	<i>0-500 Volts, digital Voltmeter and shall be protected by 2Amps MCBs.</i>				
	<i>0-40 Amps digital Ammeter and 40/5A, 10VA, CL-1 CTs and selector switch. Phase indicating lamps and shall be protected by 2Amps MCBs.</i>				
	<i>Bus Bars:</i>				

	63 Amps TP Aluminium busbars, colour coded with heat shrinkable insulation sleeves				
	Out Goings				
	1 Nos. 4 pole MPCB DOL Starter for 5.5 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)				
	2 Nos. 4 pole MPCB DOL Starter for 2.2 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)	Set	1	127900.00	127900
<b>24.5.3</b>	<b>Pressurization Fan Starter Panel at Terrace (Hostel)</b>				
	Incomer (1 No.):				
	63A, 4 pole MCCB (15 KA)				
	Metering:				
	0-500 Volts, digital Voltmeter and shall be protected by 2Amps MCBs.				
	0-63 Amps digital Ammeter and 63/5A, 10VA, CL-1 CTs and selector switch. Phase indicating lamps and shall be protected by 2Amps MCBs.				
	Bus Bars:				
	63 Amps TP Aluminium busbars, colour coded with heat shrinkable insulation sleeves				
	Out Goings				
	2 Nos. 4 pole MPCB DOL Starter for 7.5 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)				
	3 Nos. 4 pole MPCB DOL Starter for 3.7 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)	Set	2	152500.00	305000
<b>24.5.4</b>	<b>Laundry Fan Starter Panel (Hostel)</b>				
	Incomer (1 No.):				
	32A, 4 pole MCCB (15 KA)				
	Metering:				
	0-500 Volts, digital Voltmeter and shall be protected by 2Amps MCBs.				
	0-32 Amps digital Ammeter and 32/5A, 10VA, CL-1 CTs and selector switch. Phase indicating lamps and shall be protected by 2Amps MCBs.				
	Bus Bars:				
	40 Amps TP Aluminium busbars, colour coded with heat shrinkable insulation sleeves				
	Out Goings				
	2 Nos. 4 pole MPCB DOL Starter for 1.1 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)	Set	2	101600.00	203200
<b>24.5.5</b>	<b>Fan Starter Panel (STP)</b>				
	Incomer (1 No.):				
	40A, 4 pole MCCB (15 KA)				
	Metering:				
	0-500 Volts, digital Voltmeter and shall be protected by 2Amps MCBs.				
	0-40 Amps digital Ammeter and 40/5A, 10VA, CL-1 CTs and selector switch. Phase indicating lamps and shall be protected by				

	2Amps MCBs.				
	Bus Bars:				
	63 Amps TP Aluminium busbars, colour coded with heat shrinkable insulation sleeves				
	Out Goings				
	2 Nos. 4 pole MPCB DOL Starter for 5.5 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (FAN)				
	1 Nos. 4 pole MPCB DOL Starter for 2.2 kw ON/OFF indication lamps and push buttons, potential free contacts for remote operation in each feeder and Auto Manual Selector Switch as required (Pump room FAN)	Set	1	129600.00	129600
	<b>TOTAL S.H.-XXIV MECHANICAL VENTILATION SYSTEM</b>				
	<b>Electrical Estimated Cost</b>				<b>163042087</b>

# **PART - E**

**(PRICE BID)**



# Central Public Works Department



NIT NO.: *03/EE(C)-II/SE-Vadodara/2026-27*

**NAME OF WORK:-** *Construction of Academic Building, Student Hostel & Electric Substation along with all necessary infrastructure facilities for IIIT-Vadodara at Dumad, Vadodara.SH: Execution of balance work at IIIT Vadodara*

## PRICE BID

Name of the Contractor

Name of Component	Estimated Cost	Percentage Above or Below the Estimated Cost	% in Figures	Total Cost
Civil Work (Major Component)	Rs. <b>18,51,21,280/-</b>			
E & M Services (Minor Component)	Rs. <b>16,30,42,087/-</b>			
<b>GRAND TOTAL</b>	Rs. <b>34,81,63,367/-</b>			
<b>GRAND TOTAL IN WORDS</b>	---			