

SCHEDULE OF QUANTITIES (BOQ)

Name of Work : Proposed Construction of G+6 floors Residential Building Comprising 36 flats for Officers in Scale IV & V at Rewa Parisar, Bhopal

Sr. No	DESCRIPTION OF ITEM	QTY.	UNIT	RATE	AMOUNT
PART-A	CIVIL WORKS				
	Surface Dressing for Site Levelling etc.				
A.1	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth upto 50 m and lift upto 1.5 m, as directed by Engineer-in- Charge: All kinds of soil	1258.00	Sqm		
	Excavation in All Kind of Soil, Soft Murrum, Hard Murrum				
A.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.				
a	All Kind of Soil	849.00	Cum		
A.3	Extra for every additional lift of 1.5 m or part thereof in excavation /banking excavated or stacked materials.	226.00	Cum		
A.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 lift.	159.00	Cum		

A.5	Disposal of moorum/building rubbish/ malba/ similar unserviceable, dismantled or waste material by mechanical transport including loading, transporting, unloading to approved municipal dumping ground for lead upto 10 km for all lifts, complete as per directions of Engineer-in-charge.	690.00	Cum		
	Sand Filling				
A.6	Supplying and filling in plinth with sand under floors, including watering,ramming, consolidating and dressing complete.	78.00	Cum		
	Barricading				
A.7	Providing and erecting in position 3.00 to 6.00 metre high temporary barricading at site; using minimum 50x50x2.90 mm (or as required as per structural drawing of Architects/Engineer-in-charge) hollow MS tube posts/ horizontal members/ bracings covered with 1.63 mm thick MS corrugated sheet. The sheet shall be fixed with 30x5 mm MS flat by suitable welding / riveting. MS channel ISLC 75 @ 5.70 kg/m, 50 cm long shall be provided at the bottom having oval shaped holes of size 50x25 mm at both ends with 50 cm long MS angle 40x40x6 mm bracing.				
	Suitable arrangement shall be made to fix the barricading to avoid from overturning by providing 250 mm long expansion fasteners at both ends.				
	The work shall be executed as per drawing/ direction of Engineer-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Engineer-in- Charge. The barricading provided shall be retained in position at site continuously i/c shifting of barricading from one location to another location as many times as required during the execution of the entire work till its completion. Rate include its maintenance for damages, painting, all incidentals, labour, materials, equipments and works required to execute the job. The barricading shall not be removed without prior approval of Engineer-in-Charge				
	(Note :- One time payment shall be made for providing barricading from start of work till completion of work i/c shifting. The barricading provided shall remain to be the property of the contractor on completion of the work).	1913.00	Sqm		

	Nylon Safety Nets				
A.8	Providing and fixing Scaffolding net of required width made of high density Polyethylene UV stabilized knitted on warp knitting machines having density 100 gram / sqm and shading coefficient minimum 75% around the construction site/ for vertical extension as per requirement including fastening/tying with building / scaffolding pipes or with any other fixtures etc. complete as per direction of Engineer-in-Charge. (One time payment shall be made for providing Scaffolding net from start of work till completion of work including shifting if any. The Scaffolding net shall be the property of the contractor on completion of the work)	978.00	Sqm		
	Anti Termite Pre-Construction Treatment				
	Providing and injecting chemical emulsion for PRE-CONSTRUCTION anti-termite treatment and creating a chemical barrier under around the column pits, wall trenches, basement excavation, top surface of plinth filling, junction of wall and floor, along the external perimeter etc. complete (Plinth area of the building at ground floor shall be measured)				
A.9	With Chlorpyrifos /Lindane EC 20% with 1% Concentration	884.00	Sqm		
	Make: PCI / PECOPP / GODREJ HI-CARE				
	Plain Cement Concrete (PCC: Volumetric Machine Mix)				
A.10	Providing and laying in position machine mix PCC (plain cement concrete) under foundation, plinth protection, floor slabs, grade slabs, coping, sill concrete etc.including transporting, laying, compacting, finishing the surface in line, level and plumb as per requirement and curing etc. complete. The rate to include necessary formwork, centring, shuttering, complete in all respects and execution of work at all heights and location with required leads and lifts complete as directed by Engineer in charge.				
(a)	PCC 1:4:8 using 40 mm and downgrade metal (Coarse Aggregate).				
(i)	Levelling Course PCC Under Column Footing Foundations etc.	57.00	Cum		
(ii)	Under Floors, Coping, Sills etc.	194.00	Cum		

(b)	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)				
	Under Floors, Coping, Sills etc	4.00	Cum		
	Ready Mixed Concrete (RMC) for RCC Work in Foundation and Plinth				
A.11	Providing and laying in position (M25) Ready mixed Reinforced Cement Concrete for various RCC structural elements in any shape and design as per structural drawings and as directed <i>in foundation and plinth</i> including Columns footings, Stub Columns, Raft, foundation, Plinth Bams, Floor Slabs etc. with cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer having continuous agitation, including pumping of R.M.C. from transit mixer to site of laying, spreading, compacting, finishing in line and level as per site requirements, including all lead, lift and cost of curing etc. complete.				
	The Rate to include necessary formwork, centring, shuttering, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability complete in all respects and execution of work at all heights and location with required leads and lifts etc. as directed by Engineer-in-charge				
	Note: Cement content considered in this items is @ 330kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
(i)	Column Footing, Raft Slab or any other type of RCC foundation.	382.00	Cum		
(ii)	Columns from Footing Top to Plinth level (Stub Columns)	20.00	Cum		
(iii)	Plinth Beams/Tie Beams	57.00	Cum		
(iv)	RCC Walls upto Plinth Level.	7.00	Cum		
A.12	Add for using extra cement or Recovery for less cement consumed in the items of Design Mix over and above the specified cement content therein.	93.00	Qtl		

A.13	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete up to plinth level.				
(i)	Thermo-Mechanically Treated bars of grade Fe-500 D or more.	36828.00	Kg		
	(Make: SAIL , TISCO,Rashtriya Ispat Nigam Ltd. & JISCO)				
A.14	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
(i)	In Cement Mortar 1:6 (1 cement : 6 Coarse sand)	41.00	Cum		
A.15	Providing and laying in position (M25) Ready mixed Reinforced Cement Concrete for various RCC structural elements in any shape and design as per structural drawings and as directed in Superstructure including Columns footings, Stub Columns, Raft, foundation, Plinth Bams, Floor Slabs etc. with cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer having continuous agitation, including pumping of R.M.C. from transit mixer to site of laying, spreading, compacting, finishing in line and level as per site requirements, including all lead, lift and cost of curing etc. complete.				
	The Rate to include necessary formwork, centring, shuttering, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability complete in all respects and execution of work at all heights and location with required leads and lifts etc. as directed by Engineer-in-charge. (Rate Excluding cost of reinforcement). (Above Plinth level and upto Floor Five Level).				
	Note: Cement content considered in this items is @ 330kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
(i)	Columns, Pillars, Piers, Abutments, Posts, Struts etc. (Above Plinth level and upto Floor Five Level)	378.00	Cum		

(ii)	Floor Beams, Sloping Beams, Lintels, Cantilever Beams / Brackets etc. as per Structural Drawings. (Above plinth level and upto floor five level)	489.00	Cum		
(iii)	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc. (Above plinth level and upto floor five level).				
A.16	Above 100 mm	768.00	Cum		
(i)	Chajjas, Flat or Sloping of any thickness (Above plinth level and upto floor five level).	3.00	Cum		
(ii)	Staircase Waist Slabs, Steps, Landings as per design and Drawings. (Above plinth level and upto floor five level).	54.00	Cum		
(iii)	RCC Walls for Sump well, OH Water Storage Tank, Septic Tanks etc. of all thickness upto Floor five level. (Lift Shaft)	51.00	Cum		
A.17	Extra for R.C.C./ B.M.C/ R.M.C. work above floor V level or each four floors or part thereof.	589.00	Cum		
A.18	<u>Steel reinforcement for R.C.C. work</u> including straightening, cutting, bending, placing in position and binding all complete <u>above plinth level.</u>				
	Thermo-Mechanically Treated bars of grade Fe-500 D or more.	358037.00	Kg		
	(Make: SAIL , TISCO,Rashtriya Ispat Nigam Ltd. & JISCO)				
A.19	Providing and fixing parallel threaded couplers conforming to IS code on "Reinforcement Couplers for Mechanical Splices of Bars for Concrete Reinforcement - Specification", to reinforcement bars including threading, enlargement at connection by forging, protecting the prepared reinforcement bars and related operations as required to complete the works as per direction of Engineer-in-Charge.				
(i)	Coupler for 16 mm diameter reinforcement bar	6907.00	Nos		
(ii)	Coupler for 20 mm diameter reinforcement bar	6907.00	Nos		
	(Make: Peikko, Sanfield, VMS TMT Couplers)				

A.20	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :				
(i)	Cement mortar 1:6 (1 cement : 6 coarse sand)	1008.00	Cum		
A.21	Extra for brick work / AAC block masonry / Tile brick masonry in superstructure above floor V level, for each four floors or part thereof by mechanical means.	374.00	Cum		
A.22	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.- Cement Mortar 1:4 (1C:4c.s)	4238.00	Sqm		
A.23	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means.	2086.00	Sqm		
A.24	Vitrified Tile Flooring				
	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. Basic rate of tiles Rs. 650/ Sqmt				
	Double charge vitrified tile polished finish of size				
(i)	Size of Tile 600 x 600 mm	3205.00	Sqm		
	Make: Kajaria, Somany, Johnson, Nitco				

A.25	Providing and laying Vitrified tiles in different sizes (thickness to be specified by the manufacturer), with water absorption less than 0.08% and conforming to IS: 15622, of approved brand & manufacturer, in all colours and shade, in skirting, riser of steps, laid with cement based high polymer modified quick set tile adhesive (water based) conforming to IS: 15477, in average 6 mm thickness, including grouting of joints. Basic rate of tiles Rs. 650/ Sqmt				
	Double charge vitrified tile polished finish of size				
(i)	Size of Tile 600 x 600 mm	514.00	Sqm		
	Make: Kajaria, Somany, Johnson, Nitco				
A.26	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete. Basic rate of tiles Rs. 500 / Sqmt	777.00	Sqm		
	Make: Kajaria, Somany, Johnson, Nitco				
A.27	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
	Basic Rate of Granite : Rs. 2152/- Sqm				
(i)	Polished Granite stone slab of colour Black, Cherry/Ruby Red Flooring	612.00	Sqm		
(ii)	In Staircase landing, midlanding using Granite stone slabs not more than in two pieces for each landing including machine moulded full round edges duly mirror finish/polish complete.	208.00	Sqm		

(iii)	In Staircase steps and risers, in single piece slabs of required size, with full round moulded mirror polished edges complete as per Architectural drawing and as directed by the Engineer-in-charge.	176.00	Sqm		
(iv)	In vanity counters, Kitchen platform etc. using full width single slabs not less than 1.80 meter in length with full round moulded edges duly mirror polished.	133.00	Sqm		
A.28	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				
	Size 300mm X 450 mm as per Arch Drg.	1857.00	Sqm		
	Make: Kajaria, Somany, Johnson, Nitco				
A.29	Providing & Fixing in position 18mm thick $\pm$ 2mm tolerance, machine cut, Mirror finish Pre-polished Granite slabs in cladding laid in perfect line and level as per approved design and pattern on rough finished 1:4 cement mortar backing plaster of average thickness 20 mm. marble to be fixed to walls using approved tile adhesive of Roff/Bal Endura/Fevimate including all free edges should be pre chamfered before fixing and filling the joints with epoxy based joint filling compound of matching shade, curing, rubbing/grinding/polishing the joints etc. complete as directed by the Bank.				
	Rate includes cost of CM 1:4 backing plaster with waterproofing compound, chamfering of tiles at corners and execution of work all heights and locations including necessary scaffolding etc. complete.	264.00	Sqm		
A.30	Wooden Frames				

	Providing wood work in frames of doors, windows, clerestory windows and other frames,wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (each door frame to have minimum 6 nos. holdfast) .-Second class teak wood				
(i)	Second class teak wood	1.54	Cum		
A.31	uPVC Frame				
(i)	Providing and Fixing factory made uPVC door frame made of uPVC extruded sections , of size 65 mm x 55 mm with wall thickness 2.0 mm (± 0.2 mm) ,corners of the door frame to be mitred cut and jointed with plastic brackets and stainless steel screws, reinforcing hinge side vertical of the frames with PVC profile of Size 28 mm x 30 mm having wall thickness 2 mm (±0.2 mm), including providing & fixing 3 nos. of 125 mm long stainless steel hinges to the frame, fixing the frame with jamb with required number & size of anchor dash fasteners, all complete as per manufacturer's specification and direction of Engineer-in-charge.				
	Extruded section profile size 65x55 mm	572.00	Rmt		
A.32	Door Shutters				
(i)	Providing and fixing ISI marked flush door shutter conforming to IS:2202(Part I) non decorative type, core of block board construction with frame of 1st class hard wood well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutter, including providing 6mm thick TW lipping all around on edges. Both faces of the shutter duly laminated with 1mm thick approved quality and shade laminate.				
	35mm thick flush door including ISI marked Stainless steel butt hinges with necessary screws				
	The rate includes necessary screw/fastners, hardware and the cost of polishing/painting of edges of shutter complete with following hardware fittings per shutter:				
	2 Nos. SS. Tower Bolt-250mm long with SS Screw.				
	1 Nos. SS Aldrop 300mm long with 20mm shoot fixed with SS Screw.				

	1 no 90 mm SS Door Stopper fixed with SS Screw				
	2 no, 200 mm long SS handle	67.00	Sqm		
	Make : Flush Doors: Century, Green, Duro, Kitply				
	Laminate / Veneer: Century, Greenlam, Duro, Aerolam,				
	Glass: Saint Gobain, Aasahi Float, Modi Guard				
	Handles, Hinges and Other Hardware etc: Hettich, Haffle, Godrej , Dorset				
	Door locks: Dorma, Dorset, Godrej.				
A.33	Fully Glazed Door shutters				
(i)	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & double acting hydraulic floor spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge including fitting such as Door handle, lock and stopper etc.	12.00	Sqm		
	Glass: Saint Gobain, Aasahi Float, Modi Guard				
	Patch Fittings, Floor Springs and Top Hinges: Dorma, Godrej, Ozone				
	Handles: Godrej, Hettich, Haffle, door set.				
	Locks: Dorma, Dorset, Godrej				
A.34	Toilet Door frame & Door				

(i)	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid door/window/Clerestory windows & other Frames/Chowkhat comprising of virgin PVC polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/wheat husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) fabricated with miter joints after applying PVC solvent cement and screwed with full body threaded star headed SS screws having minimum frame density of 750 kg/cum, screw withdrawal strength of 2200 N (Face) & 1100 N (Edge), minimum compressive strength of 58 N/mm ² , modulus of elasticity 900 N/mm ² and resistance to spread of flame of Class A category with property of being termite/borer proof, water/moisture proof and fire retardant and fixed in position with M.S hold fast/lugs/SS dash fasteners of required dia and length complete as per direction of Engineer-In- Charge. (M.S hold fast/lugs or SS dash fasteners shall be paid for separately).				
	Note: For WPC solid door/window frames, minus 5mm tolerance in dimensions i.e depth and width of profile shall be acceptable. Variation in profile dimensions on plus side shall be acceptable but no extra payment on this account shall be made				
	Frame size 65 x 100 mm	535.00	Mtr.		
	Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid plain flush door shutter of required size comprising of virgin polymer of K value 58-60 (Suspension Grade), calcium carbonate and natural fibers (wood powder/ rice husk/wheat husk) and non toxic additives (maximum toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) & 900 N (Edge), minimum compressive strength 50 N/mm ² , modulus of elasticity 850 N/mm ² and resistance to spread of flame of Class A category with property of being termite/borer proof, water/moisture proof and fire retardant and fixing with stainless steel butt hinges of required size with necessary full body threaded star headed counter sunk S.S screws, all as per direction of Engineer-In- Charge.				
(ii)	30 mm thick	151.00	Sqm		
	Make : WPC Flush Doors: Green ply ,Shivansh door , Swastik timber				
	Laminate / Veneer: Century, Greenlam, Duro, Aerolam,				
	Glass: Saint Gobain, Aasahi Float, Modi Guard				

	Handles, Hinges and Other Hardware etc: Hettich, Haffle, Godrej, Dorset				
	Door locks: Dorma, Dorset, Godrej.				
(iii)	Providing and fixing factory made uPVC door frame made of uPVC extruded sections having an overall dimension as below (tolerance ± 1 mm), with wall thickness 2.0 mm (± 0.2 mm), corners of the door frame to be Jointed with galvanized brackets and stainless steel screws, joints mitred and Plastic welded. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 X 19 mm and 1mm (± 0.1 mm) wall thickness and 3 nos. stainless steel hinges fixed to the frame complete as per manufacturer's specification and direction of Engineer-in-charge				
	Extruded section profile size 48 x 40mm	551.00	Mtr		
	Make: Fenestra, AIS, Reheau, Veka				
A.35	Providing and fixing to existing door frames 30 mm thick factory made Polyvinyl Chloride (PVC) door shutter made of styles and rails of a uPVC hollow section of size 60x30 mm and wall thickness 2 mm (± 0.2 mm), with inbuilt decorative moulding edging on one side. The styles and rails mitred and joint at the corners by means of M.S. galvanised/ plastic brackets of size 75x220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanised M.S. tube of size 25x20 mm and 1 mm (± 0.1 mm) wall thickness. The lock rail made up of 'H' section, a uPVC hollow section of size 100x30 mm and 2 mm (± 0.2 mm) wall thickness fixed to the shutter styles by means of plastic/ galvanised M.S. 'U' cleats. The shutter frame filled with a uPVC multi-chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm (± 0.1 mm) wall thickness. The panels filled vertically and tie bar at two places by inserting horizontally 6 mm galvanised M.S. rod and fastened with nuts and washers, complete as per manufacturer's specification and direction of Engineer-in-charge.	194.00	Sqm		
	Make: Fenestra, AIS, Reheau, Veka				
A.36	UPVC Window shutters with Frame (2Track / 3Track)				

	Providing & fixing in position factory made uPVC white colour sliding window up to 1.50 M to 2.4M in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.5mm. to 2.5 mm thick depending upon the window galvanised mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimensions of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gaskets, wool pile, touch locks with hooks, with single nylon rollers (weight bearing capacity to be 80/ 150 Kg), SS fasteners 100 x 8 mm size for fixing frame to finished wall and 5 degree gradient slope in track (drainage track) comes with threshold, low threshold without threshold option & necessary stainless steel screws etc 8 mm thick toughened glass panes (ST 136),fixed in shutters, flush handle, C handle, D handle with locking arrangements as per manufacturers specifications etc. complete				
	Make: Fenesta, Reheau, Veka				
a	Slider- Three track three panels sliding Window with two glazed & one wire mesh panels with Alluminium channel for roller track, wool pile , nylon rollers with SS 304 body.	604.00	Sqm		
b	Slider (2 track & 2 panels)	43.00	Sqm		
c	Fixed window / ventilator withmullion / transom upto 1.20mtr. Ht	65.00	Sqm		
d	Fixed window / ventilator withmullion / transom upto 2.5mtr. Ht.	8.00	Sqm		
A.37	MS Fabrication work				
	Providing, Fabricating & fixing in-position MS Angle Doors/window frames, MS Grilles to Windows/openings, Balcony/Parapet Railings, MS Gratings, Frames, Guard bars, Ladder, Brackets, Compound Gates, Compound wall Railings/Grilles and other similar MS Fabrication works at all heights and locations with necessary lifts & lead, loading/unloading etc. complete as per approved design made out of MS flats, Square bars, Round Bars, Angles, Tees etc and anchoring the same to walls, Floor, RCC slab etc.using Nut, bolts, holdfasts, Anchor Fasteners etc. as required including two coats of enamel paint over a coat of Zinc Oxide primer complete. Rates to include necessary hardware, cutting / chasing floor, wall carefully and repairing the same to its original position, scaffolding, pulleys, painting of repaired surface complete as directed at site by the Engineer-in-Charge.				
	Shaft, Fire, Electric Shutter etc.	1931.00	Kg		

A.38	Stainless Steel Grills/Railing				
	Providing and fixing in position, at all heights, levels and location, stainless steel of specified Grade for balcony Grilles, Staircase Railing etc. made up of SS hallow tubes, channels, plates etc. as per approved drawing, 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 rigidly with floor, walls etc. using required accessories including stainless steel dash fasteners, stainless steel bolts etc. of required size on the floor or on side of waist slab, Balconies with suitable arrangements as per approval of engineer-in-charge.				
	Rates to include necessary civil repair for making the surface good, scaffolding etc. complete as directed at site.				
(i)	Using Stainless Steel Grade 316 Sections (MakeJSL, SAIL, TISCO)	1962.00	Kg		
A.39	MS Fan Hook				
(i)	Providing and fixing in position M.S. fan clamp type I or II of 16 mm dia M.S. bar, bent to shape with hooked ends in R.C.C. slabs, beams during laying including painting the exposed portion of loop, all as per standard design complete.	360.00	Nos		
A.40	Internal Wall Plaster				
(i)	Providing and applying in position average 15mm thick smooth finish cement Plaster in cement mortar 1:5 to all internal walls, using fine sand and adding polypropylene fibre of approved quality in desired quantity per bag of cement as per manufacturers specifications complete. Rate includes providing chicken mesh to all joints of RCC members with Brick walls in all positions in proper line, level & plumb at all levels and heights with necessary scaffolding, cleaning of surfaces, raking out joints, roughening of surfaces ,curing etc complete as directed at site. Rate includes making Flush/raised/sunk or moulded bands of any width, recesses, making grooves etc. complete as per Architectural drawings and no extra payment shall be considered for the same.	13790.00	Sqm		
(ii)	Providing applying in position 12mm thick single coat cement plaster to Ceiling, Soffit of Chhajja, Cantilever Balconies or any other RCC projection/surface in approved pattern and design in cement mortar 1:4 in proper line and level using approved quality silt free natural sand (Fine or Coarse as directed) at all heights and locations including necessary scaffolding, curing etc. complete as directed by the Engineer-in-charge. Rate includes making Flush/raised/sunk or moulded bands of any width, recesses, making grooves etc. complete as per Architectural drawings and no extra payment shall be considered for the same.	5969.00	Sqm		

A.41	External Plaster (Sand Face)				
(i)	Providing and laying in position external Sand Face Cement Plaster, average 18 mm thk, in two coats, at all heights with first coat of av. 12 mm thk in Cement Mortar 1:5 using coarse sand, and second coat of average 6 mm thickness in C.M. 1:4, including necessary stagg, scaffolding, curing, roughening the first coat to receive second coat of plaster etc, providing approved water proofing compound @1 kg per bag of cement or as specified by the manufacturer and adding polypropylene fibre of approved make as per manufacturers specifications to prevent shrinkage cracks, complete as directed by the Engineer-in-charge.	5290.00	Sqm		
A.42	Providing & fixing extruded clay tile of size 230x75x15mm for wall cladding work over an under layer of 12mm thick bed of cement mortar 1:3 (1 cement :3 coarse sand)and slurry @ 3.3kg/sqm including pointing in white cement complete with required pigment. (This including cost of scaffolding upto 25.00 meter height. All complete as per direction of Engineer-in-charge / Arch.	1062.00	Sqm		
A.43	Birla Putty on Internal wall				
	Providing and applying 2 or more coats of Birla/JK putty on internal walls of average thickness of 2 mm in line & level including its rubbing with sand paper to ensure smooth & even surface including necessary scaffolding etc. complete.	19758.00	Sqm		
	Birla , JK , Sakarni				
A.44	Acrylic Emulsion Paint <u>on new surface</u>				
	Providing and applying 2 or more coats of approved Acrylic Emulsion paint with roller finish over a coat of primer on internal walls including necessary scaffolding etc. complete as per manufacturers' specifications.	19758.00	Sqm		
	Make:- Asian / Nerolac / Berger / Dulux				
A.45	Texture Paint on new surface				
	Finishing walls with textured exterior paint of required shade :				
	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	5290.00	Sqm		
	Make:- Asian / Nerolac / Berger / Dulux				
A.46	Brick Bat Coba on Terrace with crazy mosaic (china mosaic)				

	Providing and laying integral cement based water proofing treatment including preparation of surface as required including providing and mixing water proofing material in mortar @ 1 kg per 50 kg of cement, all complete as per direction of Engineer-in-charge 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 providing and laying approved quality broken China Mosaic (broken pieces of China Chips) in approved colour, pattern and design in neat cement float, giving proper slopes, compaction, curing, finishing preparing bell mouth and through cleaning of finished china mosaic surface etc. as per sample approved by Architect/EIC. Rate includes similar finish and treatment to half round Watta at junction of roof / slab to parapet wall / column etc.				
	(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 :				
	With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	670.00	Sqm		
A.47	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of:				
(i)	1st course of applying cement slurry @ 4.4 kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.				

(ii)	IIInd course of 20 mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.				
(iii)	IIIrd course of applying blown or residual bitumen applied hot at 1.7 kg. per sqm of area.				
(iv)	Ivth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 kg/sqm).	1393.00	Sqm		
A.48	Light Weight Filling in the Sunken Portion				
	Providing and filling the cavity of sunken portion of toilets with brick bats broken AAC blocks of 25 mm to 115 mm in size with 50% of cement mortar 1:4 admixed with approved water proofing compound conforming to IS : 2645 complet as directed by the Engineer-in-charge.	145.00	Cum		
A.49	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	41.00	Sqm		
A.50	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1cement : 3 coarse sand), finished with a floating coat of neat cement.				
	18 mm thick	47.00	Sqm		
A.51	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in- charge.				
	(Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).	87.00	Cum		

A.52	Supply and Installation of Factory Made Modular kitchen for SBI Housing Kitchen as per schematic drawings. Vendor shall prepare a detailed shop drawing considering actual site dimensions with provision for all required services (Eg. Electrical, Plumbing, Gas, Chimney Exhaust,etc..)				
	The Kitchen shall comprise the following items:				
	a. Plywood: 18mm thk BWP Grade Architect Ply as per IS-710 (Greenply, Century, Kitply)				
	b. Laminate: Shutter: 1.0 mm High Gloss Laminate.				
	Inside: 0.8 mm Laminate				
	c. Cabinets - Required Cabinets as per Drawing.				
	d. Partition covering kota stone: 6mm ply with 1.0 mm laminate on outside				
	d. Drawer System - NOVA Sleek/DWD GRASS including all accessories.				
	e. Hardware: Soft Close hardware from Sleek/ Hettich / Blum.				
	f. Drawer storage organizer: Plain Tray, Cutlery Tray, Anti Slip mat in all drawers and cabinets, Round DustBin, Cargo Plus Thali. All items are from Hettich.				
	g. Profile Handle for shutters and drawers: Aluminum Profile handle (G Type) from Hettich as selected by Architect				
	All shutters shall have PVC Edge Bands on all four sides. Finish of PVC Edge band shall as per architects selection. The modular kitchen shall have a 5 Years Warantee against Manufacturing defect. The work shall be complete including all the required accessories for fixing the kitchen at site as per drawing and to the satisfaction of Architect.	225.00	Sqm		
	Make: Ply / block board:- Archidply, Greenply, Century, Duro				
	Laminate:- Greenlam, Century				
	Fitting : Godrej/ Hettich/Haffele/Ebco or as approved by EIC				
A.53	Providing and fixing 19mm thick both side balancing lamination factory pressed BWP grade ply as per IS 710 of approved brand boxes, shelves, racks, almirah ,cupboard and drawer etc. including necessary nails,screws etc. complete as per direction of Engineer-in-charge.complete as per direction of Engineer-in-charge.	924.00	Sqm		
A.54	Providing and fixing 6mm thick both sides Pre-laminated cement bonded wood particle board as per IS : 15786:2008 of approved brand and shade with suitable full threaded steel screws etc. on the backing of racks, drawer, cupboard, kitchen cabinet under kitchen counter etc. all	434.00	Sqm		
	Make: Ply / block board:- Archidply, Greenply, Century, Duro				

A.55	Providing and fixing cupboard shutter with 19mm thick one side decorative and other side balancing lamination factory pressed BWP grade marine ply as per IS 710 of approved brand including 2mm thick PVC edge banding tape with hot glue by edge bending machine etc. with auto closing soft closing spring hinges (hydraulic type) & pair of matt finised stainless steel handles of approved quality and make with necessary screws etc all compete etc. as per direction of Engineerin-charge.	434.00	Sqm		
	Make: Ply / block board:- Archidply, Greenply, Century, Duro				
	Laminate:- Greenlam, Century, Aerolam				
A.56	FIRE SHUTTER				
	Providing and fixing 50 mm thick fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-incharge,with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/sqm) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge	34.00	Sqm		
A.57	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermiculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumescent fire seal strip of size 10x4 mm (minimum) around the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge	95.00	Mtr		
A.58	EXTERNAL DEVELOPMENT				
	ROAD / PAVEMENT / PARKING				
	Earthwork in Excavation				
(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 earth, debris etc. by mechanical transport including loading, transporting, unloading to approved municipal dumping ground for lead upto 10 km for all lifts, complete as per directions of Engineer-in-charge.	802.00	Cum		

A.59	Water Bound Macadam				
(i)	Providing and laying average 300 mm compacted thickness Water Bound Macadam using graded stone rubble up to 90-45mm conforming to MORTH specifications, hand-packed and set on ends with interstices thoroughly filled tight with stone chips and screened with stone screenings and binding materials (murrum) including watering, compaction with mechanical vibratory roller compactor 8-10 tonne capacity in stages to proper grade and camber etc. complete to satisfaction of Engineer in-charge.	503.00	Cum		
A.60	Laying Plain Cement Concrete				
(i)	Providing and laying machine mix PCC (plain cement concrete), 1:3:6 (1 Cement : 3 Sand : 6 Coarse aggregates) as specified in drawing, using 53 grade OPC cement and 20mm down graded nominal size well-graded aggregate including mixing, transporting, laying, compacting and finishing the surface in line, level and plumb as per requirement and curing etc., including the cost of necessary centring, shuttering, complete in all respects at all leads and lifts as per specification or as directed by Engineer in charge.	203.00	Cum		
A.61	Cement Concrete Pavement				
(i)	Providing and laying in position C.C. Pavement (Tremix - Vacuum dewatered) average 150 / 200 mm thick in design mix cement concrete of M-30 grade (cement content considered @ 340kg/cum) having low w/c ratio, in roads, using coarse sand and graded stone aggregate of 20 mm nominal size in appropriate proportions and mixing surface hardener @ 3kg/sqm as per approved & specified design criteria				
	Rate includes providing dowel bars with sleeve / tie bars wherever required, laying at site, spreading and compacting, mechanically by using needle and surface vibrators, vacuum dewatering, levelling to required slope / camber, finishing, brooming with wire brush before the top becomes hard, including steel formwork with sturdy M.S. channel sections, curing by putting hessian cloth and ponding.				
	Scope of work includes making provision for expansion, contraction and construction joints by groove cutting of size 10mm wide and having depth up to 1/3rd of the thickness of the Tremix concrete pavement or as directed by Architect / Engineer to form bays of required size using heavy duty cutting machine with diamond cutting wheel and filling the grooves with backer rod and appropriate silicone sealant for expansion joints, complete all as per direction of Engineer-in-charge. (with out Reinforcement)	238.00	Cum		
A.62	Paver Block				

(i)	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M-30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in charge				
	Make :Alcock ,Vyara, Pavit, Kaptim				
a	60-85 mm thick Paver block	388.00	Sqm		
A.63	Kerb stone				
	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 5mm), 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).	273.00	Rmt		
	Make :Alcock ,Vyara, Pavit, Kaptim				
	TOTAL EXTERNAL DEVELOPMENT " B'				
A.64	UNDER GROUND TANK				
	Excavation in All Kind of Soil				
(i)	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 surplus excavated earth, debris etc. by mechanical transport including loading, transporting, unloading to approved municipal dumping ground for lead upto 10 km for all lifts, complete as per directions of Engineer-in-charge.				
(ii)	Excavation Up to 1.5 mtr. depth below natural Ground Level.	57.00	Cum		
	Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.				
(iii)	above 1.50m and upto 3.00 m depth	57.00	Cum		
(iv)	Excavation beyond 3.00 meter depth from natural Ground Level.	27.00	Cum		

	Providing and laying in position machine mix PCC (plain cement concrete) under foundation, plinth protection, floor slabs, grade slabs, coping, sill concrete etc.including transporting, laying, compacting, finishing the surface in line, level and plumb as per requirement and curing etc. complete. The rate to include necessary formwork, centring, shuttering, complete in all respects and execution of work at all heights and location with required leads and lifts complete as directed by Engineer in charge.				
	PCC 1:4:8 using 40 mm and downgrade metal (Coarse Aggregate).				
(v)	Levelling Course PCC Under Column Footing Foundations etc.	4.00	Cum		
A 65	Ready Mixed Concrete (RMC) for RCC Work in Foundation and Plinth				
	Providing and laying in position (M25) Ready mixed Reinforced Cement Concrete for various RCC structural elements in any shape and design as per structural drawings and as directed <u>in foundation and plinth</u> including Columns footings, Stub Coolumns, Raft, foundation, Plinth Bams, Floor Slabs etc. with cement content as per approved design mix, manufactured in fully automatic batching plant and transported to site of work in transit mixer having continuous agitation, including pumping of R.M.C. from transit mixer to site of laying,spreading, compacting, finishing in line and level as per site requirements, including all lead, lift and cost of curing etc. complete.				
	The Rate to include necessary formwork, centring, shuttering, including cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability complete in all respects and execution of work at all heights and location with required leads and lifts etc. as directed by Engineer-in-charge				
	Note: Cement content considered in this items is @ 330kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
(i)	Column Footing, Raft Slab or any other type of RCC foundation.	12.00	Cum		
(ii)	RCC Walls upto Plinth Level.	21.00	Cum		
(iii)	RCC Floor slab at Plinth Level	6.00	Cum		

A 66	<u>Steel reinforcement for R.C.C. work</u> including straightening, cutting, bending, placing in position and binding all complete <u>up to plinth level.</u>	3960.00	Kg		
i	Thermo-Mechanically Treated bars of grade Fe-500 D or more.				
A 67	Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer-in-Charge and consisting of :				
	(i) 1st layer of 22 mm to 25 mm thick approved and specified rough stone slab over a 25 mm thick base of cement mortar 1:3 (1 cement : 3 coarse sand) including applying of twice (at base and top of mortar) cement slurry @ 2.2kg/m ² (each time) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound.				
	(ii) 2nd layer of 25 mm thick cement mortar 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportions.				
	(iii) Finishing top with stone aggregate of 10 mm to 12 mm nominal size spreading @ 8 cudm/sqm thoroughly embedded in the 2nd layer.				
(i)	Using rough kota stone.	38.00	Sqm		
A 68	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :				
(i)	Using rough kota stone.	68.00	Sqm		
A 69					

(i)	52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed @ 2 litre per 50 kg of cement or as per manufacturer's specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.	19.00	Sqm		
A.70	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 mmx25mm 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.				
(i)	Foot rest @ 300mm C/C	22.00	Nos.		
A 71					
(i)	Providing and fixing in position SFRC manhole cover and frame of required shape and approved quality				
	HD-20 , Circular shape 560 mm internal diameter	2.00	Nos.		
A 72					
	Providing and fixing C.I sluice valves (with cap)complete with bolts, nuts, rubber insertion etc. (the tail piece if required will be paid separately				
(ii)	100mm diameter				
	Class I	2.00	Nos.		
A 73					

11.1	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151/ 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint /quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials,including transportation and freight charges,inspection charges, loading / unloading charges,conveyance & stacking the same in closed shade duly protecting from sunrays & rains including Lowering / Laying and jointing H.D.E.P pipe in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS code.				
	Make : Reliance , Supreme , oriplast & Jain irrigation system.				
	PE-100 -6Kg/Sq.cm ² :				
(i)	75 mm	290.00	Mtr.		
A 74	Water Pump				
	Providing, fixing, testing and commissioning of single phase / Three phase, 50 HZ, AC, Water Transfer pump, in SS MOC (Impeller - SS 304, Shaft - 316), housing in cast iron, enclosure class IP 55, Insulation F class, electrical control panel with contactors, relays, circuit breakers, starters, branch ammeters, incoming voltmeter, selector switches, other protection as per manufacturers specifications complete with common base frame, pressure gauge on the delivery side including non-return valve, isolating valves, strainer on suction and delivering sides, 20 ltr pressure tanks , complete in all respects.				
(i)	100 LPM , 55 M head (1 W + 1 S)	1.00	Set		
A 75	STP WORKS				
	Providing, Supplying , installation , testing and commissioning of STP of 20 LD, MBBR base, complete with screening/ equalization arrangement, boiological treatment tank with MBBR media and aeration sysytem, secondary clarification, pressure sand filter, activated carbon filter, disinfection system, treated water tank, sludge handling arrangement, air blowers, sewage / transfer and dosing pumps, electrical control panel, cabling, piping, valves, fittings, supports and all necessary civil, mechanical and electrical works, including testing, commissioning and trail run, complete in all respects as reuiqred for satisfactory operation.				
(i)	Plant size upto 20KLD	20.00	KLD		

A 76	TUBE WELL				
	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. - Rocky strata including Boulders - 400mm Dia	90.00	Rmt		
PART-A	TOTAL CIVIL WORKS				0.00
PART-B	PLUMBING WORKS				
	Internal Water Supply System and fittings				
	CPVC Pipeline				
	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 / surface mounted and making good the walls etc.				
	Make : Finolex, Astral, Supreme & Prince				
B.1	15 mm dia. Pipe	396.00	Rmt		
	Float Valve				
	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :				
	Make : Zoloto ,Paani Precision , Rmco & Drp Malleables				
B.2	20 mm nominal bore	3.00	Nos		
	Overhead Shower				
B.3	Providing and fixing of Single (Rain) Flow Round CP ABS Overhead Shower of 100mm dia. (minimum) with Rubit Cleaning System including Shower arm, Wall flange and other accessories, installed as per manufacturer's instructions with necessary fittings etc. complete as per the directions of the Engineer-in-Charge.	108.00	Nos		
	Make : Jaquar- OHS-CHR-1989, Hindware , Parryware, Kohler				
	Hand Shower				

B.4	Providing and fixing Single Flow CP ABS Hand Shower of 75 mm dia and 130 mm long handle (minimum) with Rubit Cleaning System including accessories like CP ABS Wall Hook, and 1.00 mtr. (min.) long flexible SS braided hose pipe (with Nipple, Nut, O-Ring) with gasket, installation kit, all fittings and fixtures as per the manufacturer's specification etc. complete as per the directions of the Engineer-in-Charge.	108.00	Nos		
	Make : Jaquar-HSH-CHR-1737, Hindware , Parryware, Kohler				
	Health Faucet				
B.5	Providing and fixing CP ABS Health Faucet with regulator including accessories like CP ABS Wall Hook, and 1.00 mtr. (min.) long flexible SS braided hose pipe (with Nipple, Nut, O-Ring) with gasket, installation kit, all other fittings and fixtures as per the manufacturer's specification etc. complete as per the directions of the Engineer-in-Charge.	108.00	Nos		
	Make : Jaquar-ALD-CHR-573, Hindware , Parryware, Kohler				
	Bib Cock				
B.6	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931 : 15mm nominal bore	108.00	Nos		
	Make : Confirming to IS:8931, Make: Jaquar, Hindware, Parryware				
	Single Lever Concealed Mixer & Divertor				
B.7	Providing & fixing 15 mm C.P. Brass Concealed Mixer & Divertor system with consisting of concealed body of single lever mixer & divertor for bath and shower, 40mm cartridge with button assembly (on top), cartridge sleeves including cutting a chase of appropriate width with chase cutter, connecting the hot & cold water inlet pipe as well as shower and bath outlet pipe to the concealed body in proper line, level and plumb and making good the walls, fixing the C.P. single lever exposed part kit consisting of operating lever, wall flange and button with all fittings and fixtures etc. complete as per the Architectural drawings, as specified, as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.				
	The rate also includes providing and fixing 15 mm C.P. Brass Bath Spout of approved quality with aerator, wall flange etc. complete	108.00	Nos		
	Make : Jaquar-ALD-065 + SPJ-CHR-15429PM, Hindware , Parryware, Kohler				
	Single Lever Basin Mixer				

B.8	Providing and fixing CP Brass Single Lever Basin Mixer, with aerator, 450 mm long SS braided hose pipe (with Nipple, Nut, O-Ring) with gasket, installation kit, all other fittings and fixtures as per the manufacturer's specification etc. complete as per the directions of the Engineer-in-Charge.	108.00	Nos		
	Make : Jaquar-OPP-CHR-15011BPM+ALD-CHH-805B , Hindware , Parryware, Kohler.				
	Kitchen Sink Mixer				
B.9	Providing and fixing wall mounted 15 mm C.P. Brass Swan neck sink mixer of approved quality with long swivel spout, aerator, wall flange etc. complete as per the directions of the Engineer-In-Charge.	36.00	Nos		
	Make : Jaquar-FLR-CHR-5309N , Hindware , Parryware, Kohler				
	Angle Cock				
B.10	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931				
	15mm nominal bore	288.00	Nos		
	Make : Confirming to IS:8931, Jaquar, Parryware, Hindware, Kohler				
	Conceal Stop Cock				
B.11	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.				
(I)	15 mm nominal bore	72.00	Nos		
	Make : Confirming to IS:8931, Make: Jaquar, Parryware, Hindware, Kohler				
	External Water Supply & Fittings				
	CPVC Pipeline				
B.12	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				
	Make : Finolex, Astral, Supreme & Prince				
(i)	20 mm dia. Pipe (SDR-11) Conforming to IS:15778	306.00	Rmt		
(ii)	25 mm dia. Pipe (SDR-11) Conforming to IS:15778	594.00	Rmt		

(iii)	32 mm dia. Pipe (SDR-11) Conforming to IS:15778	295.00	Rmt		
B.13	Gate Valve				
	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end):				
	Make : Zoloto, Castle & L&T				
(i)	20 mm nominal bore	36.00	Nos.		
(ii)	32 mm nominal bore	36.00	Nos.		
B.14	Non-Return / Check Valve				
	Providing and fixing gun metal non- return valve of approved quality (screwed end) :				
	Make : Zoloto, Castle & L&T				
	Horizontal Line :				
(i)	32 mm nominal bore	36.00	Nos.		
B.15	Air Release Valves (In Terrace Loop)				
	Providing and fixing ISI marked C.P. Forged Brass Pressure Reducing Valve (Screwed End) of approved quality with all necessary fittings and hardware etc. complete as per the manufacturer's specifications and per the directions of the Engineer-in-Charge.				
	Rate should include necessary excavation in trenches and refilling and repairing the surface to its original position including execution of work at all heights and locations with necessary scaffolding, staging etc. complete.				
(i)	20 mm nominal bore	36.00	Nos.		
B.16	Ferrule				
	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main :				
	Make : Zoloto, Castle & L&T				
(i)	25 mm nominal bore	3.00	Nos.		
B.17	INTERNAL SANITARY FITTINGS				
	COUNTER TOP WASH BASIN				

	Providing and fixing white glazed vitreous Counter Top Wash Basin of size 40 x 40 cm (minimum) with all accessories like C.P. brass pop-up waste coupling, and PVC connection pipe and necessary fittings and hardware etc. as per the Architectural drawings, as specified, as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.				
	Make : Jaquar-Solo-SLS-WHT-6601, Hindware, Parryware, Kohler				
(i)	Basin Size 54 X 40 cm (minimum)	108.00	Nos		
B.18	FLOOR MOUNTED EUROPEAN WC				
	Providing and fixing white vitreous china pedestal type water closet (European type W.C.pan) with seat and lid, 10 litre (7+3) Dual concealed PVC flushing cistern, including flush pipe,with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required				
	W.C. pan with ISI marked white solid plastic seat and lid				
	Make : Jaquar, Hindware , Parryware, Kohler				
(i)	Unit 1,2,3,4,5&6 - all floors	72.00	Nos		
	EXTENDED WALL HUNG EUROPEAN WC WITH CISTERN				
B.19	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/ 6 litre (adjustable to 4 litre/ 8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	36.00	Nos		
	Make : Jaquar, Hindware , Parryware, Kohler				
B.20	KITCHEN SS SINK				
	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 40mm dia. C.P. waste coupling , painting of fittings and brackets, cutting and making good the walls wherever required :				
	Kitchen sink with drain board				
	Make : Hindware , Neelkamel, Parryware				
(i)	510x1040 mm bowl depth 225 mm	36.00	Nos		
	BOTTLE TRAP				
(ii)	Providing and fixing CP Brass 32mm size Bottle Trap of approved quality & make and as per the direction of Engineer-in-charge.	108.00	Nos		

	Make : Jaquar, Hindware , Parryware				
B.21	P.V.C. FLEXIBLE WASTE PIPE				
	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete				
	Flexible pipe				
	Make : Ruhe , SBD ,KI				
(i)	40 mm dia.	36.00	Nos		
B.22	Towel Rail				
	Providing and fixing 450 mm long C.P. Brass Towel Rail of approved quality with all necessary accessories and hardware like C.P. brass wall flange, screws, rawl plug including drilling holes in walls and making it good etc. complete as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.				
	Make : Jaquar - AEC-ESS-1111NB , Parryware & Hindware				
(i)	450mm long	108.00	Nos		
B.23	Towel Holder Ring				
	Providing and fixing C.P. Brass Towel Holder Ring of approved quality with all necessary accessories and hardware like C.P. brass wall flange, screws, rawl plug including drilling holes in walls and making it good etc. complete as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.				
	Make : Jaquar - ACN-CHR-1121BN , Parryware, Hindware				
(i)	178 mm outer dia	108.00	Nos		
	Double Coat Hook				
B.24	Providing and fixing in position C.P. Brass Double Coat Hook of approved quality with all necessary accessories and hardware like C.P. brass wall flange, screws, rawl plug including drilling holes in walls and making it good etc. complete as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.	108.00	Nos		
	Make : Jaquar - ACN-CHR-1161N , Hindware, Parryware				
	Liquid Soap Dispenser				

B.25	Providing and fixing C.P. Brass Liquid Soap Dispenser of approved quality with all necessary accessories and hardware like C.P. brass wall flange, screws, rawl plug including drilling holes in walls and making it good etc. complete as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.	36.00	Nos		
	Make : Jaquar - ACN-CHR-1135N , Parryware, Hundware				
	Toilet Paper Roll Holder With Flap				
B.26	Providing and fixing C.P. Brass Toilet Paper Roll Holder with Flap of approved quality with all necessary accessories and hardware like C.P. brass wall flange, screws, rawl plug including drilling holes in walls and making it good etc. complete as per the manufacturer's specifications and as per the directions of the Engineer-in-Charge.	108.00	Nos		
	Make : Jaquar - ACN-CHR-1153S , Parryware , Hindware				
	Mirror				
B.27	Providing and fixing in position Bevelled Edge Mirror made up of approved quality 5 mm thick approved quality toughed glass fixed on 6 mm thick MR ply / Asbestos sheet fixed to wooden cleats with 25 mm dia. S.S. stud fitting in all corners complete in all respects with fittings and hardware as directed by Engineer-in-charge	107.00	Sqm		
	Make : Saint Gobain, Modi Guard , Aasahi				
B.28	Internal Drainage System				
	uPVC Pipes With Fitting and Specials				
	Providing, fixing, testing and commissioning in position SWR uPVC Pipe Class - III (6Kg/sq.cm), conforming to IS : 4985-2000, including all specials and fittings such as bends, junctions, inspection doors, offsets, vent cowl, access pieces/plugs all jointing with uPVC adhesive and checking it to be water tight including chase cutting, drilling holes and fixing pipes to wall, floor, slab firmly with necessary GI supports, clamp, hangers, nuts, bolts, washers and making good the same etc. complete as directed by the Engineer-in-charge.				
	Make : Finolex , Astral, Supreme & Prince				
	Inside Toilet Area / Terrace & Balcony Drain / Vertical Down Take				
(i)	110 mm dia	173.00	Rmtr		

(ii)	75 mm dia	184.00	Rmtr		
B.29	50 mm dia.	122.00	Rmtr		
	Nahani Trap with SS Gratings				
	Providing & fixing PVC Nahani trap of 75mm dia diameter, with necessary distance piece of 75mm dia pipe and 150x150mm SS grating, making necessary slab / wall holes and cutting walls, etc. complete as directed by Engineer-in-charge.				
	Make : Finolex , Astral, Supreme & Prince				
(i)	(Toilet Area + Kitchen / Utility Area + Balcony Drain)	108.00	Nos		
B.30	External Drainage System				
	uPVC Pipes With Fitting and Specials				
	Providing, fixing, testing and commissioning in position SWR uPVC Pipe Class - III (6Kg/sq.cm), conforming to IS : 4985-2000, including all specials and fittings such as bends, junctions, inspection doors, offsets, vent cowl, access pieces/plugs all jointing with uPVC adhesive and checking it to be water tight including chase cutting, drilling holes and fixing pipes to wall, floor, slab firmly with necessary GI supports, clamp, hangers, nuts, bolts, washers and making good the same etc. complete as directed by the Engineer-in-charge.				
	Make : Finolex , Astral, Supreme & Prince				
(i)	75mm	18.00	Rmtr		
(ii)	110 mm dia	1337.00	Rmtr		
(iii)	160 mm dia.	635.00	Rmtr		
	PVC WC Connector				
B.31	Providing and fixing PVC WC Connector (straight or bend type) with rubber lip ring including 110 mm dia PVC pipe / bend of required length and proper connection with M-Seal to C.I. pipe etc. complete as directed by Engineer-in- charge	108.00	Nos		
	Make : Finolex , Astral, Supreme & Prince				

B.32	Providing and fixing 8 mm dia C.P. / S.S. Jet with flexible tube upto 1 metre long with S.S. triangular plate to European type W.C. of quality and make as approved by Engineer - in - charge.	108.00	Nos		
	Make : Finolex, Astral, Supreme & Prince				
B.33	Providing and fixing to the inlet mouth of rain water pipe PTMT (an Engineering Thermoplastic) grating square (Slit) 150 mm square with a height of 8 mm and weighing not less than 100 gms.	144.00	Nos		
	Make : Prayag				
B.34	External Drainage System				
	NP-2 RCC Pipes including Fittings And Specials				
	Providing, laying, jointing, testing and commissioning ISI Marked Non-Pressure NP-2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2, testing of joints etc. complete including cutting the pipe to required length, excavating (mechanically / manually) trenches of required width and depth for pipes, getting out the excavated materials, de- watering, laying 100mm thick Bed P.C.C. in 1:3:6 , refilling the soil as required in layers not exceeding 20 cm in depth, including consolidating each deposited layers by ramming, watering, levelling etc., stacking serviceable material and disposal of unserviceable material as directed by Engineer-in-charge.				
	Make : KK Spun , Indian Hume ,Raghav concrete products & Maa Vaishnav RCC Hume pipe				
(i)	250 mm dia. R.C.C. pipe	542.00	Rmt		
B.35	Gully Trap				
	Providing and fixing Square Mouth PVC gully trap of grade 'A' complete with C.I. grating embedded in brick masonry chamber with first class bricks in CM 1:5 and trap to be set in cement concrete 1:2:4, both side 12mm thick plastering with floating coat of neat cement, making necessary connections and providing water tight double seal FRP Heavy duty cover with frame of 300 x 300 mm internal size.The rate also includes necessary excavation (mechanically / manually) to the required depth, dewatering, backfilling earth in exposed side, watering, ramming and removing the surplus excavated material and making good the same etc. complete as directed by Engineer-in-charge.				
(i)	450 x 450 mm chamber with 230 x 160 mm size 'P' trap. FRP Cover make: Thermodrain/ Fibrocast / Sintex	12.00	Nos		

B.36	Inspection Chamber / Manhole				
	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand)with R.C.C. top slab with 1:1.5:3 mix (1 cement : 1.5 coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand (zone-III) : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :				
	Inside size 90x80 cm and 45 cm deep				
(i)	With common burnt clay F.P.S (non modular) bricks of class designation 7.5	6.00	Nos		
(ii)	Extra for depth of manhole size 90 x80 cm				
	With common burnt clay F.P.S (non modular) bricks of class designation 7.5	3.00	Mtr		
B.37	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
	0.91 m deep with S.F.R.C. (Steel Fibre Reinforced Concrete) manhole cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :				
	With common burnt clay F.P.S (non modular) bricks of class designation 7.5				
(i)	Up to 450 mm depth	16.00	Nos		
(ii)	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m				
	With common burnt clay F.P.S (non modular) bricks of class designation 7.5	8.00	Mtr		

B.38	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 :				
	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) :				
(i)	With common burnt clay F.P.S (non modular) bricks of class designation 7.5	14.00	Nos		
B.39	FRP Manhole Cover with Frame				
	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality				
(i)	LD 2.5 -Rectangular shape 600x450 mm internal dimensions	6.00	Nos		
PART-B	TOTAL PLUMBING WORKS				0.00
PART-C	INTERNAL & EXTERNAL ELECTRICAL WORK				
1	SUB STATION, TR & DG:- SUPPLY OF 33 KV 3 VCB PANEL				

Supply, testing & commissioning of out door type (IP56) floor mounting, dust/vermin proof & water resist, front operated construction, enclosure class - IP 4X, powder coated after proper treatment with 9 tank process, 33 KV VCB breaker panel with 3 nos VCB breakers (1 incomer and 2 out goings), totally enclosed & fully interlocked, horizontal drawout, horizontal isolation type breaker, having capacities as mentioned below, single break, trip free mechanism, motorised charged and auto closing breaker suitable for use on 33 KV, 3 Phase, 50 Hz A. C. supply with short circuit fault level of 26.3 KA, complete with self contained, fully interlocked, rack in and rack out mechanism, air insulated but encapsulated Copper alloy bus bars of suitable fault level having conductivity of 97 to 99 % , Al. earth bar, earth bar, breaker featured with mechanical ON / OFF indicator with hand trip device, spring release coil, shunt trip coil, control voltage of 24 Volt DC, TNC, LED type indicating lamps for phases and trip conditions and auxiliary switch of 6 NO + 6 NC and equipped with following switchgears and accessories.				
The panel should be suitable for connections for up to 3 x 300 sq.mm XLPE 33 KV cable (cable entry from bottom/side), end termination with heat shrinkable jointing material etc. as required. (The Cost of end termination not included in this item)				
power pack (1 working & 1 standby) with 220 Volt AC input & 24 Volt DC continuous output suitable for indicating lights & closing / tripping / indication of HT panel board with 2 Nos. 12 Volts each maintenance free batteries of suitable AH each, charging unit, capacitor bank for emergency delivering for trip system complete with suitable capacity of Ammeter & Voltmeter i/c connections with 2.5 sq.mm FRLS insulated copper conductor cable etc. including DC DB consisting of suitable rating & nos of DP MCB's for DC supply distribution to panels as required.				
Makes : - 33 KV Breaker - ABB / SIEMENS / AREVA / Schneider Electric/ CG				
Incoming - 1 No. 630 Amp. VCB breakers with followings -				
(a) 1 set (3 nos) 33 KV / $\sqrt{3}$ / 110 / $\sqrt{3}$ Volts drawout type PT Class 0.5 accuracy and 100 VA burden with 1 No. Voltmeter (0-36 KV), digital type, selector switch for voltmeter and protection fuses/MCB for HT metering.				
(b) 3 nos. dual core dual ratio CTs of ratio 30/5/5A of 15 VA burden and accuracy class-0.5 for metering and class 5P10 for protection.				
(c) 1 No. - (0-30A) Ammeter, digital type with selector switches.				
(d) Master trip relay				
(e) Trip circuit supervision relay				
(f) Microprocessor based numerical relay with IDMT setting for O/L, E/F and S/C protection.				

	(g) Energy analyser (digital type) consisting of I, V, KW, KWH, KVA, KVAH, KVARH, PF, HZ & MDI with RS 485 port.				
	(h) Over voltage relay.				
	(i) Timer and TNC switch				
	Outgoing - 2 Nos. - 630 A VCB breakers with followings in each breaker -				
	(a) 3 nos. dual core dual ratio CTs of ratio 20/5/5A of 15 VA burden and accuracy class-1 for metering and class 5P10 for protection.				
	(b) (0-20A) Ammeters, dual scale digital type & selector switches for ammeters.				
	(c) Microprocessor based numerical relay with IDMT & instantaneous element for O/L, E/F and S/C protection.				
	(d) 12 window Annunciation panel with necessary relays, audio and visual indicators and push buttons.				
	Oil temperature alarm and trip - 2 windows.				
	Winding temperature alarm and trip / spare - 2 windows.				
	Buchholtz alarm and trip - 2 windows.				
	Over current and earth fault - 2 windows.				
	Pressure release valve alarm and trip - 2 windows.				
	spare window - 2 windows.				
	(e) Auxilliary relay for Buchholtz / OTI / WTI / MOG / OLTC surge with alarm & trip.				
	(f) TNC switch				
	(g) Master trip relay				
	(h) Trip circuit supervision relay as mentioned above 1	1.00	SET		
2	SUPPLY OF TRANSFORMER (33 KV / 0.4 KV)				
	Supply, testing & commissioning of Outdoor mounted type 33 KV / 415 Volt Transformer (as per IS : 2026, P1 to P5, IS: 1180 Part-01, IS: 7421 & IS: 3347), 3 phase, 4.5 % impedance, Dyn 11 vector group, 50 cycles, (ONAN) oil immersed naturally cooled, step down, copper wound, continuous duty, temperature rise above 50°C in oil by thermometer 40°C, in winding by resistance 45°C (as per IS 1180 part-1) and other standard accessories as required including followings :				
	The Transformer losses should confirm to IS - 1180 Part-1 (2014) with energy efficiency level 2				
	Make : - Crompton Greaves / Kirlosker / Schneider Electric / Voltamp / ABB				
	a) Cable Termination box with disconnecting facility for 33 KV 3C-300 sq mm XLPE cable at 33 KV side				
	b) Cable Termination box with disconnecting facility for required nos. LT cable at LT side.				

	c) Off circuit Tap Changer on HV side + 10 % to - 10 % @ 2.5 % in manual mode with position indicator and locking arrangements.				
	d) Unidirectional rollers.				
	e) Oil Conservator with filter cap, drain plug & oil level gauge				
	f) Earthing terminals 2 nos for body earthing.				
	g) 0.415 KV neutral seperately bought out on a bushing for neutral earthing.				
	i) Pressure release device. Double diaphragm explosion vent.				
	j) Radiators Detachable type with top & bottom shut off valve.				
	k) First filling of filtered dehydrated oil as per IS : 335 including make up fill during installation & 10% extra.				
	l) Silica gel breather with connecting pipe & oil seal.				
	m) Rating, Diagram & Terminal marking plate of SS.				
	n) Sampling Valves for filtration, drainage and filling with plugs.				
	o) Air release plugs.				
	p) Thermometer pocket with plug.				
	q) Lifting Lugs.				
	r) Double float Buchholz relay with gas release cock, alarm & shut off valve on either side with separate set of contacts for trip and alarm.				
	t) 150 mm Oil temperature indicator (OTI) with alarm				
	u) Marshalling Box.				
	v) Clamping device.				
	w) Jacking Pads.				
	x) Ladder with safety device for access to the top of transformer tank.				
	The work shall be complete in all respects up to the satisfaction of Engg-in-charge as mentioned above 2				
	630 KVA	2.00	SET		
3	SUPPLY OF DIESEL GENERATING SET WITH AMF PANEL				
	Supply, testing and Commissioning of Silent type Diesel Generating Set with AMF Panel at 0.8 PF, 415 Volts, 50 cycles per second, 1500 rpm, 3 phase, suitable for parallel operation / PLC based load management, 0.85 load factor including circuit breaker for isolation, sound proof acoustic and weather proof enclosure, residential type silencer (as per CPCB norms-4) fabricated out of CRCA sheet of 16 SWG thickness with 9 tank pretreated before powder coating with ventilation system complete in all respects comprising of the following.				
	OEM - Jakson Ltd (Cummins) / Jakson & Co.(Kirloskar) / Kohler {Engine - Cummins, MTU, Mitsubishi-Japan and Caterpillar, Kirloskar} {Alternator - Stamford / Leroy Somer / Greaves / Marathon}				

Diesel Engine -				
Diesel Engine suitable for driving alternator of above rating, compression ignition, 4 stroke cycle, Radiator cooled, turbo charged, battery starting, 1500 RPM, suitable for above output of alternator at 40°C, 50% RH & at 210 M MSL and confirming to BS 5514, BS 649, IS 10000, capable of taking 10% overloading for one hour after 12 hrs of prime continuous loading, complete with all the accessories i.e. tachometer with hour meter, flexible coupling with guard, crank case of steel, crank shaft, connecting rods, mechanical governing system, dynamically balanced flywheel, air intake manifold, Air cleaner, anti vibration pads, starter motor, including all other accessories required to complete the system.				
Instrument Panel - Engine mounted Instrument Panel fitted with and having digital display for followings :				
Start stop switch with key				
Water temperature indication				
Lubrication oil pressure indication.				
Lubrication oil temperature indication.				
Battery charging indication				
RPM indication				
Over speed indication				
Low Lube oil trip indication				
Engine hours indication				
Alternator -				
Synchronous Alternator of above capacity at 0.8 PF, 3 phase, 415 volts, 50 cycles, 4 wire, 1500 RPM, suitable for operation at 40 deg C, 50% RH & at 210 meter above MSL, capable of taking 10% overloading for one hour after 12 hrs of prime continuous loading, brushless, self excited, self regulated through AVR, continuous duty confirming to IS 4722, BS 2613 suitable for tropical conditions, class H insulation, including terminal box suitable for cable termination as required.				
Base Frame - Both the engine and alternator shall be mounted on suitable base frame made of MS channel which shall be installed on cement concrete foundation and vibration isolating arrangement as per recommendations of manufacturer.				
Inbuilt Fuel tank of standard capacity complete with inlet and outlet connections, oil indication gauge, drain plug, air breather, fuel transfer system for automatic fuel refilling system with pump, piping, valves, level indicators etc. complete.				

Daily service Fuel tank of 990 liters capacity fabricated out of 2 mm thick MS sheet complete with inlet and outlet connections, oil indication gauge, drain plug, air breather, provision for fuel transfer system, level indicators and all standard accessories etc. as required.				
Exhaust Silencer - Exhaust manifold with residential silencer.				
The D G set should be supplied with required hardware for external PLC based auto load management system / AMF Panel.				
Starting system - 12 Volt DC starting system comprising of starter motors : voltage regulator and arrangement for initial excitation complete with 12/24 Volts suitable nos. lead acid type batteries of suitable AH.				
Ventillation System - Arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air into the atmosphere as per standard specifications.				
A M F Panel -				
Fabricating, Installing, Testing & Commissioning of automatic mains failure control including auto by-pass suitable for silent type DG set complete with relays, timers set of CTs for metering & projection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH , KVARH & provision for overload, short circuit, restricted earth fault, under frequency, control cabling from AMF panel to diesel engine and elsewhere if required, all complete and inter locking including the following:				
TP+N MCCB of suitable rating with AC1 contactor/ MDO / EDO cradle type 3 position ACB with electronic release for O/C & E/F and shunt trip.				
Auto/Manual/Test/Off selector switch				
D G Start / stop push button, emergency stop push button,				
2 Nos. over voltage relay , 2 Nos. reverse power relay and 2 Nos. under voltage relay.				
3 sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering				
Energy analyser unit to indicate current voltage frequency power factor and KWH				
Indicating lamps for Mains ON/OFF, DG supply ON/OFF, DG running, DG fails to start.				
Fuse for instruments				
Battery charger, complete with transformer/ rectifier, D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment.				
Main supply failure monitor				
Supply failure timer				
Restoration timer				

	Control unit with three impulse automatic engine start/stop and failure to start lockout.				
	Impulse counter with locking and reset facility.				
	ON/OFF/Control circuit switch with indicator				
	Audio/Vedio 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 as mentioned above 3				
	58.5 KVA	1.00	SET		
4	SUB HEAD - 2 MAIN LT PANEL & OTHER PANELS				
	Supply of Main L.T. Panel				
	Design, manufacture, supply inspection, handling, assembling, affecting proper connections, testing and commissioning of 14 SWG CRCA sheet steel fabricated cubical type Main L.T. Panel , floor mounting, dust & vermin proof, front operated construction, enclosure class - IP 52, powder coated after proper treatment with 9 tank process with top/bottom removable gland plates, as required, double compression type cable glands, earth bus, hinged and lockable doors to achieve dust and vermin proof complete with all inter connections small wiring by min. 2.5 sq. mm. FRLS copper wires, ckt labels etc. The Aluminium Bus Bar shall be of suitable length, 500 volts, 3 phase 50 Hz TPN, electrolytic aluminium as per IS 8623 . The panel feeders shall be suitable for terminating suitable nos. 3.5 / 4 core armoured aluminium cable or Aluminium Bus Duct as required.				
	All Incoming / bus coupler / Outgoings ACB's shall have inbuilt microprocessor based Over load protection (L), Short Circuit protection (S), Instantaneous Short Circuit protection (I), Earth Fault protection (G), Shunt Trip releases. All ACB should have Ics=Icu=Icw=50 KA for 1 sec, fully rated at 50 deg C ambient temperature & shall be supplied with adopter terminal connection whose orientation can be changed at site. All ACB shall be supplied with all standard accessories i.e. auxillary switch with 4NO + 4NC contacts, cradle, handle, safety shutter in confirmity with IS:60947				
	All MCCB's shall be microprocessor based with O/L & S/C and E/F protection.				
	All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with heavy duty solid isolable neutral link.				

The breaking capacity specified for all ACB's and MCCB's breakers is Ics value (service rating).				
Mix & Match families / makes of ACB's / MCCB's shall not be allowed, They are all of same manufacturer.				
The instrument chamber shall be separate and shall comprise of flush type ammeter, voltmeter, selector switches, cast resin type CT's & PT's, etc. Separate CT's shall be provided for protective and measuring system and for APFCR of capacitor bank with suitable VA.				
Each section of Panel shall have door operated light of sufficient lux to illuminate that section & each section of capacitor, buscoupler & transformer incomers shall have exhaust fans for ventilation purpose.				
All Energy Analyser / TVM Shall have RS 485 Modbus RTU on board Communication protocol for SCADA communication.				
The fault withstanding capacity of panel & its control gear shall be min. 25 KA rms for 1 sec.				
GA drawings shall be got approved from Owners / Architects / Consultants before fabrication. The panel has to be specifically fabricated as per the space available at site.				
ACB Make and model :- ABB E-max, L&T-U Power Omega, Schneider - Master Pact - NW, Legrand-DMX ³				
MCCB Make and model :- ABB - T-max, L&T - D sine, Schneider - Compact NS / NSX, Legrand-DPX				
INCOMERS from 2 Nos. 630 KVA Transformers				
2 nos. 1000 AMP. Four Pole, Electrically operated 3 position motorized (220 V AC) drawout type Air Circuit Breaker with all inbuilt protections, with microprocessor based release, over current, earth fault, short circuit, Instantaneous short circuit, closing coil (220 V AC), trip coil (24 V DC), shunt trip release, inbuilt U/V release with LCD / LED display for event history with interrupted current value during fault & measurement of current parameters, 50 KA Breaking Capacity with all standard accessories i.e. auxiliary switch with 4NO + 4NC contacts, cradle, handle, safety shutter in conformity with IS:60947				
ACB and Release Make / model :- ABB E-max (PR122), L&T-U Power Omega (MTX 2.5G), Schneider - Master Pact -NW (Micrologic 6.0A), Legrand - DMX ³ (MP4-LSIG)				
The ACB shall be electrically interlocked with the bus coupler and transformer incomers.				
1 nos. 20 KVAR capacitor bank with 63 amp TP MCCB (25 KA) for each transformer incomer.				

Protection releases / relays, Metering & Accessories for each Transformer incomers				
Surge Protection Device - Type - 01 (Class - B), 10/350 μ sec. (100 / 25KA)				
Over Voltage / Under Voltage relay / release (3 phase) with timer.				
Backup earth fault relay.				
Master trip relay.				
Trip Circuit Supervision relay.				
TNC switch.				
Auto manual selector switch.				
1 nos. 0-500 volt range digital type voltmeter with selector switch				
1 set of 3 CT's of ratio 1000/5A, Class 1.0 accuracy 15 VA burden for metering.				
1 set of 3 CT's of ratio 1000/5A, Class 1.0 accuracy 15 VA burden for APFCR.				
1 set - 415 / $\sqrt{3}$ / 110 / $\sqrt{3}$ Class 1.0 accuracy 100 VA burden PT along with primary and secondary fuse.				
1 set of 3 CT's of ratio 1000/5A, Class 5P20 for protection.				
1 no. 0-1000 Amp range digital type ammeter with selector switch.				
Energy analyser (digital type) consisting of I, V, KW, KWH, KVA, PF, HZ, MDI (EM 6400 of Conserve or equi.) with RS 485 communication port for communication / report generation.				
Power factor meter.				
Frequency meter.				
3 Nos. LED type phase indicating lamps, each lamp shall be with backup MCB along with hooter, auxillary relay, 2 sets of push buttons.				
6 Nos. LED type indicating lamp for indicating the status of feeder - ON / OFF / TRIP / Trip circuit healthy / DC supply healthy / Spring charged. Each lamp shall be with backup MCB.				
BUS COUPLER				
1 no. 1000 AMP. Four Pole, Electrically operated 3 position motorised (220V AC) drawout type ACB's, closing coil (220V AC), trip coil (24V DC), with inbuilt U/V release 50 KA Breaking Capacity with all standard accessories i.e. auxillary switch with 4NO + 4NC contacts, cradle, handle, safety shutter in conformity with IS:13947-2.				
ACB and Release Make / model :- ABB E-max (PR121), L&T-U Power Omega (MTX 1.0G), Schneider - Master Pact -NW (Micrologic 6.0G), Legrand - DMX ³ (MP4-LSIG)				
Protection releases / relays, Metering & Accessories for Bus Coupler (s)				
Trip circuit supervision relay				

	TNC switch.				
	Auto / manual selector switch				
	5 Nos. LED type indicating lamp for indicating the status of feeder - ON / OFF / TRIP / Trip circuit healthy / DC supply healthy. Each lamp shall be with backup HRC fuse/MCB.				
	The bus coupler shall be electrically interlocked with all incoming ACB's in such a way that at any one time two supply should not get mixed up.				
	BUS BARS				
	Bus Bar Make :- HINDALCO / JINDAL.				
	2 sections of 1000 AMP , 415 Volts, 3 phase 50 HZ TPN high conductivity electrolytic Aluminium bus bar with conductivity on min 57 to 58% of suitable length, SMC / DMC supports, with colour coading and insulated by heat shrinkable sleeves and clip on shrouds for joints.				
	The current density of bus bar up to 1000 Amp shall be minimum 1.00 sq mm / amp				
	The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above design ambient temperature of 50 deg C.				
	OUTGOINGS -				
	All outgoing feeders shall be provided with one set of phase indication lamps and trip indication lamps with protection fuses/MCB and ammeter with selector switch with suitable ratio CT's of accuracy class 1.0				
	All outgoing feeders shall be provided with KWH meter with RS 485 communication port except capacitor feeder, CT's with accuracy class 1, control circuits and wiring as per SLD.				
	MCCB Make and model :- ABB - T-max, L&T - D sine, Schneider - Compact NS / NSX, Legrand-DPX				
	1 no. 800 AMPS 4P MCCB. (25 KA)				
	4 nos. 630 AMPS 4P MCCB. (25 KA)				
	4 nos. 400 AMPS 4P MCCB. (25 KA)				
	1 no. 250 AMPS 4P MCCB. (25 KA)				
	Main LT Panel as described above	1.00	SET		
5	SUPPLY OF AUTOMATIC POWER FACTOR CORRECTION PANEL (APFC PANEL -1 / 2)				

Design, manufacture, supply, inspection, handling, assembling, affecting proper connections, testing and commissioning of 14 SWG CRCA sheet steel fabricated cubical type 150 KVAR A P F C Panel consisting of 5 / 10 / 20 / 25 / 50 KVAR (at 415 Volts rated voltage of bank shall be 440 Volts) capacitor units in tier formation, housed in an integrated cubicle type automatic switching ON and OFF control panel, floor mounting, dust & vermin proof, front operated construction, enclosure class - IP 52, powder coated after proper treatment with 9 tank process with top/bottom removable gland plates, as required, double compression type cable glands, earth bus, hinged and lockable doors to achieve dust and vermin proof complete with all inter connections small wiring by min. 2.5 sq. mm. copper wires, ckt labels etc. The Aluminium Bus Bar shall be of suitable length, 500 volts, 3 phase 50 Hz TPN, electrolytic aluminium as per IS 8623 .				
The MCCB's shall be thermal-magnetic based with inbuilt O/L & S/C release.				
All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with heavy duty solid isolable neutral link. The breaking capacity specified is Ics value. The instrument chamber shall be separate and shall comprise of flush type ammeter, voltmeter, selector switches, CT's, PT's, etc				
Mix & Match families / makes of MCCB's / MCB's shall not be allowed, They are all of same manufacturer.				
Capacitor duty contactors should be used for switching individual capacitor banks.				
The fault withstanding capacity of panel & its control gear shall be min. 25 KA rms for 1 sec.				
Each section of capacitor panel shall have Vertical hood & exhaust fans for ventilation purpose.				
INCOMING				
Incomer circuit breaker has been included in the main panel.				
1 set- 3 CTs , ratio 400/5A Class 1.0 accuracy 15 VA burden for metering.				
1Nos- (0-400A) digital Ameter with selector switch				
Micro processor based automatic power factor control relay (3 phase) (including power factor meter) in 8 steps for automatic cut off or add on capacitor units to keep the power factor at 0.95 with variation of loads. All associated auxiliary contactors / relays shall be provided with in the scope of work.				
Phase indicating lamps with HRC fuses, and indicating in each capacitor chamber unit to indicate On/Off status of capacitor unit.				
BUS BARS				

	400 AMP, 500 Volts, 3 phase 50 HZ TPN high conductivity electrolytic Aluminium bus bar with conductivity on min 57 to 58% of suitable length, SMC / DMC supports, with colour coding and insulated by heat shrinkable sleeves and clips on shrouds for joints. The current density of bus bar shall be minimum 1.00 sq mm / amp.				
	The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above ambient temperature.				
	OUTGOINGS -				
	1 nos. of 125 AMPS TPN 25 KA MCCB and 150 amps AC3 duty contactor with 50 KVAR heavy duty MPP type at 415 V capacitor bank (rated Voltage 440 Volts) , auto-manual selector switch, start stop push button for manual operation including on/off indicating lamps and delay timer complete.				
	2 nos. of 63 AMPS TPN 25 KA MCCB and 80 amps AC3 duty contactor with 25 KVAR heavy duty MPP type at 415 V capacitor bank (rated Voltage 440 Volts) , auto-manual selector switch, start stop push button for manual operation including on/off indicating lamps and delay timer complete.				
	1 no. of 63 AMPS TPN 25 KA MCCB and 80 amps AC3 duty contactor with 20 KVAR heavy duty MPP type at 415 V capacitor bank (rated Voltage 440 Volts) , auto-manual selector switch, start stop push button for manual operation including on/off indicating lamps and delay timer complete.				
	2 nos. of 32 AMPS TPN 25 KA MCCB and 40 amps AC3 duty contactor with 10 KVAR heavy duty MPP type at 415 V capacitor bank (rated Voltage 440 Volts) , auto-manual selector switch, start stop push button for manual operation including on/off indicating lamps and delay timer complete.				
	2 nos. of 16 AMPS TPN 25 KA MCCB and 20 amps AC3 duty contactor with 5 KVAR heavy duty MPP type at 415 V capacitor bank (rated Voltage 440 Volts) , auto-manual selector switch, start stop push button for manual operation including on/off indicating lamps and delay timer complete as mentioned above 5	2.00	SET		
6	Supply of Essential L.T. Panel				

Design, manufacture, supply inspection, handling, assembling, affecting proper connections, testing and commissioning of 16 SWG CRCA sheet steel fabricated cubical type Essential L.T. Panel , floor mounting, dust & vermin proof, front operated construction, enclosure class - IP 52, powder coated after proper treatment with 9 tank process with top/bottom removable gland plates, as required, double compression type cable glands, earth bus, hinged and lockable doors to achieve dust and vermin proof complete with all inter connections small wiring by min. 2.5 sq. mm. FRLS copper wires, ckt labels etc. The Aluminium Bus Bar shall be of suitable length, 500 volts, 3 phase 50 Hz TPN, electrolytic aluminium as per IS 8623 . The panel feeders shall be suitable for terminating suitable nos. 3.5 / 4 core armoured aluminium cable or Aluminium Bus Duct as required.				
The incoming MCCB shall be thermal-magnetic based with inbuilt O/L & S/C release with E/F protection and all Outgoings MCCB's shall be thermal-magnetic based with inbuilt O/L & S/C release.				
All MCCB's shall be Ics = 100% Icu, Thermo-magnetic type with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with solid isolable neutral link. The breaking capacity specified is Ics value. All outgoing MCB's shall be C type with 10 KA breaking capacity.				
GA drawings shall be got approved from owners / Consultants before fabrication.				
(Switchgears Make : ABB / L&T / Siemens / Schneider)				
INCOMER FROM DG AMF PANEL				
1 nos 250 AMP FP MCCB of 25 KA & 1 nos. 250 AMP FP Contactor (AC3).				
Protection releases / relays, Metering & Accessories for incomers				
0-500 volt range voltmeter with selector switch (P.T. connected)				
Class 1.0 accuracy 15 VA burden C.T. operated ammeter with selector switch				
1 nos electronic dual reading KWHR meter with RS 485 communication port, CT's with accuracy class 1.0 , control circuits and wiring as per SLD.				
(Switchgears Make : ABB / L&T / Legrand / Schneider)				
INCOMERS from Solar PV Panel				
1 nos 250 AMP FP MCCB of 25 KA & 1 nos. 250 AMP FP Contactor (AC3) with KWAH meter along all accessories as per SLD.				
BUS BARS				

	BUS BAR : 300 AMP, 500 Volts, 3 phase 50 HZ FP (with 100% neutral) high conductivity electrolytic Aluminium bus bar with conductivity of min 57 to 58% of suitable length, insulated by heat shrinkable sleeves. The current density of bus bar shall be minimum 1.00 sq mm / amp.				
	The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above ambient temperature.				
	OUT GOINGS :				
	2 nos 200 AMP FP MCCB (25 KA)				
	2 nos 63 AMP FP MCCB (25 KA)				
	3 nos 40 AMP FP MCB (10 KA) as mentioned above 6	1.00	SET		
7	Supply of Block Common Services Panel				
	Design, manufacture, supply, testing and commissioning of Block Common Services Panel fabricated out of 16 SWG CRCA sheet steel, IP 52, wall / floor mounting type. The sheet steel shall undergo minimum 9 tank treatment followed by finishing powder coating of min 60 micron thickness. the board includes 415 V electrolytic Aluminium Bus Bar, removable gland plates, cable glands, including connection with outgoing feeders complete in all respect.				
	The incoming MCCB shall be thermal-magnetic based with inbuilt O/L & S/C release with E/F protection and all Outgoings MCCB's shall be thermal-magnetic based with inbuilt O/L & S/C release.				
	All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with solid isolable neutral link. The breaking capacity specified is Ics value. All outgoing MCB's shall be C type with 10 KA breaking capacity.				
	The above board shall be complete with 3 nos. phase indicating lights, flush mounted Ammeter, Voltmeter, CT's, PT's, selector switches, protective fuses etc. at Incomer with all inter connections by min. 2.5 sq.mm. Copper wires.				
	(Switchgears Make : ABB / L&T / Legrand / Schneider)				
	INCOMER : 200 AMP FP MCCB (25 KA)				
	Energy analyser (digital type) consisting of I, V, KW, KWH, KVA, PF, HZ, MDI (EM 6400 of Conserve or equi.) with RS 485 communication port for communication / report generation.				
	BUS BAR : 300 AMP, 500 Volts, 3 phase 50 HZ FP (with 100% neutral) high conductivity electrolytic Aluminium bus bar with conductivity of min 57 to 58% of suitable length, insulated by heat shrinkable sleeves. The current density of bus bar shall be minimum 1.00 sq mm / amp.				

	The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above ambient temperature.				
	OUT GOINGS :				
	3 nos 100 AMP FP MCCB (25 KA)				
	3 nos 63 AMP FP MCCB (25 KA)				
	1 nos 40 AMP FP MCCB (16 KA)				
	1 nos 63 AMP DP MCB (10KA)				
	9 nos 40 AMP DP MCB (10KA)	1.00	SET		
8	Supply of Elevator Panel -1 & 2				
	Design, manufacture, supply, testing and commissioning of Elevator Panel -1 & 2 fabricated out of 16 SWG CRCA sheet steel, IP 52, wall / floor mounting type. The sheet steel shall undergo minimum 9 tank treatment followed by finishing powder coating of min 60 micron thickness. the board includes 415 V electrolytic Aluminium Bus Bar, removable gland plates, cable glands, including connection with outgoing feeders complete in all respect.				
	The incoming MCCB shall be thermal-magnetic based with inbuilt O/L & S/C release with E/F protection and all Outgoings MCCB's shall be thermal-magnetic based with inbuilt O/L & S/C release.				
	All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All TP MCCB shall be with solid isolable neutral link. The breaking capacity specified is Ics value. All outgoing MCB's shall be C type with 10 KA breaking capacity.				
	The above board shall be complete with 3 nos. phase indicating lights, flush mounted Ammeter, Voltmeter, CT's, PT's, selector switches, protective fuses etc. at Incomer with all inter connections by min. 2.5 sq.mm. Copper wires.				
	(Switchgears Make : ABB / L&T / Legrand / Schneider)				
	INCOMER : 125 AMP FP MCCB (25 KA)				
	The above board shall be complete with 3 nos. phase indicating lights, flush mounted Ammeter, Voltmeter, CT's, PT's, selector switches, protective fuses etc.				
	BUS BAR : 200 AMP, 500 Volts, 3 phase 50 HZ FP (with 100% neutral) high conductivity electrolytic Aluminium bus bar with conductivity of min 57 to 58% of suitable length, insulated by heat shrinkable sleeves. The current density of bus bar shall be minimum 1.00 sq mm / amp.				
	The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above ambient temperature.				
	OUT GOINGS :				

	2 nos 63 AMP FP MCCB (25 KA)				
	2 nos 40 AMP FP MCCB (25 KA)				
	1 nos 63 AMP FP MCB (16 KA)				
	1 nos 63 AMP DP MCB (10KA)				
	2 nos 32 AMP DP MCB (10KA)	2.00	SET		
9	Supply of Meter Board -1 & 2				
	Design, manufacture, supply, testing and commissioning of Meter Board - 1 & 2 fabricated out of 16 SWG CRCA sheet steel, IP52, wall / floor mounting type. The sheet steel shall undergo minimum 9 tank treatment followed by finishing powder coating of min 60 micron thickness. the board includes 415 V electrolytic Aluminium Bus Bar, removable gland plates, cable glands, including connection with outgoing feeders complete in all respect.				
	The incoming MCCB shall be thermal-magnetic based with inbuilt O/L & S/C release with E/F protection.				
	All MCCB's shall be Ics = 100% Icu, with rotary handle & pad locking arrangement, with adjustable O/L & S/C trip setting as per load requirement. All outgoing MCB's shall be C type with 10 KA breaking capacity.				
	3 phase electronic type KWHR meters and MCB's as required consisting of compartments of suitable sizes each of 16 SWG MS sheet steel fabricated, dust & vermin proof with hinged and lockable doors for following meters.				
	22 nos. 3 phase electronic type KWHR meters.				
	The above board shall be complete with 3 nos. phase indicating lights, flush mounted Ammeter, Voltmeter, CT's, PT's, selector switches, protective fuses etc. at Incomer with all inter connections by min. 2.5 sq.mm. Copper wires.				
	GA drawings shall be got approved from owners / Consultants before fabrication.				
	(Switchgears Make : ABB / L&T / Legrand / Schneider)				
	INCOMER				
	1 nos 630 AMP FP MCCB (25 KA)				
	BUS BARS				
	BUS BAR : 630 AMP, 500 Volts, 3 phase 50 HZ TPN high conductivity electrolytic Aluminium bus bar with conductivity of min 57 to 58% of suitable length, insulated by heat shrinkable sleeves. The current density of bus bar shall be minimum 1.00 sq mm / amp.				
	The Maximum allowable temperature for the Bus bar to be restricted to 85 deg C. The temperature rise should be restricted to 35 deg C above design ambient temperature of 50 deg C.				

	OUT GOINGS :				
	22 nos. 63 AMP FP MCB (10KA) along with KWH energy meter	2.00	SET		
10	Installation of 33 kV panel will include receiving, storing, handling, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the Panel manufacturers, civil contractors etc complete in all respects. The small items such as nut, bolts and other accesories required for erection of panel will be included in the rates. (The civil work for the foundation will be seperate).				
	33 KV 3 VCB PANEL (Supply under separate tender)	1.00	SET		
11	Installation of Transformer - The instalation of 33 / 0.433 kV Transformer will include receiving, storing, handling, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the transformer manufacturers / supplier, civil contractors etc complete in all respects. The small items / accessories required for erection of transformer will be included in the rates. (The civil work for the foundation will be seperate).				
	630 KVA (Supply under separate tender)	2.00	SET		
12	Installation of Silent Type D G Set - The instalation of D G Set will include receiving, storing, handling, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the D G Set supplier, civil contractors etc complete in all respects. The small items / accessories required for erection of D G Set will be included in the rates. (The civil work for the D G Set foundation will be seperate).				
	58.5 KVA (Supply under separate tender)	1.00	SET		
13	INSTALLATION OF LT PANELS & METER BOARD				
	The instalation of panel will include receiving, storing, handling, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the Panel manufacturers, civil contractors etc complete in all respects. The small items such as nut, bolts and other accesories required for erection of panel will be included in the rates.				
13.1	Main L T Panel (Supply under seprate tender)	1.00	SET		
13.2	APFC Panels (Supply under seprate tender)	2.00	SET		
13.3	Essential LT Panel (Supply under seprate tender)	1.00	SET		
13.4	Block Common Services Panel (Supply under seprate tender)	1.00	SET		
13.5	Elevator Panels (Supply under seprate tender)	2.00	SET		
13.6	Meter Board (Supply under seprate tender)	2.00	SET		
14	EXTERNAL LIGHTING FEEDER PILLAR				

Fabrication, supply, installation, testing & commissioning of outdoor type compartmentalized feeder pillar tapered (hut type) made out of 2mm thick CRCA sheet having separate cable and bus bar alley double door arrangement with two leaf door on front side and single door with double leaf on rear side with locking arrangement, having 100 amp TPN Aluminum bus bar of full length with base frame made out of 50x50x6mm thick angle iron having 150 mm legs duly erection in ground with construction of cement concrete complete with connection and interconnection with copper conductor PVC insulated cables / insulated copper conductor strip of appropriate size and terminals blocks (on outgoing) including supplying and fixing following switch gears & accessories there in powder coating, labeling, earthing etc. complete as required.				
Supplying & fixing of following accessories in the existing cubical panel board / feeder pillar including connection testing etc. as reqd.				
Supplying, fixing, connecting, testing and commissioning of Astronomical Timer along with power contactor 3 set of Double pole of 25 Amp. in the existing cubical panel board / feeder pillar (Timer shall be capable to operate 3 nos double pole Power contactor separately to operate at different time schedule), complete in all respects. Timer & Contactor Make : Legrand (Model : Alpha Rex ³ D21 astro) / L& T / ABB / Schneider / Siemens				
The above board shall be complete with 3 nos. phase indicating lights, flush mounted Ammeter, Voltmeter, CT's, PT's, selector switches, protective fuses etc. at Incomer with all interconnections by min. 2.5 sq.mm. Copper wires.				
Danger notice plate				
External Lighting Feeder Pillar :-				
INCOMER				
40 AMP FP MCB (10 KA)				
BUS BAR : 200 AMP, 500 Volts, 3 phase 50 HZ FP high conductivity electrolytic Aluminium bus bar. The current density of bus bar shall be minimum 1.00 sq mm / amp.				
OUT GOING				
10 nos. 16 AMP DP MCB (10 KA)				
INSTALLATION OF PANELS				

	The instalation of panel will include receiving, storing, handling, installation, testing and commissioning, affecting proper connections with the power and control cables, coordination with the Panel manufacturers, civil contractors etc complete in all respects. The small items such as nut, bolts and other accesories required for erection of panel will be included in the rates.				
	External Lighting Feeder Pillar	1	SET		
15	DISTRIBUTION BOARDS				
	Supplying, installing, testing & commissioning of surface / recessed mountings, Double door 415 volts TPN MCB distribution board of steel steel, 1.6mm thick dust phosphatized and painted, inclusive of 100 amps, tinned copper bus-bars, earthbar, common neutral link, din bar for mounting of MCB's detachable gland / knock out plate & with built in loose wire box, and superior make terminal connectors for all incoming and outgoing circuits duly prewired with adequate size of PVC insulated copper wires between the bus-bars and the MCB's as well as the incomer and upto the terminal connectors / neutral link and ready for installation of following ways as required.				
	Single phase DB: 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 including the supply and installation of the following number of MCB / RCCB / Isolator as required. Blanking plates to be used wherever required to cover the unused slots in the DB.				
	Three phase DB: Supplying and fixing following way, triple pole and neutral, sheet steel, Horizontal MCB distribution board, 415 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 including the supply and installation of the following number of MCB / RCCB / Isolator as required. Blanking plates to be used wherever required to cover the unused slots in the DB.				
	Use 'B' curve MCB's for lighting & small power circuits, 'C' curve for motor duty i.e. for pumps, AC motors, window and split AC's etc. & 'D' curve for UPS DB's i.e. for computers / PC's circuit. Main incomer & outgoing circuit MCB's shall be selected accordingly i.e. type B, C & D. Contractor to select the MCB's accordingly as per the nature of the circuit / load.				

	VTPN DB: Supplying and fixing following way, triple pole and neutral, sheet steel, vertical MCB distribution board, 415 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 including the supply and installation of the following number of MCB / RCCB / Isolator as required. Blanking plates to be used wherever required to cover the unused slots in the DB.				
	Note:-				
	Each DB shall have separate neutral links of rating not less than 100A for each phase. The main incoming neutral link shall be in addition to three outgoing neutral links and shall be of 125A.				
	UPS DB's shall have a dedicated Earthing link fixed on insulated supports, which will be in addition to body earth link.				
	All internal inter connecting wiring with in the DB's shall be PVC insulated flexible copper conductor wires of adequate capacity as per the current rating.				
	Inside each DB, a DB chart is to be fixed.				
	DB Make: Legrand / Schneider / Seimens				
15.1	10-Way, TPN DB (L+P DB) for (Appartment)	36	Nos.		
	Incomer:-				
	1 No. 63 Amp TPN (10 kA) RCCB (100 mA).				
	Outgoing:-				
	30 Nos. 10/16/20/32 Amp (10 kA) SP MCB,				
15.2	12-Way, SPN DB (L+P DB) (Common Area) Stilt Floor	2	Nos.		
	Incomer:-				
	1 No. 40 Amp DP (10 kA) RCCB (100 mA)				
	Outgoing:-				
	12 Nos. 10/16/25 Amp (10 kA) SP MCB,				
15.3	8-Way, SPN DB (L+P DB) (Common Area) Typical floor	6	Nos.		
	Incomer:-				
	1 No. 40 Amp DP (10 kA) RCCB (100 mA)				
	Outgoing:-				
	8 Nos. 10/16/25 Amp (10 kA) SP MCB,				
15.4	8-Way, SPN DB (For INVERTER) Appartment	36	Nos.		
	Incomer:-				
	1 No. 40 Amp DP (10 kA) RCCB (100 mA)				

	Outgoing:-				
	8 Nos. 10/16/25 Amp (10 kA) SP MCB,				
15.5	12-Way, SPN DB (For Lift Machine Room)	2	Nos.		
	Incomer:-				
	1 No. 40 Amp DP (10 kA) RCCB (100 mA)				
	Outgoing:-				
	12 Nos. 10/16/25 Amp (10 kA) SP MCB,				
16	Copper Conductor in Conduit				
	Supplying and laying / pulling 1100 volts grade PVC insulated copper conductor wires (ZHFR/LSZH) in 32mm MS conduit, 16 SWG, MMS as per IS code with all fixing accessories after cutting the floor, wall and the like etc. and replastering the floor level to original. Conduit must be 30 mm below the floor finish level.				
	Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab MS Conduit, 16 SWG, MMS- AKG, BEC, NIC, Precision				
16.1	2 x 6 sq.mm. + 1 x 6 sq.mm.	130.00	RM		
16.2	2 x 10 sq.mm. + 1 x 6 sq.mm.	130.00	RM		
16.3	2 x 16 sq.mm. + 1 x 6 sq.mm.	130.00	RM		
16.4	4 x 10 sq.mm. + 2 x 6 sq.mm.	100.00	RM		
16.5	4 x 16 sq.mm. + 2 x 6 sq.mm.	2100.00	RM		
16.6	1 x 10 sq.mm. Cu. Wire	100.00	RM		
16.7	1C x 1.5 sq.mm. Cu. (ZHFR/LSZH) Wire for flat inverter Gray color	5400.00	RM		
17	Aluminium / Copper Armoured Cable Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells /Polycab				
17.1	Supplying, laying, testing & commissioning of 3C x 6 sq.mm. at 1100 volts grade PVC insulated Copper conductor armoured cable with 2X4Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	525	RM		
17.2	Supplying, laying, testing & commissioning of 3C x 10 sq.mm. at 1100 volts grade PVC insulated Copper conductor armoured cable with 2X6Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	35	RM		

17.3	Supplying, laying, testing & commissioning of 4C x 6 sq.mm. at 1100 volts grade PVC insulated Copper conductor armoured cable with 2X4Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	25	RM		
17.4	Supplying, laying, testing & commissioning of 4C x 10 sq.mm. at 1100 volts grade PVC insulated Copper conductor armoured cable with 2X6Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	450	RM		
17.5	Supplying, laying, testing & commissioning of 4C x 16 sq.mm. at 1100 volts grade PVC insulated Copper conductor armoured cable with 2X6Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	75	RM		
17.6	Supplying, laying, testing & commissioning of 4C x 25 sq.mm. at 1100 volts grade PVC insulated aluminum conductor armoured cable with 2X10Sqmm 10 gauge earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	90	RM		
17.8	Supplying, laying, testing & commissioning of 3.5C x 120 sq.mm. at 1100 volts grade PVC insulated aluminum conductor armoured cable with 2X10Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	80	RM		
17.9	Supplying, laying, testing & commissioning of 3.5C x 50 sq.mm. at 1100 volts grade PVC insulated aluminum conductor armoured cable with 2X10Sqmm earth copper wire including cables end termination using appropriate Lugs, Glands, termination accessories, Clamps etc. as required as per specification.	200	RM		
18	Aluminium Armoured Cable Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab				
	Supply, laying, testing and commissioning of 1.1 kV grade XLPE insulated PVC sheathed aluminium armoured stranded conductor & Termination ISI marked LT Cables in trenches / ducts / through RCC pipes under roads / on cable trays of following sizes, complete all as specified (as per CPWD specifications for External Electrical works), i/c clamping, dressing, earth work digging, sand filling, bricks protection, back filling etc. as required & approved by Engineer's Incharge. (Tagging to be provided with aluminium strips on both the ends as approved).				
18.1	3.5C x 300 sq.mm.	380	RM		
18.2	3.5C x 240 sq.mm.	300	RM		
18.3	3.5C x 185 sq.mm.	30	RM		

19	HT.Cable Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab				
	Supply, laying, testing and commissioning of 300 sq. mm 3 core Aerial Bunched Cable 33 KV grade, top put across or on surface fixed on GI clamps or on cable tray or inside pipe etc as required including the supply of sand, bricks and clamps etc. The armouring of the cable shall be properly connected with earth conductor by clamps etc.				
	300 sq. mm 3 core Aerial Bunched Cable	200	RM		
20	Supply and laying of ISI marked Copper conductor PVC insulated control cable as per IS 1554 PVC sheathed 1100 volts grade. On surface the cable run shall be fixed by GI clamps etc. of suitable size or on existing cable tray complete in all respect .The armouring of the cable shall be properly connected with the earth conductor including fixing of palm or pin type copper tin plated cable socket (lug) to the cable leads, insulating with tape and making connections complete in all respect including end termination, double compression glands, supply of clamps, lugs, tape etc complete upto the satisfaction of Engineer-in-charge. Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab				
20.1	4 x 2.5 sq mm armoured	200	RM		
20.2	6 x 2.5 sq mm armoured	200	RM		
21	Providing and fixing M.V. danger notice plate of 200 mm x 150 mm made of mild steel, 2 mm thick and vitreous enamelled painting white on both sides, and with inscription in single red colour on front side as required .	1	Each		
22	Providing and fixing H.V. danger notice plate of 250 mm x 200 mm made of mild steel, 2 mm thick and vitreous enamelled painting white on both sides, and with inscription in single red colour on front side as required .	1	Each		
23	S/F of shock treatment chart (prescribed under I.E.rules) duly framed with glass and supported from back with hard board with supply of all material labour T & P etc for proper completion of work. (Approx front area = 1.20 sq M)	1	Each		
24	Supply and fixing of First aid box as approved by Indian red cross conforming to IS : 2217.	1	Each		
25	Supply of rubber gloves of 11 KV grade as per IS : 4770.	1	Set		
26	Supply and making Indoor end termination Kit of 33 KV XLPE cable. (Make : Raychem / 3M)				
	33 KV 3 x 240-400 Indoor Kit	5	Set		
27	Supply and making Outdoor end termination Kit of 33 KV XLPE cable. (Make : Raychem / 3M)				
	33 KV 3 x 240-400 Outdoor Kit	1	Set		

28	POINT WIRING:-				
	POINT WIRING FOR APARTMENT : Conduiting may be concealed or surface mounted (Exposed) as the case may be.				
	Circuit cum point wiring for light points, ceiling fan points & exhaust fan points, 6A raw light plug sockets, 16A raw power Sockets, Raw Metal clad and Raw moulded socket outlets shall include:				
	Circuit Wiring (Phase & Neutral) of required length from DB / board to switch.				
	Point Wiring (Phase & Neutral) of required length from switch board to point.				
	Insulated Green Colour earth wire for earthing of light fixture, switch and socket outlet box and 3rd pin of socket. Each circuit will have a separate earth wire from the DB.				
	Conduits, bends, junction boxes, pull boxes and GI pull wire as required.				
	Switch / Switches/ socket outlets/electronic fan regulator/dimmer with GI outlet boxes/ moulded outlet boxes of suitable sizes, heavy duty 'GI' hexagonal hook box with hook for ceiling fans.				
	All hard ware and civil work etc.				
	Circuit cum point wiring for UPS points shall include:				
	Circuit Wiring (Phase & Neutral) of required length.				
	Point Wiring (Phase & Neutral) of required length.				
	Insulated green colour earth wire for socket outlet box and furniture and a separate green colour earth wire with yellow band for 3rd pin of the socket outlet. Each circuit will have separate earth wires for 3rd pin earthing and box/ furniture earthing from the DB.				
	Conduits, bends, junction boxes, pull boxes and GI pull wire as required.				
	Switch / Switches/ socket outlets with GI/ moulded outlet boxes of suitable sizes as called for.				
	All hard ware and civil work etc.				
	Wiring terminations shall be made using proper sized thimbles/ lugs.				
	All circuit & point wiring shall be colour coded & shall have ferruling on both end for circuit identification.				

	Wiring for light point / fan point / wall fan point / exhaust fan / light Switch etc. with 1.5 sq.mm. PVC insulated 1100 V Grade copper conductor (ZHFR/LSZH) wires & 1.5 sq.mm. copper earth wire in concealed / surface using 25MM MS conduits, 16 SWG as per IS code accessories such as bends, tees, saddles, draw boxes, mounting boxes, inner plates, cover plates, ceiling rose, Modular switch, socket, etc. (wherever required) and chromium plates brass screws / rowel plug etc. The circuit wiring starting from DB to point control box / switch box using 2 x 2.5 sq.mm. PVC insulated 1100 V grade multi-stranded copper conductor wire & 2.5 sq.mm. PVC insulated earth wire (color code to be used). (Flexible conduit / elbow not allowed). The conduit to be laid in ceiling with proper clamps / wall / floor and filling the chase with cement mortar and finishing the same in original form / wooden partition / above false ceiling with proper clamps etc. all complete. Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab MS Conduit, 16 SWG, MMS- AKG, BEC, NIC, Precision				
28.1	Wiring for switch controlled Primary Light Point with 3 x 1.5 sq. mm (ZHFR/LSZH) insulated multi strand copper conductor 1100 Volt grade wires conduit & switch with MS conduit 25 MM, 16 SWG, wire laid as per IS code	1966	No.		
28.2	Wiring for Secondary Light Point with 3 x 1.5 sq. mm (ZHFR/LSZH) insulated multi strand copper conductor 1100 Volt grade wires conduit & switch, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	76	No.		
28.3	Wiring for Two-way controlled Light Points with 3 x 1.5 sq. mm (ZHFR/LSZH)insulated multi strand copper conductor 1100 Volt grade wires, conduit & switch, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	189	No.		
28.4	Wiring for Bell Push Points including Bell with 3 x 1.5 sq. mm (ZHFR/LSZH) insulated multi strand copper conductor in existing conduit, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	38	No.		
28.5	Wiring for Ceiling Fan with 3 x 1.5 sq. mm (ZHFR/LSZH) insulated multi strand copper conductor 1100 volt wires conduit,switch & Regulator, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	396	No.		

28.6	Wiring for Exhaust Fan Points with 3 x 1.5 sq. mm (ZHFR/LSZH) insulated multi strand copper conductor 1100 Volt grade wires.conduit & switch etc. complete as per specifications and as required. (Switch & Exhaust fan point are at different locations.), with MS conduit 25 MM, 16 SWG, wire laid as per IS code	151	No.		
28.7	Wiring for 240 Volt 3No.6 Amp Single Phase 5 pin Socket & 2No.6A Switch with 3 x 2.5 sq. mm (ZHFR/LSZH) insulated multi strand Copper conductor 1100 Volt grade wires conduit, switch & socket. complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	144	No.		
28.8	Wiring for 240 Volt 2No.6 Amp Single Phase 5 pin Socket & 2No.6A Switch with 3 x 2.5 sq. mm(ZHFR/LSZH) insulated multi strand Copper conductor 1100 Volt grade wires conduit, switch & socket. complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	216	No.		
28.9	Wiring for 240 Volt 1No.6 Amp Single Phase 5 pin Socket & 1No.6A Switch with 3 x 2.5 sq. mm (ZHFR/LSZH) insulated multi strand Copper conductor 1100 Volt grade wires conduit, switch & socket. complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	550	No.		
28.10.	Wiring for A/C socket by using 2x4.0 sq.mm. (ZHFR/LSZH) insulated 1100 V grade copper conductor wire and earthing with 1x 4.0 sq.mm. PVC insulated 1100 V grade copper conductor wire of modular type tiny trip type AC box with 32A Switch & 32A Socket complete in all respects controlled by 32 A DP MCB to be provided near indoor unit. The point starts from DB to stabilizer to the point near the indoor unit including top, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	189	No.		
28.11	Wiring for Gyser by using 3x4.0 sq.mm. (ZHFR/LSZH)insulated 1100 V grade copper conductor wire and with 32A Switch & 32A Socket complete in all respects, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	76	No.		
28.12	Wiring for 6/16 A, 6pin Switch Socket outlet with 3 x 4.0 sq. mm (ZHFR/LSZH) insulated multi strand copper conductor 1100 volt grade wire ,conduit switch & socket.complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	454	No.		

28.13	Wiring of Loop power point & loop with existing primary power point for 6/16 A, 6pin Switch Socket outlet with 3 x 2.5 sq. mm PVC insulated (ZHFR/LSZH) insulated multi strand copper conductor 1100 volt grade wire.conduit switch & socket complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	227	No.		
29	POINT WIRING FOR COMMON AREA/STAIR CASE/LIFT WELL				
29.1	Wiring for MCB controlled Primary Light Point with 3 x 2.5 sq. mm (ZHFR/LSZH)insulated multi strand copper conductor 1100 Volt grade wires DB. to first light point and including the cost of supply and fixing PVC Connector in GI box / deep T / Surface T.conduit & switch complete as per specifications and as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	40	No.		
29.2	Wiring for MCB controlled Secondary Light Points loop with 3 x 1.5 sq. mm(ZHFR/LSZH) insulated multi strand copper conductor 1100 Volt grade wires and including the cost of supply and fixing PVC Connector in Existing GI box / deep T / Surface T.conduit & switch complete as per specifications and as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	230	No.		
29.3	Wiring for MCB Control primary power point for 6/16 A, 6pin Switch Socket outlet with 3 x 4.0 sq. mm PVC insulated (ZHFR/LSZH) insulated multi strand copper conductor 1100 volt grade wire.GI box complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	12	No.		
29.4	Wiring for MCB Control Loop power point & loop with existing primary power point for 6/16 A, 6pin Switch Socket outlet with 3 x 2.5 sq. mm PVC insulated (ZHFR/LSZH) insulated multi strand copper conductor 1100 volt grade wire.GI box complete as required, with MS conduit 25 MM, 16 SWG, wire laid as per IS code	35	No.		
30	Supply, laying, jointing, testing and commissioning of ISI marked (IS : 16930, part 2) H.D.P.E. (DWC) Double wall Corrugated pipe for cable laying having corrugation on outer wall and plain smooth surface at inner side including transportation upto the site, jointing, providing and fixing of sockets and couplers etc including excavation in all kind of soil upto 1 meter depth of suitable width with back filling of soil into trenches to complete the works in all respects. (Make : Duraline / Jain / Reliance)				
30.1	76 mm. ID / 90 mm OD	100	Nos.		
30.2	104 mm. ID / 120 mm OD	100	Nos.		
30.3	135 mm. ID / 160 mm OD	100	Nos.		

31	EARTHING SYSTEM:-				
31.1	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	18	Set		
31.2	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	90	Meter		
31.3	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	150	Meter		
31.4	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	50	Meter		
31.5	Providing & fixing 32mm x 6mm G.I. strip on surface, in recess or in ground including connections etc. as required (For meter board panel , common services panel).	100	Meter		
31.6	Providing & fixing 50mm x 6mm G.I. strip on surface, in recess or in ground including connections etc. as required (Pig Tails of Transformers & DG sets).	100	Meter		
32	Supply, Installation, Testing and Commissioning of Maintenance Free Earthing system made up of copper-bonded rod of 10 feet length, 17.2 mm dia. (Minimum copper bonding shall be 0.25mm) along with Rod-to-Conductor connectors, Earth enhancement material, Pit Cover and other accessories as required and as per specification and other applicable codes (include chamber for earthing as well as Earthing certificate showing the required values). (Make: JEF ECO Safe / SEE / Duval Messien / E Damen)	4	Nos		
33	Providing and fixing of copper strips in surface or in recess for loop earthing etc. as required.				
33.1	25 mm x 3 mm copper strip in B-class GI pipe	15	RM		
33.2	25 mm x 3 mm copper strip with proper clamps	45	RM		
33.3	25 mm x 3 mm GI strip	20	RM		
33.4	40 mm x 6 mm GI strip	100	RM		
33.5	Providing and fixing 2x8 SWG dia. Cu. earth wire in PVC conduit on surface or in recess for loop earthing along with the existing surface / recess cable as required.	10	RM		
33.6	Providing & fixing 50mm x 6mm insulated Copper strip on surface, in recess or in ground including connections etc. as required.	100	Meter		

34	Providing, fixing, testing and commissioning of High pulsar voltage OPR 60 Early streamer emission (ESE) Advance Lightning Protection system with 5 meter high Pulsar 60 having 79 meter protection radius in level 1 complies with NFC-17-102 standards and tested as per IEC 61643-1. The Air terminal should be capable to collect the ambient electric field and should emit the upward streamer with the defined Gain in time. The installation should be strictly followed as per manufacturers instructions. The system should include the following items complete in all respects.				
	(Make : ABB / Duval Messien / JMV)				
	GI mast for mounting the terminal & adaptor to mount the OPR 60 with suitable base plate, should have provision for Guy wire clamping system, termination arrangement for the Down- Conductor				
	Lightning Flash counter working electro mechanically without any power supply. Equipment should count lightning strokes of 0.4KA to 150 KA.(8/20 micro second waveform) tested as per IEC 60-1:1989				
	2 sets of Down conductor of 70 sq.mm single core insulated flexible Copper cable with necessary accessories, etc OR G.I. strip of size 25 X 5 mm of suitable length as per building height with suitable mounting accessories and mounted on Insulators.				
	2 sets of maintenance free chemical earth pit set consisting of 3 Meter long 16 mm dia 250 Micron Cu-coated MS rod connected together with clamps alongwith 20 Kg of ground enhancing chemical GRIC compound (without use of charcoal, salt or another combine). It should be capable of reducing soil resistivity by atleast 50%. The earth pit shall be covered with Polyplastic / C.I. heavy duty cover.	1	Job		
35	Supplying and fixing of following size of Perforated pre painted MS Cable Trays with perforation not more than 17.5% in convenient section, joined with connector, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc. as required. Rates shall be included of all accessories like tee, band reducers etc.				
35.1	150 x 50, 2mm thick Cable tray (For Main Incoming)	100	RM		
35.2	200 x 50, 2mm thick Cable tray (For Submains)	180	RM		
35.3	300 x 50, 2mm thick Cable tray (For LV.)	100	RM		
35.4	450 x 50, 2mm thick Cable tray	15	RM		
35.5	750 x 75, 2mm thick Cable tray	20	RM		
36	Light Fixtures				

	Supplying, installation with hanging support, testing and commissioning of following light fixtures with electronic Ballasts, Tubes, lamps, LED Drivers etc. all fixing materials including connecting wires etc. all complete as per the directions of Engineer-in-charge. (all LED Light Fixures should be covered with minimum 3 Years onsite replacement warranty)				
36.1	3 W LED Foot light of make as specified in tender document or approved by bank. Product to be approved by the consultant & Bank before proceeding for SITC. (Make: Philips, Wipro, Crompton/ Havells)	151	Nos.		
36.2	15 W LED ceiling lighter of make As specified in tender document or approved by bank. Product to be approved by the consultant & Bank before proceeding for SITC. (Make: Philips, Wipro, Crompton/ Havells)	234	Nos.		
36.3	9 W LED Mirror Light of make As specified in tender document or approved by bank. Product to be approved by the consultant & Bank before proceeding for SITC.	113	Nos.		
36.4	18 - 22W LED Tube Light with all accessories, make As specified in tender document or approved by bank. Product to be approved by the consultant & Bank before proceeding for SITC. (Make: Philips, Wipro, Crompton/ Havells)	643	Nos.		
36.5	18 W LED Wall Bracket lght of make as specified in tender document or approved by bank. Product to be approved by the consultant & Bank before proceeding for SITC. (Make: Philips, Wipro, Crompton/ Havells)	189	Nos.		
36.6	18 W LED Bulk Head lght of make as specified in tender document or approved by bank. Product to be approved by the consultant & Bank before proceeding for SITC. (Make: Philips, Wipro, Crompton/ Havells)	32	Nos.		
37	Ceiling Fan:- 5 Star, BLDC Fan				
	Supply, installation, testing and commissioning of following fans with all fixing materials like white Polycarbonate 2 mm Hylem sheet cover, down rods, fan box, regulator as required etc. all complete as per the directions of Engineer-in-charge. (Make: Atomberg/Usha/Crompton/Havells/Bajaj)				
37.1	Supply & fixing of 36" High Speed Energy Efficient Ceiling fan 5 star rating with double ball bearing as specified in tender document or approved by bank. (Make: Atomberg/Usha/Crompton/Havells/Bajaj)	154	Nos.		
37.2	Supply & fixing of 48" High Speed Energy Efficient Ceiling fan 5 star rating with double ball bearing as specified in tender document or approved by bank. (Make: Atomberg/Usha/Crompton/Havells/Bajaj)	262	Nos.		

38	Exhaust Fan				
38.1	Supply & fixing of 12" Transair, heavy duty type exhaust fan with self closing louvers and plastic body with all accessories etc. as specified in tender document or approved by Bank. (Make: Atomberg/Usha/Crompton/Havells/Bajaj)	151	Nos.		
39	Geyser				
	Supply & fixing of 15 Ltr. (5star) Geyser, complete in all respects as required. (Make: AO Smith/ Havells/Racold/Bajaj/Crompton)	76	Nos.		
40	Carrying out the necessary works including liaison with the local Chief Electrical Inspectorate's Office and organising site tests/inspection by the state's inspectorate and obtaining the certificate/approval for safe installation for HT/LT/Solar Power Plant approval from Electrical Safety Department, M.P. Govt & Local DISCOM. All the official fees for approval charges shall be reimbursed by the Bank on producing the govt. receipt.	1	Lot.		
41	Supply, Installation, Testing and Commissioning of ongrid Solar Photovoltaic Power Plant conforming to MNRE specifications as amended, consisting of MonoCrystalline,topcon type,PERC half cut panel, net metering facility, necessary protections, earthing, mounted on Aluminium/GI structure of suitable strength with following components complete as required:-				
41.1	a) Solar Photovoltaic Module of capacity 580 Wp or above, manufactured in India, conforming to IS 14286/IEC 61215, IS/IEC 61730-Part-1, IS/IEC 61730-Part-2. Solar Photovoltaic Module conversion efficiency shall not be less than 16.5%. PV modules used in solar power plants/ systems must be warranted for their output peak watt capacity, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years. Solar Inverter:- Sungrow/Growatt/Waree/Solis/Polycab- 5 Years Warranty. Solar PV Panel:- Vikram Solar/ Adani/Waree/Tata Power/Renewsys- 30 Years performace output warranty	147	No		

41.2	Solar Inverter:- Power Conditioning Unit (PCU) of (85- 90 KW), 350-800 V DC Input voltage range and 400 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 degree C. The PCU shall adjust the voltage and frequency level to suit the Grid Voltage Frequency. Solar Inverter:- Sungrow/Growatt/Waree/Solis/Polycab- 5 Years Warranty. Solar PV Panel:- Vikram Solar/ Adani/Waree/Tata Power/Renewsys- 30 Years performace output warranty	1	No		
42.3	c) Data Monitoring System complete with accessories.	1	No		
42.4	d) Fixing of Array junction box & Main junction box with IP 65 protection and termination arrangement for incoming and outgoing cable along with glands, lugs and other accessories etc. as required.	1	Lot		
42.5	e) Lightning and surge voltage protection.	1	Lot		
42.6	f) Connections & Interconnections by supplying & fixing required size XLPE insulated copper conductor 1.1 kV grade armoured power and control cables between solar modules, main power cable to grid supply PCU unit along with supplying & fixing of necessary channel/conduit lugs and other accessories etc. as required.	1	Lot		
	Supply, installation, Testing and commissioning of the following UPS SYSTEM as per specifications and complete in all respects.				
43	ONLINE UPS:- 10 KVA UPS single phase input (230 V $\pm$ 15%), single phase output (230 V $\pm$ 1%) in stand alone mode with isolation transformer with 90 minutes battery backup each complete with battery rack & inter connector for batteries & Isulation switch for each bank battery. Make:- Legrad(Numeric)/APC-Schneider/Eaton/Delta/ABB Quoted price shall be inclusive of the following:Approved rating single core copper conductor cable connecting as batteries.All equipment shall be housed in individual cabinets. Battery backup must be given for full resistive load. Battery should be sealed maintenance free type.Battery monitoring system shall be provided.The rates under this section shall also include:Supporting rigid frame work, 2 mm thick MS housing complete with dust and vermin proof covers and lockable doors as called for.Fencing substation with MS.Jali complete with bolts, nuts and bolts etc as required.All fixing accessories such as foundation bolts, nuts and bolts etc as required.Touching up all damaged paint with approved paint shade.All protection relays shall be numerical Compliance of technical specifications.	1	Set		

44	SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF OUTDOOR TYPE HT SUB-STATION YARD OF 33 KV INCLUDING ALL WORKS AS PER SITE REQUIRMENT FOR SET-UP OF NEW SUS-STATION YARD AS MENTIONED BELOW AND AS PER SITE REQUIRMENT AS PER DIRECTION OF ELECTRICAL SAFETY DEPARTMENT, M.P. GOVT, BHOPAL AND LOCAL DISCOM NORMS WITH ALL REQUIRED APPROVAL				
	Supplying and installation of H Beam 152x152 or 150x150 mm 37.1 Kg/Mtr.complete with aligning and keeping it in truly vertical position, including digging pit of required size in all type of soil/rocks filling with 1:3:6 cement concrete of 0.60 mtr. dia. around the pole up to ground level including muffing of 0.45 mtr. dia. from ground level to 0.45 mtr. high as per specifications with 20 cm. thick base foundation in 1:4:8 cement concrete as required refilling the pit with boulder and soil as required, including painting of pole with bitumen paint below GL and two coats of red oxide and two coats of aluminium paint or synthetic enamel paint above GL as directed complete as per specification. The depth of burying of pole shall be 1/6th of the length of .-2				
	Supplying and installation of angle / channel / flat iron / RS Joist fittings for over head lines as cross arms / brackets / clamps etc. including nut bolts, required holes, welding, cutting, fabricating with necessary materials including two coats of red oxide and two coats of aluminium or synthetic enamel paint etc. as required.				
	Supplying and installation of 16mm dia 1.8 m long with 7/3.15mm stay wire set complete with stay rod, anchor plate of size 300x300x5mm, thimble, stay clamp, turn buckle, bow tightener etc. with stay wire, strain insulator, nut bolts as per specifications including excavation in all type of soil/ rocks and foundation in cement concrete 1:3:6 of required size and other necessary materials complete as required as per specifications.				
	Supply, installation , testing and commissioniong of Two Pole structure of suitable size & height for receiving power supply from MPSEB at 33 KV O/H line complete with all the accessories & mounting channels etc. generally consisting of the following :				
	Steel structure alongwith protection guarding and fencing etc. made out from ISMC 150 and ISMC 100 and civil foundation work				
	Jumper Conductor (Dog) from Incoming line to two pole structure of suitable length.				
	33KV, 40 KN strain insulator - 3 Nos				
	33kV bus post insulator - 3 Nos				
	30 KV, 10kA Station Type Lightning Arresters. 3 Nos				

	33 KV 400A isolator- 1 Set				
	33 KV,125A Dropout fuse- 3 Nos				
	Earthing Pits with GI pipe - 5 Nos.				
	50 x 6 mm GI Strip as required				
	Pot head for 33KV Cables	1.00	SET		
45	Telephone				
	Supplying and fixing following modular switch / socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
45.1	Telephone Socket Outlet	144	Each		
	Supplying and fixing following size / modules, GI box alongwith modular base & cover plate for modular switches in recess etc. As required.				
45.2	1 or 2 Module (75mm x 75mm)	36	Each		
45.3	6 Module (200mm x 75mm)	144	Each		
	Supplying and drawing following pair 0.5 mm dia (ZHFR/LSZH) insulated annealed copper conductor, unarmored telephone cable in the existing surface / recessed steel / PVC conduit as required:- Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab				
45.4	2 Pair	3500	Meter		
	Supplying, laying, effecting terminations, testing and commissioning of 0.51mm dia Cu. Conductor, twisted, colour coded with polythene capor barrier, telephone cables in the existing tray or in conduit including providing & fixing conduit pipe or cable tray as required from building tag block to the floor as required. (Telephone Cable Make: Skycab / Delton / Finolex)				
45.6	Supplying & fixing 20 pair krone tag block with enclosure.	2	Nos.		
45.7	P/L 20 Pair of PVC insulated PVC sheathed multi-core jelly filled armored telephone cable.	120	Mtrs.		
45.8	Supplying and fixing of following sizes of steel conduit along with the 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.				
45.9	20 mm (For Telephone)	1700	Meter		
45.10.	25 mm (For TV)	1700	Meter		

45.11	T.V; - Supply and fixing of 1.6 mm thick G.I. Box along with RG-6 T.V. Co-axial socket with Cover Plate.	151	Nos.		
45.12	Supply, drawing, connecting, testing and commissioning of T.V. Co-axial cable RG-6 in PVC conduit. Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab	3200	Meter		
45.13	Aprox. 200mm x 200mm x 90mm (ONT BOX For TV & Telephone Cable)	36	Nos.		
46	Conventional Type Fire Alarm System				
46.1	Supplying, installation, testing & commissioning of main control and indicating panel made out of 16 SWG MS sheet to accommodate the following items duly powder coated in approved colour with louvers for ventilation, locking arrangement, audio and visual indication for fire alarm and public address system, monitoring system including connections, interconnections etc. complete as required. 6 zone panel for fire alarm system 100 watt amplifier racks suitable for operation on 230V AC / 24V DC supply conforming to IEC-268-3 complete with all accessories as required - 2 Nos.(one to act as standby) Talk back master station with LED PTT (press to talk) push button for operation on 230V AC / 24V DC supply conforming to IEC-268 for simplex mode of operation / communication suitable for 20 Nos. talk back unit -1 Set Announcement control desk suitable for selection of different zones selectively and ON ALL CALL switch with visual indication etc., complete as required - 1 Set. Amplifier change over switch for inter changing amplifier - 1 No. Monitor panel for loudspeaker complete output selector ON/OFF switch, fuse visual indications etc. complete as required. - 1 No. Gooseneck microphone with stand and ON/OFF switch -1 No. Mains ON/OFF switch, fuse indication lamps, DC and AC voltmeters & ammeters terminal blocks etc. complete as required. - 1 set. Battery charger trickle cum boost to take complete load of fire alarm & PA system complete with all accessories including providing & fixing of 2 nos. 12 volt, 30 AH each sealed maintenance free batteries - 1 set. (Make: Edwards / Honeywell-Notifier / Bosch / Siemens-Fire finder)	1	Each		

	Supplying, installation, testing & commissioning sector panel suitable for following zones, complete with visual indications for short circuit fault, open circuit fault, fire condition and all other standard facilities as per IS:2189 with mimic diagram for all area/zone covered, complete with all connections, interconnections as required. (Make: Edwards / Honeywell-Notifier / Bosch / Siemens-Fire finder)				
46.2	4 Zone	1	Each		
46.3	Supplying, installation, testing & commissioning of manual call boxes of MS construction in surface / recess with stainless steel chain & hammer assembly complete with glass and push button etc. as required. (Make: Edwards / Honeywell-Notifier / Bosch / Siemens-Fire finder)	16	Each		
46.4	Supplying, installation, testing & commissioning fire alarm sounder with facility to make announcement, mounted in M.S. box (16 SWG) with hinged cover plate & suitable for operation with amplifier i/c line matching transformer etc. complete as required. (Make: Edwards / Honeywell-Notifier / Bosch / Siemens-Fire finder)	16	Each		
	Cabling And Wiring				
46.5	Supplying & laying of 2x1.5 sq.mm. fire survival armoured cable, 600/1000 Volts 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 & LSZH outer sheath complete as required. (Make: Finolex / Havells / Polycab / Tyco)	250	Meter		
46.6	Supplying & laying of 2x1.5 sq.mm. fire alarm armoured cable, 600/1000 Volts rated with annealed copper conductor having XLPE insulation, steel wire armouring & FRLS outer sheath complete as required. (Make: Finolex / Havells / Polycab / Tyco)	80	Meter		
46.7	Supplying and fixing 25 mm dia MS flexible pipe with PVC coating along with all ancillaries and accessories like coupler etc. As required. (Make: Flexhead / Newage / Tyco / Newage)	10	Meter		
	Providing and fixing in position the following FRLS PVC heavy duty conduits including all accessories concealed / exposed in F.Ceiling / Wall complete as required including 1.6/2.0mm thick PVC junction or pull boxes with 3mm thick perspex sheet cover plate complete with 1.6mm dia G.I. pull wires in the length of conduit. (Make: Finolex / Havells / Polycab / Tyco)				

46.8	25 mm dia conduit (1.6 mm wall thickness)	120	RM		
49	Indoor Camera				
49.1	Supply, installation, testing & commissioning of IP CAMERA INDOOR 4MP with RJ 45 connector/ jack.	20	Nos.		
	Outdoor Camera				
49.2	Supply, installation, testing and commissioning of IP CAMERA OUTDOOR 4MP with RJ 45 connector/ jack.	6	Nos.		
49.3	Supply, installation, testing and commissioning of NVR 16 channel complete with all respect accessories and suitable for minimum 4 slot harddisk.	1	Nos.		
49.4	Supply, installation, testing and commissioning of hard disc 4TB per NVR	1	Nos.		
49.5	Supply, installation, testing and commissioning of SWITCH 8 port POE	3	Nos.		
49.6	Supply, installation, testing and commissioning of Back Box	20	Nos.		
49.7	Supply, installation, testing and commissioning of 48" LED screen for Observation and reviewing	1	Nos.		
49.8	Supply and fixing of 2 meter patch cord with complete connectors.	20	Nos.		
49.90	SITC OF 9U RACK with PDU and respected accessories.	1	Nos.		
50	Providing and fixing in position the following FRLS PVC heavy duty conduits including all accessories concealed / exposed in F.Ceiling / Wall complete as required including 1.6/2.0mm thick PVC junction or pull boxes with 3mm thick perspex sheet cover plate complete with 1.6mm dia G.I. pull wires in the length of conduit.				
50.1	25 mm dia conduit (1.6 mm wall thickness)	300	RM		
50.2	Supply and drawing of CAT-6 Cable in existing conduit.	550	RM		
50.3	Supply and laying of single mode 6 core outdoor Optical Fiber Cable in ground / over ground with hdpe pipe as required.	150	Nos.		
51	Decorative Pole Light:- (Make: Philips, Wipro, Crompton/ Havells)				

	Supplying, Installation, Testing and Commissioning of 3.0 Meter heigh, MS decorative type steel tubular pole, duly primed and painted. The pole shall be painted with MRF Poly urethane paint of approved colour. The bottom and middle embellishment are cast in iron and upper ring are cast in aluminium, fixed to the column by grub screw. The cloumn shall be provided with inbuilt loop box, earth stud with 4 way 25 Amp heavy duty connector, 1 Nos. SP MCB and shall have matching flush door, fabricated & painted complete as required. The pole shall be divided in two sections: Top - Dia 75mm. Length 2000mm (3.2mm thick) Bottom - Dia 114mm. Length 1000mm (4.0mm thick) Base plate - 250mm x 250mm x 10mm thick duly welded to column	15	Set		
52	Street Light Pole:- (Make: Philips, Wipro, Crompton/ Havells) Supply, Installation, Testing and Commissioning of 6.0 Meter high, hot dipped galvanised Octagonal Pole with G.I. base plate of size 220 mm (L) X 220 mm (B) X 12 mm thickness, Top dia 70mm & Bottom dia 130mm made up of 3mm thick sheet, welded at bottom of pole complete with 4 Nos 20 mm dia 600 mm long foundation bolts confroming to EN 8 grade, Bolts manufactured from special steel along with nuts, washer, anchor plates & Templates, with inbuilt / Vandal resistance, weathproof electrical junction box having terminal block, 1 No. 6 Amp. SP MCB etc. mounted on bakelite sheet for looping in / looping out of cables, with window cover along with allenkey locking arrangement, earthing arrangement (at atleast 0.5 m height) including erection of Pole complete in all respect as per specification as required.	9	Set		
53	Bracket Arm Supply, Installation, Testing and Commissioning of 750mm long G.I. Single Arm Bracket suitable for fixing on 6 mtr. octagonal pole, pipe for bracket should be minimum of 40mm (NB) of full lenght, complete in all respect as per specification as required.	12	Set		
54	Light Fixtures:- (Make: Philips, Wipro, Crompton/ Havells)				
54.1	Supply of 9 watt LED type Bollard garden light for landscape lighting complete with builtin integral heavy duty electronic, constant current LED driver, integral control gear, base plate, foundation bolts, terminal connector for loop in loop out suitable for single phase cable, finished with PU based paint etc. IP 65 protection, complete system as required as per the standard catalogue item. (Make : Philips / Wipro / Bajaj / Nova / K lite)	15	Each		

54.2	Supply, Installation, Testing and Commissioning of 45 watt LED Street Light , having System Efficacy ≥ 100 lm/W, system output ≥ 4000 Lumens, THD $< 10\%$, Power Factor > 0.95 , CRI > 70 , CCT 4200, Full IP- 66 (with out Glue) protected single piece die cast aluminium housing having toughned glass/PC with Impact resistance IK07. LED driver should be Fully metal body Potted & Encapsulated. BIS compliant driver should sustain 440V Stress Voltage protection for 8 Hrs., High Cut off : 325V(+/- 15V) and should have feature of Auto Restart. Driver shall have 4KV Surge protection and feasibility of 10KV external SPD housed in Luminaire and confirming standard IEC60598. Including suitable size GI pipe bracket clamps, nut, bolts and washers complete in all respect as required.:- (Make: Philips, Wipro, Crompton/ Havells)	9	Each		
55	Pole Foundation				
55.1	Supply of material and making of RCC Pole Foundation with 1:2:4 (1 Cement: 2 Coarse sand: 4 Concrete) of size 400mm x 400mm x 700mm depth complete with S/F 16mm dia 12 inch long hot dip galvanized L-type Anchor bolts, plastering the same with fine sand and having horizontal top surface without any slope including two coats of trimp exterior paint and embedding of 2 Nos. 40mm dia DWC pipe sleeve for cable entry / exit. complete in all respect as per specification as required. (For 3.0 Mtr. High Decorative Pole)	15	Each		
55.2	Supply of material and making of RCC Pole Foundation with 1:2:4 (1 Cement: 2 Coarse sand: 4 Concrete) of size 500 mm x 500 mm and deep 900 mm in ground and 150 mm above ground level, 08 nos. iron rods of 10mm dia. of 1000mm long and 08 nos. iron rings of 08 mm dia. with 4 Nos. 16 mm dia 600mm long foundation bolt manufactured from special steel along with nuts, washer, anchor plates & Templates, duly embeded before casting and supply and embedding of 2 Nos. 50mm dia DWC pipe sleeve for cable entry / exit. complete in all respect as per specification as required. (For 6.0 Mtr. High Pole)	9	Each		

56	Supply, laying, testing and commissioning of 1.1 kV grade XLPE insulated PVC sheathed aluminium armoured stranded conductor ISI marked LT Cables in trenches / ducts / through RCC pipes under roads / on cable trays of following sizes, complete all as specified (as per CPWD specifications for External Electrical works), i/c clamping, dressing, earth work digging, sand filling, bricks protection, back filling etc. as required & approved by Engineer's Incharge. (Tagging to be provided with aluminium strips on both the ends as approved). Make of Cables & Wires(ZHFR/LSZH): R R Kabel / Finolex / Havells / Polycab				
56.1	3 core x 10 sq.mm.	750	Meter		
56.2	2 core x 6 sq.mm.	300	Meter		
57	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.				
57.1	Upto 35 sq. mm	1010	Meter		
58	Supplying and making indoor 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.				
58.1	3 core x 10 sq.mm. (19mm)	44	Each		
58.2	2 core x 6 sq.mm. (19mm)	70	Each		
59	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	6	Set		
60	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	30	Meter		
61	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	60	Meter		
62	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	960	Meter		
63	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.	50	Meter		
PART-C	TOTAL OF INTERNAL & EXTERNAL ELECTRICAL WORKS				0.00

PART-D	LIFT				
	Providing, Supplying, Installing, Testing and Commssioning of passenger lift complete with machine room, AC variable voltage frequency (VVVF) drive, automatic centre-opening doors, suitable cabin, landing doors, microprocessor-based control sysytem, safety devices, ARD, emergency alaram, overload protection, car and landing operating panels, LED lighting, ventilation, intercom, all required electrical wiiring, accessories and fixtures, inclding all necessary components, testing and commisiiong, complete in all respects as directed. (Otis/Kone/Schindler / Thyssenkrupp Elevator)				
1	Lift - 8 Persons capacity with 1.5m/sec speed (S+6)	2.00	Nos		
2	Lift - 13 Persons capacity with 1.5m/sec speed (S+6)	1.00	Nos		
PART-D	TOTAL OF LIFT WORKS				0.00
PART-E	FIREFIGHTING WORKS				
1	Providing and fixing ball valve (brass) of approved quality complete. (High or low pressure with plastic floats). (Make: Leader / Zoloto / Sant / Kirloskar / Advance / Audco / Hawa / Lehry)				
1.1	25 mm nominal bore	2	Each		
2	Supply & erection of ISI marked portable fire extinguishers , wall mounted type, wall brackets complete in all respect as per standard item with all accessories, delivery hose & nozzle wherever required, including fixing on walls as per the directions of Engineer-in-charge. (Make: Kanex / Minimax / Safex / New Age / Cease Fire / Safeguard)				
2.1	ABC powder type 6 Kg.capacity (IS:13849)	10	Each		
2.2	CO2 gas type. 4.5 kg. Capacity (IS:2878)	10	Each		
3	Supply & fixing of 4 nos. G.I. round bottom fire buckets of 9.5 liters capacity filled with sand including proper supporting / mounting arrangements in MS angle iron frame, painted by fire red colour over two coats of red oxide paint and written with white paint "FIRE" complete in all respects as per the directions of Engineer-in-charge. (Make: New Age / Minimax / Safex)	2	Set		

4	Supply, erection and testing of ISI marked M.S. pipes (Class C - heavy duty) and specials etc. (as per IS:1239) for above ground laying for hydrants system including transportation of materials upto the worksite, cutting the pipes to required length, edge preparation, welding, fixing / erection of pipes including specials i.e. bends, tees, reducers, flanges, expansion joints wherever required, washers, nuts, bolts etc. in proper position including all supports at maximum 3 meter spacing by 3 mm thick G.I. hangers / clamps / Tie rod supports with G.I. nuts, bolts, anchor fastner and washer for hydrant / sprinkler piping, jointing by welding, aligning the pipe line, painting with two primer coat by zinc chromate primer and two coats of synthetic enamel fire red colour, providing tapping for pressure gauges and for other instruments etc. Hydrostatic testing of system as specified, flushing & cleaning by water etc. complete as per drawings & direction of the Engineer-in-charge. (Make: TATA / Jindal / SAIL)				
	The quoted rates shall also include for making holes in masonry / RCC slab, wall, chases in wall, providing sleeves in RCC wall & slabs with puddle flanges whereever required & making good the same by sealing the opening to original conditions.				
	upto 40mm dia. pipe threaded forged fittings and threaded joints shall be provided and for 50mm dia & above pipes welded joints with MS / malleable iron fittings shall be used.				
4.1	80 NB	6	Meter		
4.2	100 NB	160	Meter		
4.3	150 NB	10	Meter		
5	Same as in item above but of G. I. Class B - medium duty for drainage pipe . (Make: TATA / Jindal / SAIL)				
5.1	80 NB	60	Meter		
6	Supply & installation of ISI marked single headed 63 mm dia. gunmetal Hydrant Valve, 80 mm dia flanged inlet with 63 mm female instantaneous outlet confirming to IS : 5290 on the fire wet riser/down comer, including making 80 NB pipe connection with riser along with 100 mm dia dial pressure gauge of calibration 0-15 kg/sq cm, fixing the landing valves in proper positions, including supply of nuts, bolts, gaskets, caps, chains etc. testing the hydrant and completing the work in all respect as per directions of the Engineer-in-charge. (Make: Padmini / New Age / Omex / Minimax / Superex)	16	Each		

7	Providing & fixing neoprene rubber single arch expansion joint (anti vibration bellow) as per manufacturers specifications. Tested to a pressure of 16 Kg/Cm ² including all necessary fittings complete as required. (Make: Dunlop / Resistoflex / Easy Flex / Flexionics / Vimpa / IMRA)				
7.1	65 mm dia.	2	Each		
7.2	100 MM NB	2	Each		
7.3	250 mm dia.	2	Each		
8	Supply, fixing, testing & commissioning of 20 mm bore and 30 meter long hose (high pressure rubber braided hose pipe as per IS:444) and hose reel suitable for 10 kg/sqcm operating pressure for first aid fire fighting conforming to IS : 884, with 180° full swing drum, fixing brackets, shut off gun metal nozzle, 40 mm dia. hand lever operated isolating ball valve, connecting directly from the riser through 40 mm dia. G.I.pipe with sockets, elbows, nipples etc. including providing operating instructions on a metal plate and fixing it near hose reel. The system shall be complete in all respects as per drawings and directions of Engineer-in-charge. (Make: Padmini / New Age / Omex / Minimax / Superex)	16	Each		
9	Providing Stainless steel ISI marked 63 mm. dia. male Instantaneous pattern short branch pipes with 20 mm dia. Nozzle as per IS : 903, suitable for 10 kg/sqcm operating pressure and suitable for interconnections to hose pipe coupling as required. (Make: Padmini / New Age / Omex / Minimax / Superex)	16	Each		
10	Providing ISI marked RRL (IS : 636, type-A) fire hose pipe 15 meter long and 63 mm dia with ISI marked (IS : 903) Stainless steel male and female coupling bound and rivetted to hose pipes with copper rivets and copper wire complete as required. (Make: Padmini / New Age / Omex / Minimax / Superex)	32	Each		
11	Providing & fixing standard carbon steel fireman axe with rubber insulated handle tested to 20000 Volts. (Make: New Age / Safeguard)	16	Each		
12	Providing & fixing 25 mm dia air release valve with forged brass body full way ball valve type isolating valve, flanges / union, suitable for sprinkler / wet riser / down comer system with all necessary connections complete in all respects. (Make: Leader / Zoloto / Sant / Kirloskar / Lehry / Shah Bhogilal / Claval)				
12.1	25 mm dia air release valve	2	Each		

13	Providing and fixing standard fire hose cabinet door frame (1000 mm x 2000 mm x 600 mm) suitable to fit in the duct made of not less than 16 SWG MS sheet having full fronted glass hinged door (5 mm thick clear glass) including necessary locking arrangement with handle as required as per drawings, including brackets for mounting accessories, painting (one coat primer and two coats of fire red colour). The door shall be fixed in the masonry wall or as required. The words "FIRE HOSE" to be painted on the box. (Make: New Age / Minimax / Safex)	16	Each		
14	Supply & fixing in position ISI marked cast iron double flanged butterfly valves (PN 20 MPa) as per IS:13095, with SS disc, shaft, seating rings, internal fastening, nuts, bolts including transporting to worksite, 3 mm thick rubber gaskets etc. including testing, Complete as per drawings & directions of the Engineer-in-charge. (Make: Leader / Zoloto / Sant / Kirloskar / Advance / Audco / Hawa / Lehry)				
14.1	80 MM NB	16	Each		
14.2	100 MM NB	3	Each		
14.3	150 MM NB	2	Each		
15	Supply & fixing in position ISI marked cast iron double flanged dual plate type Non Return Valves (PN 1.6 Mpa) (Make: Leader / Zoloto / Sant / Kirloskar / Advance / Audco / Hawa / Lehry)				
15.1	100 MM NB	3	Each		
15.2	150 MM NB	1	Each		
16	Providing and fixing C.I./MS 'Y' strainer with SS 316 perforated sheet basket including rubber gasket, flanges, nuts, bolts and washers, complete as required. (Make: Leader / Zoloto / Sant / Kirloskar / Advance / Audco / Hawa)				
16.1	150 mm dia	1	Each		
17	Constructing masonry Chamber 60x45x50 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Butterfly valve complete with C.I. double flap surface box 400x200x200 mm (inside) with locking arrangement and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand:10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design :				
17.1	With common burnt clay F.P.S.(non modular) bricks of class designation 7.5	1	NOS		

18	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 as required : (Make: Padmini / New Age / Omex / Minimax / Superex)				
18.1	4way - 150 mm dia M.S. Pipe	2	NOS		
19	Providing and laying of ISI marked Aluminium conductor, XLPE insulated, armoured, served, sheathed Cable 1100 V grade with terminal joints by palm or pin type cable sockets (lugs), insulating with tapes, double compression type brass and nickle plated compression glands. On surface, the cable run shall be on MS cable tray or fixed on M.S. clamps etc.of suitable size or as directed by engineer-in- charge, complete in all respects. In ground the cable shall be laid at a depth of 750 mm from ground Level including a cushion of 75 mm thick. Fine river sand alround, duly protected by bricks on sides and top including excavation and back filling of soil or laid in RCC hume pipe as called for. The armouring shall be properly connected with the earth conductor by clamps etc. (Make: Finolex / Havells / Polycab / Tyco)				
19.1	4 core 10 sq.mm.	120	Meter		
20	Supply, Fixing, Testing & Commissioning of electrical motor driven fire pump, suitable for automatic operation consisting of following : (TERRACE PUMP) . (Make: Kirloskar / Mather & Platt-WILO / Crompton/ KSB / Grundfoss)				
	(a) Horizontally mounted, Centrifugal fire pump as per IS:1520 complete for delivery of under mentioned discharge against desired mentioned head so as to ensure a minimum pressure of 35 meter at the highest and farthest outlet at the specified flow complete with necessary strainers, 100 mm dia dial pressure gauge of calibration 0-15 kg/sq cm including bypass arrangement for periodic testing of the working of the pumpset as well as testing of automation with required length and size of MS pipe and control valves for proper completion of work. The pump shall be capable of giving 150% of rated discharge at head not less than 65% of rated head. The pump shall be provided with Mechanical seals. The impeller shall be enclosed type and accurately balanced dynamically. The pump casing shall be of cast iron, impeller shall be of bronze and shaft shall be of stainless steel.				
	(b) Squirrel cage, TEFC induction motor as per IS : 325, suitable for 415 V, 3 Phase, IP 55 protection and class 'F' insulation, vaccume impregnated windings with heat and moisture resisting varnish for the above pump and flexible coupling with the pump. The motor shall be rated for continuous duty and shall have HP rating necessary to drive the pump at 150% of it's rated discharge at 65% of rated head.				

	(c) Common bed plate of fabricated mild steel channel or cast iron type, coupling, coupling guard etc as required.				
	(d) Suitable cement concrete pump foundation and vibration clamping arrangement as required. with foundation bolts, anti vibration pads, washers etc.				
	(e) Pressure switch for automatic operation of motor including necessary wiring upto control panel.				
	(f) Electrical Control panel with starter, 3 Pole motor protection category current limiting type MCCB, indicating light, ammeter, voltmeter, selector switches, CT's, protective fuses, single phasing protection, dry suction cut off etc as required as per standard details.				
	Discharge : 900 liter per minute				
	Head : 35 meter	1	Each		
	PART-E TOTAL OF FIREFIGHTING WORKS				0.00
PART-A	TOTAL OF CIVIL WORKS				0.00
PART-B	TOTAL OF PLUMBING WORKS				0.00
PART-C	TOTAL OF INTERNAL & EXTERNAL ELECTRICAL WORKS				0.00
PART-D	TOTAL OF LIFT WORKS				0.00
PART-E	TOTAL OF FIREFIGHTING WORKS				0.00
	GRAND TOTAL [PART(A) + PART(B) + PART(C) + PART (D) + PART(E)]				0.00

GST WILL BE PAID ADDITIONALLY