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STATE BANK OF INDIA

LOCAL HEAD OFFICE, KOLKATA

PROJECT : PROPOSED 2B+G+13, 2B+G+15 & G+10 STORIED RESIDENTIAL TOWER OF STATE BANK OF INDIA AT PLOT NO.-CBD-80, OF ACTION AREA-II, NEW TOWN KOLKATA.

SCHEDULE OF WORKS

PART A : CIVIL / STRUCTURAL/ARCHITECTURAL WORKS

PART B : PUBLIC HEALTH ENGINEERING

PART C : ELECTRICAL INSTALLATION WORKS

PART D : FIRE PROTECTIONS, DETECTION & ALARM, EXTINGUISHER, PUBLIC ADDRESS & TALK-BACK SYSTEM

PART E : HEATING, VENTILATION & AIR-CONDITIONING (HVAC) WORKS

PART F : BUILDING MANAGEMENT SYSTEM

PART G : EXTRA LOW VOLTAGE

PART H : LIFT INSTALLATION

Sl. No	Description of Work	Quantity	Unit	Rate (Rs.)	Amount (Rs.)
PART A : CIVIL / STRUCTURAL/ARCHITECTURAL WORKS					
	Preamble				
	Rate shall be inclusive of following;				
i	The serviceable and unserviceable materials shall be stacked separately and properly in the designated place till the disposal / reuse of the same. The debris, excess materials is to be carted outside the premises and disposed off at the Municipal Corporation designated place up to any lead, lift and level by the Contractor at his own cost. The Rates inclusive of Transportation and Labour				
ii	All the civil work has to be carried with minimum 53 Grade OPC cement and VSI grade crush sand, of required fineness, which must be free from silt and other impurities				
iii	All the civil work , whether new or repair, must be cured for at least 7 days preferably by ponding using gunny bags.				
iv	For all work, water used must be fresh, potable and pure without any salinity and turbidity. Water test shall be carried out before commencement of works by the Contractor at his own cost and test results to be submitted to the SBI/APMCF.				
v	The rates quoted for all the items of the BOQ shall include the following specifications: -				
a	All the works are to be carried out at all heights and locations i.e. from foundation level, Ground Floor of the building up to the Over Head Water Tank roof slab or Mumty roof slab, as applicable.				
b	Providing and fixing double scaffolding system (cup lock type) on the exterior side, up to any height (entire height) of the building structure made out of 40 mm dia. M.S. tubes, 1.5 m centre to centre, horizontal & vertical tubes joining with cup & lock system with M.S. tubes, M.S. clamps and M.S. staircase system in the scaffolding including the working platform etc. and maintaining it in a serviceable condition for the entire required duration as approved and directed by the SBI/APMCF & removing it thereafter.				
c	The scaffolding system shall be stiffened with bracings, runners, connection with the building fascia etc. wherever required & including providing vertical supports which shall be sound and strong, tied together with horizontal steel / metal support pieces over which scaffolding planks shall be fixed properly & secured at required locations including the essential safety features for the workmen etc. complete as per directions and approval of SBI/APMCF. Note: - The scaffolding shall not be removed without prior approval of SBI/APMCF.				
d.	The quoted rate should include cost of necessary scaffolding, staging, centring, shuttering etc. as required for execution of the job at any height and location including removal of same. The scaffolding should be erected and anchored into the concrete members with help of expandable bolts, which are to be cut as the scaffolding is removed, no wall is to be punctured, at no extra cost to the Bank.				

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e.	Providing & fixing temporary support arrangements such as Steel Props (Up to any number whenever and wherever as directed by the SBI/APMCF) to support the structure provisionally during the project duration for all trades of work, etc. and maintaining the props in position till required & as directed by the consultant including other safety elements such as bracings, steel angles, working platforms, plates etc., which shall be provided & considered in the quoted rates for the areas in the vicinity in adequate numbers as directed. All trades of works indicated herein under shall include all leads & lifts & working up to any heights, depths & levels.				
f.	The Contractor will be responsible or arranging "design of concrete mix" through approved Government Engineering College / IIT/ NIT or any other institutes recommended by APMC/ SBI at their own cost within the quoted rates only and will submit the report to SBI/APMCF for approval. No extra payment shall be eligible on this account.				
g.	Providing & fixing safety net around the work so that loose plaster/ concrete does not cause damage to the property or any human being, if necessary and removing the same after completion of work.				
h	Providing and covering entire external surface with Hessian cloth curtains through out the duration of project and carefully removing the same after completion of work.				
i	Providing all type of PPE (Personal Protective Equipments) it is mandatory to the workforce such as safety Nets all-round at all levels ,safety shoes, safety helmets, reflective safety jacket, full body safety harness, goggles, gloves, etc. complete for all types of workforce engaged on site for execution of the work.				
j	Providing and maintaining Barricading on the site along the boundary wall at 6 mts high by using MS Pipes or angle iron frame work of verticals at 3 m c/c and horizontals at 0.90 m c/c, GI Precoated corrugated 0.5mm thick sheets, Struts, MS Clamps, etc. The verticals shall be embedded/ fixed to concrete pedestals below ground. Including steel for foundation etc., painting the same with one coat primer & two coats of approved anti rust paint etc. complete. Contractor to get structural design approved by the Engineer. Contractor shall remove and take away the barricading at his own cost on completion of the works in parts as directed .				
k.	Rates shall be inclusive of all enabling works like Site office including all furniture and necessary requirements with MEP works for client and PMC ,tower cranes all safety measures, aerial lift, man & material lift, Temporary Passenger lift, scaffolding, Cup lock system, labour camp, storages, godowns, all required permissions from local governing respective authorities to carry out the works, all insurances, all licenses, administration, all S.H.E. related measures, security , watch and ward measures, barricades other than specified, traffic management, tree protection, property damage repairs, water, electricity, DG as per requirement, all tools, machineries, vehicles, etc. Complete.				
l	Before starting of Excavation NGL levels shall be got verified and approved by SBI/APMCF and RL levels to be at the top of different layer and based on the difference levels excavation qty shall be calculated.				
m	Rates should be inclusive all loading, unloading, shifting, all leads, lifts, sorting, transportation, labours, tools, plants, machinery,etc. complete				
n	Disposing and carting away of the excavated surplus soil / Hard murum Hard earth rock from site as directed and dumping to a place approved by NKDA / yard including all the costs for getting permission from NKDA etc. complete as directed. Including provision.				
o	All the above-mentioned points including the requisite elements & items as mentioned shall be considered included within the quoted rates of the line items of the BOQ and nothing extra would be paid on this account.				
	Preamble For Concrete Work:-				
a	PREAMBLE : The Rates Quoted shall be inclusive of the following for all Concrete/RCC work:				
b	All shuttering material used for concreting / RCC Work should be of good quality using BWP grade plywood to ensure smooth finish				
c	The scope of work under the items includes execution of work at all heights and location including all shapes, curved walls etc. Complete.				
d.	In case there is bulging / honey combing is noticed after removal of shuttering, the contractor will have to rectify the work at his own cost. The decision as to what constitute minor honey combing is left to the SBI/APMCF.				
e.	The Contractor will be responsible or arranging "design of concrete mix" through approved Government Engineering College / IIT/ NIT or any other institutes recommended by APMC/ SBI at their own cost within the quoted rates only and will submit the report to SBI/APMCF for approval. No extra payment shall be eligible on this account.				

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f.	The flooring. raft & slab curing is to be done by ponding method only min 7 days to be done.				
g.	Checking of top level of slab should be done at every floor & it should be within IS tolerance limit / client requirement.				
h	Frequency of testing for all materials like sand, aggregates, cement, steel. Concrete should be as per IS standard -Testing of samples to be done at approved lab .				
i	The use of admixture, fly ash & crush sand should be as per concrete mix design.				
	Note:- For lesser/Higher grades of concrete only cement difference shall be calculated based on RMC batch report/Design mix report and same shall be added/deducted including ±15% (Contractor's Profit) from the respective item rates.				
j	All the Concrete shall be measured in Cum basis only.				
k.	Rate shall be inclusive of all heights, Sub structure, Superstructure, lift & leads, Scaffolding, Shuttering, etc. Complete.				
	Pile work				
1	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-30 of specified diameter and length below the pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by percussion drilling using Direct mud circulation (DMC) or Bailer and chisel technique by tripod and mechanical Winch Machine all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap).				
	(Note: Truck Mounted Rotary/TMR/Tubewell boring machine shall not be used .)				
	Minimum cement content-350Kg/Cum				
	a) 500 mm dia piles	13,558.00	RM		-
2	Providing, driving with hydraulic piling rigs with power units and installing driven cast-in-situ reinforced cement concrete piles of grade M-30 of specified diameter and length below the pile cap, to carry safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of shoe and the length of pile to be embedded in the pile cap etc. all complete. (Length of pile for payment shall be measured from top of shoe to the bottom of pile cap) :				
	Minimum cement content-400Kg/Cum				
	a) 1000 mm dia piles	4,241.00	RM		-
3	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete up to plinth level.				
	Thermo-Mechanically Treated bars of grade Fe-550D or more.	627.00	MT		-
4	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge. Note: 1. Initial and Routine Load Test shall not be carried out by Dynamic method of testing. Note: 2. Testing agency shall submit the design of loading platform for the approval of Engineer-in-charge				
	Single pile above 50 tonne and upto 100 tonne Safe capacity				
	Initial test (Test Load 2.5 times the Safe capacity)	4.00	NOS		-
	Routine test (Test Load 1.5 times the Safe capacity)	8.00	NOS		-

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5	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge. Note: 1. Initial and Routine Load Test shall not be carried out by Dynamic method of testing. Note: 2. Testing agency shall submit the design of loading platform for the approval of Engineer-in-charge				
	v) Testing load between 250 T and 300 T.				
	N.B: This test shall be done on working piles only in a pile group and should satisfy the provisions of routine test as given in IS-2911 (Part-4) 1985.	4.00	NOS		-
6	Lateral load testing of single pile in accordance with IS Code of practice IS : 2911 (Part IV) for determining safe allowable lateral load on pile				
	Above 50 tonne and upto 100 tonne capacity pile	7.00	per test		-
7	Integrity testing of Pile using Low Strain/ Sonic Integrity Test/ Sonic Echo Test method in accordance with IS 14893 including surface preparation of pile top by removing soil, mud, dust & chipping lean concrete lumps etc. and use of computerised equipment and high skill trained personal for conducting the test & submission of results, all complete as per direction of Engineer-incharge. per test 982.55	378.00	Per test		-
8	Providing & Installation of M S sheet piles of any kind of approved type and size conforming to I.S. code in all kinds of soil/ soil mixed with gravel, shingle & pebbles, by vibro-sinker including starting, shoring and packing cavities (wherever required), handling, cutting to requisite size, drilling holes, hoisting in position, welding, fabrication of sets of taper piles, corner piles etc. with clutch bars as may be required including staging, scaffolding and hire charges of driving machinery and equipments, scraping and cleaning piles, painting the surface with one coat of surface primer of approved make and brand and two coats of ready mixed oil bound paint (except red lead and black japan) etc. including all cost of labours, supply and carriage of equipments to site (by any mean) as per drawing and direction of the Engineer-in-charge and including the cost of sheet piles. NB:- Measurement of area underground to be taken i.e. straight length of pile multiplied by driven length).	4,180.00	Sq.m		-
9	Empty Boring , providing and installation boardcast-in-situ reinforced cement concrete piles of specified diameter and length below the pile cap, excluding the cost of steel reinforcement and concrete but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by percussion drilling using Direct mud circulation (DMC) or Bailer and chisel technique by tripod and mechanical Winch Machine all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap) 1000 mm dia piles	1,674.00	m		-

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10	Empty Boring , providing and installation boardcast-in-situ reinforced cement concrete piles of specified diameter and length below the pile cap, excluding the cost of steel reinforcement and concrete but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by percussion drilling using Direct mud circulation (DMC) or Bailer and chisel technique by tripod and mechanical Winch Machine all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap) 500 mm dia piles	3,915.00	m		-
11	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	5,534.00	cum		-
12	Dismantling manually or by mechanical means all RCC members in sub-structure viz foundations, columns up to plinth level, beams, raft, slab, RCC internal walls, retaining wall etc. with all related equipment at all depth and location. The steel in the RCC structures shall be separated from the concrete and stack-up separately. The contractor should take care that dismantling of structure should not cause any damage to the existing structures near the building and even take care of dust control, noise control etc. Blasting is not permitted. All the work shall be carried out as instructed by Architect / SBI. The rate includes cutting of MS reinforcement steel bars using mechanical cutter and stacking the same as directed at site and carting away unserviceable material / debris to a place approved by Municipal Corporation.	400.00	cum		-
Sub Total in Foundation (A) =					-
<u>Basement, Grade Beam, Column up to Plinth Level</u>					
13	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth and removal of rubbish etc. the rate inclusive of disposing the same to approved Municipal dumping area including cost of all lead, lift, loading,unloading and transportation complete as directed by the Bank.	10,608.00	Sq.m		-
14	Felling trees of the girth (measured at a height of 1 m above ground level), including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material.				
	Beyond 30 cm girth upto and including 60 cm girth.	45.00	each		-
	Beyond 60 cm girth upto and including 120 cm girth.	35.00	each		-
15	Earthwork in Excavation, manually or by mechanical means, for foundation of walls, column footings, pile caps, raft, foundations, plinth beams, steps, water tanks, cess pits, etc., in all types of soil including soft or hard moorum, boulders (upto 0.10 cum) wherever necessary, bailing/pumping out sub-soil /rain water and keeping the foundation trenches and pits dry including filling back the trenches by selected and approved quality excavated earth in layers not exceeding 20 cm., watered and consolidated, spreading surplus excavated earth within plot and carting away surplus materials out of site, all complete as directed. Rate to include necessary cost towards transportation of remaining material rendered surplus out side the Bank's premises/site and disposing the same to approved municipal yard with all lead and lift including labour for loading, unloading surplus excavated earth complete as directed by the Bank.				
	All kinds of soil	10,373.00	cum		-
	Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.				
	All kinds of soil				

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	1.5m to 3m Depth	7,643.00	cum		-
	3m to 4.5m Depth	7,643.00	cum		-
	4.5m to 6.0m Depth	6,879.00	cum		-
	6.0m to 7.5m Depth	6,879.00	cum		-
	7.5m to 9.0m Depth	6,879.00	cum		-
16	Earth Filling With Surplus Excavated Approved Quality Soil Filling approved quality available excavated surplus earth (excluding rock) in trenches, plinth, plinth protection, under floors, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering including all lead, lift and transportation within the site/plot/premises as directed by Engineer-in-charge.	1,552.00	cum		-
17	Earth Filling with Brought Out Earth Supplying approved quality selected earth / hard murrum brought from outside (at contractor's cost) and filling the same in plinth, plinth protection, trenches, around drains, boundary walls, low lying areas for levelling etc. including removing debris, organic matter, etc and spreading in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming (mechanically or manually), watering, dressing, de-watering, if required, to keep site dry while back filling all complete as per specifications and instructions of Engineer In Charge. The rates includes transportation of materials, taking permission of local authorities and paying royalty etc. complete as per the direction of Engineer-in-Charge.	230.00	cum		-
18	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 with lead upto 50 metres.	3,468.00	sqm		-
19	Surface Dressing for Site Levelling etc. Earth work in surface excavation of ground not exceeding 30 cm in depth including getting out and disposal of excavated earth up to any lead and lift, including cost of transportation of excavated material/debris outside the Bank's premises to approved municipal dumping yard etc. as directed by Engineer-in-Charge.				
	All kinds of soil	2,179.00	Sq.m		-
	ANTI-TERMITE TREATMENT				
20	Pre-Construction Treatment Providing pre-constructional anti-termite treatment by treating the bottom surface & sides of excavation in soil with plinth beams, plinth filling and periphery confirming as per IS : 8944 & IS : 6313 Part-II 1981 or any latest revision and furnishing 10 years guarantee in required proforma all complete. (Reference Specification- IS-6313 Part-II of 1981 and IS-IS-8944-1978) Chemical used- Chemical name Trade Name Manufacturer Indian Standard Concentrations Chlorpyrifos 20% EC Cologuard Gharda Chemicals IS-8944- year-1978 1% Imidacloprid 30.5% SC Premise Bayer CIB 0.075% Treatment for Buildings with basement- The treatment will start after site survey, when the excavation is completed and before doing soling and PCC. The agency shall submit guarantee for Anti-termite treatment carried out by them for a period of 10 years on non-judicial stamp paper of required value as per format approved by the Bank.				
	1. Treatment to Soil below the RAFT :- The excavated area will be treated with chemical emulsion @ 5liter/ Sq mtr, before soling and PCC, the side wall of the pit up to height of raft will also treated with chemical emulsion.				

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	5. Treatment of the soil surrounding pipes and conduits :- This is also one of the important area from where the termite get easily entry, this area is treated @ 5liter/Sq mtr or linear mt. of chemical emulsion thoroughly, the total surrounding area is covered by pouring the chemical emulsion. Make : PCI/ Godrej/ Hi-care or equivalent as approved.	4,728.00	sqm		-
	(Note:- Only plan area of basement shall be measured for payment.)				
21	Ready Mixed Concrete (RMC) for : PCC (using Fly Ash as part replacement of OPC) in Foundation and Plinth Providing and laying in position specified grade Ready Mixed Plain Cement Concrete in foundation, plinth protection, floor slabs, grade slabs, pits to make up level., concrete sill, Coping etc., using fly ash and cement content as per approved design mix and manufactured in fully automatic batching plant and transported to site of work in transit mixer for all leads, having continuous agitated mixer, manufactured as per approved mix design of specified grade for plain cement concrete work, including pumping of R.M.C. from transit mixer to site of laying, spreading, compacting, finishing in line and level as per site requirements and curing etc. complete. The Rate should 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: (1) CARE: The above item shall be used judiciously where specified quality of fly ash is available for mixing in concrete. Also the guidelines issued by CDO, CPWD vide circular No.CDO/SE(RR Fly ash(Main)/102 dated 9th April 2009 shall be followed in such case. (2) Fly ash conforming to grade I of IS 3812 (Part-1) only be used as part replacement of OPC as per IS : 456. Uniform blending with cement is to be ensured in accordance with clauses 5.2 and 5.2.1 of IS : 456-2000 in the items of BMC and RMC. (3) Sand and aggregate shall be derived from natural sources.				
	M 15 grade concrete using 20mm downgraded metal (coarse aggregate).				
	All works upto plinth level :				
	Concrete of M15 grade with minimum cement content of 240 kg /cum	890.00	cum		-
22	Ready Mixed Concrete (RMC) for RCC Work in Foundation and Plinth Providing and laying in position (M30) Ready mixed Reinforced Cement				
	Note: Cement content considered in this items is @ 350 kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
	Column Footing, Raft Slab or any other type of RCC foundation.	3,202.00	cum		-
	Columns from Footing Top to Plinth level (Stub Columns)	5.00	cum		-
	Plinth Beams/Tie Beams	375.00	cum		-
	RCC Floor slab at Plinth Level.	962.00	cum		-
	RCC Walls upto Plinth Level.	9.00	cum		-

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23	Ready Mixed Concrete (RMC) for RCC Work in Foundation and Plinth Providing and laying in position (M40) Ready mixed Reinforced Cement Concrete for various RCC structural elements in any shape and design as per structural drawings and as directed in foundation and plinth 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 @ 390 kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
	Column Footing, Raft Slab or any other type of RCC foundation.				
	Columns from Footing Top to Plinth level (Stub Columns)	474.00	cum		-
	Plinth Beams/Tie Beams	977.00	cum		-
	RCC Floor slab at Plinth Level.	909.00	cum		-
	RCC Walls upto Plinth Level.	1,106.00	cum		-
24	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.	3,864.50	quintal		-
25	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete up to plinth level.				
	Thermo-Mechanically Treated bars of grade Fe-550D or more.	1,344.00	MT		-
26	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured).				
	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	6,504.00	Sq.m		-
27	One brick flat soling including ramming and dressing bed to proper level and filling joints with powdered earth or sand.				
	Grouted with sand				
	Class designation 5 brick	8,340.00	Sq.m		-
28	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 5.0 in foundations and plinth in :				
	Cement mortar 1:3 (1 cement : 3 coarse sand)	2,945.00	Sq.m		-
29	Providing and constructing Brick masonry walls in Foundation and Plinth using locally available approved quality Bricks, well (Kiln/Chimney) burnt, uniform size and colour having average crushing strength not less than 35 kg/cm ² for walls, shaft walls, parapets, drains, manholes, trenches etc. in proper line, level and plumb including striking out / raking out joints, curing, necessary scaffolding, etc. complete at all heights and levels as per the approved drawing and as per instructions of the Architect / Engineer-in-charge.				
	Cement mortar 1:4 (1 cement : 4 coarse sand)	71.00	cum		-

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	PLASTER				
30	Providing and applying in position average 12/15mm thick smooth finish cement Plaster in cement mortar 1:5 to all internal walls, using fine or Coarse 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.	15,905.00	Sq.m		-
31	Providing and laying in position external Sand Face Cement Plaster, average 20 mm thk, in two coats, at all heights with first coat of av. 12 mm thk in Cement Mortar 1:5 using natural silt free fine sand, and second coat of average 6 mm thickness in C.M. 1:4, including necessary staggging, 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.	2,776.00	Sq.m		-
32	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :				
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	268.00	RM		-
33	Neat cement punning.	209.00	Sq.m		-
	Basement Water Proofing:				
34	Retaining wall waterproofing with SBS Membrane (after de shuttering & curing) - Providing & laying 1.6mm THK SBS modified self-adhesive, cross laminated HDPE valeron lining waterproofing membrane, Dr. Fixit Samshield XL 1500, conforming to IS 16471:2017 Type A, requirements of UG waterproofing structures, over the solvent based bituminous Torchshield primer @ 4 sq.m/litre. The lap with HDPE membrane shall be 100mm treated with double sided tape. This shall include surface preparation by cleaning work, removal of loose concrete and filling cracks with polymer modified mortar & treatment of tie rod holes, bracing angle etc with plugging mortar Dr. Fixit Pidigrout 10 M, which are anchored in shuttering for holding the same and other projections as per manufacturers' recommendation, followed by the installation of 8-10mm THK polyethylene dimpled drain board having compressive strength > 400kN/m2 (as per ISO 25619-2) and puncture resistance of 1250N as per ISO 12236 over the waterproofing membrane for vertical surface stuck to the membrane by spot				

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	<p>bonding method, using synthetic adhesive with butt joints to protect the membrane from damages from back-filling materials, all followed by termination of the membrane minimum 200mm above FGL with aluminium termination bar shall be fixed with non-corrosive fastener @ 4 no's per RM, sealing of termination bar with PU Sealant / epoxy mortar / putty, as per manufacturer specification, etc. complete. The SBS membrane shall have Roll Size: 1 Mtr X 10 Mtr, Mass per Unit Area > 1.8 Kg/m² as per ASTM D 5147, Puncture resistance > 200 N as per ASTM E 154, Elongation > 180% as per ASTM D 412-06, Crack bridging (10 cycles) > 1.5mm as per ASTM C 836, Tensile Strength > 4 Mpa as per ASTM D 412- 06, Tear resistance > 20 N/mm as per ASTM D 4073, Softening Point (°C) ≥ 105° as per IS 1205/1978, Low temperature Flexibility – 10° C as per ASTM D 5147, Chemical Resistance (pH) as per ASTM D 543, Hydrostatic pressure > 50M as per DIN 1048 . Item rate is inclusive of all material, labour, tools & tackles, scaffolding & transportation etc. complete as per specification & as directed by SBI/ APMC. Make :- BERGER, Pidilite, Fosroc, Asian Paint, BASF or Equivalent</p>				
	<p>Mode of measurement :- The surface area of membrane shall be measured. No extra payments for overlapping and other concealed areas shall be considered.</p>				
	<p>For Vertical surface</p>	<p>3,040.00</p>	<p>Sq.m</p>		<p>-</p>
35	<p>HDPE waterproofing system: Supplying and laying composite 1.5mm thick, pre-applied, fully bonded HDPE weldable membrane-Dr. Fixit Prebond W over P.C.C. conforming to BS 8102 & IS 16471:2017, requirements of UG waterproofing structures. The system should be fully bonded to the Raft and consists of highly resilient HDPE film, pressure sensitive layer and weather protective sand layer. Typical application includes surface preparation by removing loose aggregates from PCC, foreign material, cleaning the surface etc., cutting membrane to convenient length, carefully aligning the membrane over blind concrete and rolling it out with sand coated side facing up, laying adjacent sheets by keeping side B25 overlap of 75 mm, carry out hot air fusion welding by using suitable machine, end overlaps to be welded in 75 mm width after removing sand and adhesive. The membrane shall be continued over the vertical surface leaving 50 mm from top of the Raft and fixed to shutter using double side adhesive tape. The membrane shall have Technical Parameter.</p>				
	<p>Tensile strength > 25 Mpa as per ASTM D 412 Elongation > 500% as per ASTM D412, Puncture resistance > 800 N as per ASTM E 154 Hydrostatic head resistance > 70m head of water as per ASTM D 5385 Low Temperature Flexibility: -25 deg C Lap Peel Adhesion-15000 N/m as per ASTM D1876 Peel Adhesion to Concrete > 880 N/m as per ASTM D 903 Modified UV Exposure >45 Days. complete as per specification & as directed by APMC/ SBI (Basement floor and UGR)</p>	<p>9,249.00</p>	<p>Sq.m</p>		<p>-</p>

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36	<p>Concrete admixture for retaining wall & raft concrete: Supplying and mixing Dr. Fixit Polyplus CP Admix / equivalent, integral full section crystallization based waterproofing treatment having to be added into the concrete of Base slab upto 300mm Raft thickness, at a dosage rate of 1% by weight of the cement contents of the concrete. Dr. Fixit Polyplus CP Admix / equivalent waterproofing system shall be added to the concrete in the form of thin slurry by mixing Dr. Fixit Polyplus CP Admix / equivalent 1 kg, with approx.1.25 litres of water. Slurry formed shall be added to the concrete directly into the RMC transit mixer at site prior to pumping of the concrete. After adding Dr. Fixit Polyplus CP Admix / equivalent slurry into the concrete, the transit mixer shall be rotated at a full speed for around 5 minutes to ensure the uniform mixing of the Dr. Fixit Polyplus CP Admix / equivalent into the concrete. Dr. fixit Polyplus CP admix / equivalent shall conform to DIN 1048 – Part 5, ASTM C-39 / C-494, ASTM C-267- 77 (Chemical Resistance), ASTM C-231 (Air Content), ASTM C – 341 (Length change) Shrinkage. Make :- BERGER, Pidilite, Fosroc, Asian Paint, BASF or Equivalent</p>	12,289.00	Sq.m		-
37	<p>Construction joint treatment (During casting) - Providing and applying water re-swellable-bar SealArm Waterbar RS 800 of MYK make at starter & all construction joints, it shall have unrestrained volumetric expansion > 800% after 14 days. It shall be fixed to the concrete using a gun grade hydrophilic adhesive / or mechanically fixed by non corrosive nailing as recommended by manufacturer. It shall be fixed at center of concrete element using cross nailing in alternate manner so that it shall not be displaced from its original position. Before fixing of Waterbar, surface of concrete element on which waterbar to be fixed shall be levelled. Make :- BERGER, Pidilite, Fosroc, Asian Paint, BASF or Equivalent</p>	20.00	RM		-
38	<p>Providing and laying in position damp-proof course 50mm thick with cement concrete 1:2:4 using 12.5mm nominal size graded stone aggregate including providing & applying a coat of approved quality residual petroleum bitumen of grade VG-10 using @ 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.</p>	553.00	sqm		-
39	<p>Providing, injecting and grouting High molecular weight Super Low Viscous (3 to 5 cps) 0.56 Kg/cm² Epoxy Thermoset Resin Monopol Make:- Durabuild / Roff / Krishna Conchem / Fosroc</p>	1,843.00	each		-
40	<p>Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. For Basement and parking floor & Ramp only</p>	13,098.00	Sq.m		-

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	<p>Epoxy paint for a parking area requires specific characteristics to ensure durability and safety under heavy vehicle traffic and local climate conditions.</p> <ol style="list-style-type: none"> 1. The key specifications generally focus on abrasion resistance, slip resistance, waterproofing, and chemical resistance. 2. Thickness ranges from 2 mm to 3 mm for general parking slabs. Ramps require 3mm thicker and Parking area required 2mm thicker application or a specialized wearing layer for enhanced grip and impact resistance. 3. A matt finish is required with anti-skid/slip-resistant texture created by broadcasting fine quartz aggregate into the primer or wearing layers. 4. Compressive Strength: Minimum - 30 Mpa, Flexural strength - 7 Mpa, Tensile Strength - 7 Mpa. 5. Adhesion (Pull-off strength): Greater than 1.5 N/mm² to ensure the coating bonds effectively to the concrete substrate. 6. Chemical Resistance: Must be resistant to automotive fluids, oils, grease, and cleaning agents. 7. Water Resistance: The system should be impermeable to water and moisture, protecting the concrete slab and rebar from corrosion. 8. Durability: Capable of withstanding heavy vehicle movement and foot traffic without peeling or scuffing. 				
	Sub Total in Foundation Up to Plinth (B) =				-
	Super Structure:-				
41	<p>Providing and laying in position (M30) 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.</p>				
	(Rate Excluding cost of reinforcement). (Above Plinth level and upto Floor Five Level) Note: Cement content considered in this items is @ 350 kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
	Above Plinth level upto Floor Five Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc. (Above Plinth level and upto Floor Five Level)	308.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.(Above plinth level and upto floor five level)	376.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc. (Above plinth level and upto floor five level).				
	Above 100 mm	724.00	cum		-
	RCC Wall	139.00	cum		-
	Five Floor Level upto 9th floor Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc. (Above Plinth level and upto Floor Five Level)	226.00	cum		-

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	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.(Above plinth level and upto floor five level)	268.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc. (Above plinth level and upto floor five level).				
	Above 100 mm	610.00	cum		-
	RCC Wall	108.00	cum		-
	9th Floor Level upto 13th floor Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc. (Above Plinth level and upto Floor Five Level)	265.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.(Above plinth level and upto floor five level)	183.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc. (Above plinth level and upto floor five level).				
	Above 100 mm	324.00	cum		-
	RCC Wall	93.00	cum		-
	13th Floor Level upto Top of Roof Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc. (Above Plinth level and upto Floor Five Level)	34.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.(Above plinth level and upto floor five level)	56.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc. (Above plinth level and upto floor five level).				
	Above 100 mm	56.00	cum		-
	RCC Wall	25.00	cum		-
42	Ready Mixed Concrete (RMC) for RCC Work in Foundation and Plinth Providing and laying in position (M40) Ready mixed Reinforced Cement Concrete for various RCC structural elements in any shape and design as per structural drawings and as directed in foundation and plinth 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 @ 390 kg/cum. Excess/less cement used as per approved design Mix is payable/ recoverable separately.				
	Above Plinth level upto Floor Five Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc.	651.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.	1,422.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc.				
	Above 100 mm	1,286.00	cum		-
	RCC Wall	186.00	cum		-

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	5th Floor Level upto 9th floor Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc.	456.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.	794.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc.				
	Above 100 mm	659.00	cum		-
	RCC Wall	156.00	cum		-
	9th Floor Level upto 13th floor Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc.	456.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.	797.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc.				
	Above 100 mm	663.00	cum		-
	RCC Wall	156.00	cum		-
	14th Floor Level upto Top of Roof Level				
	Columns, Pillars, Piers, Abutments, Posts, Struts etc.	342.00	cum		-
	Floor Beams, Sloping Beams, Lintels, Cantilever Beams/Brackets etc. as per Structural Drawings.	617.00	cum		-
	Floor Slabs of various thickness including Sloping Roofs, Cantilever and Flat Slabs, Portico/Poarch slabs etc.				
	Above 100 mm	540.00	cum		-
	RCC Wall	117.00	cum		-
43	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.	6,538.00	quintal		-
44	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level (Upto Floor Five level).				
	Thermo-Mechanically Treated bars of grade Fe-550D or more. (Upto Floor Five level).	2,497.00	MT		-
45	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc., including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured).				
	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	12,485.00	Sq.m		-
	BRICK WORK				
46	Providing and constructing Brick masonry walls in Superstructure using locally available approved quality Class designation 50 Bricks, well (Kiln/Chimney) burnt, uniform size and colour having average crushing strength not less than 50 kg/cm ² in CM 1:5 for walls, shaft walls, parapets, drains, manholes, trenches etc. in proper line, level and plumb including striking out / raking out joints, curing, necessary scaffolding, etc. complete at all heights and levels as per the approved drawing and as per instructions of the Architect / Engineer-in-charge. Rate should be quoted considering execution of work above plinth level upto and inclusive Floor Five level).				
	In Cement Mortar 1:5	10.00	cum		-
47	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 5.0 in foundations and plinth in :				
	Cement mortar 1:3 (1 cement : 3 coarse sand)	10.00	sqm		-

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48	Providing and laying Autoclaved Aerated Cement (AAC) blocks masonry in Superstructure using 150mm/ 230mm/ 300 mm thick AAC blocks including providing 100 mm thick RCC band with 4 nos. 8 mm dia TMT bars and 8 mm dia TMT links at 300 c/c in cement concrete mix 1:2:4 at sill level and lintel level with approved block laying polymer modified adhesive mortar including raking out joints, curing, scaffolding etc complete as per direction of Engineer in-Charge. Rate should be quoted considering execution of work above plinth level upto and inclusive Floor Five level). Make: Siporex, Aerocon, Billtech, Ecolite, Ascolite Ultratech, Eco green, Brixo	11,346.00	cum		-
49	Extra above Item No. 48 for carrying out AAC Block masonry in superstructure using 150/230/300 mm AAC Blocks beyond floor five level for each four floors or part thereof complete. Remaining scope of work and specifications will remain same.	8,724.00	cum		-
50	Providing and laying Autoclaved Aerated Cement (AAC) blocks masonry in Superstructure using 150mm/ 230mm/ 300 mm thick AAC blocks including providing 100 mm thick RCC band with 4 nos. 8 mm dia TMT bars and 8 mm dia TMT links at 300 c/c in cement concrete mix 1:2:4 at sill level and lintel level with approved block laying polymer modified adhesive mortar including raking out joints, curing, scaffolding etc complete as per direction of Engineer in-Charge. Rate should be quoted considering execution of work above plinth level upto and inclusive Floor Five level).				
	Make: Siporex, Aerocon, Billtech, Ecolite, Ascolite Ultratech, Eco green, Brixo	903.00	cum		-
51	Extra above Item No. 50 for carrying out AAC Block masonry in superstructure using 150/230/300 mm AAC Blocks beyond floor five level for each four floors or part thereof complete. Remaining scope of work and	838.00	sqm		-
	PLASTER				
52	Providing and applying in position average 12/15mm thick smooth finish cement Plaster in cement mortar 1:5 to all internal walls, using fine or Coarse 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.	61,857.00	Sq.m		-
53	Providing and laying in position external Sand Face Cement Plaster, average 20 mm thk, in two coats, at all heights with first coat of av. 12 mm thk in Cement Mortar 1:5 using natural silt free fine sand, and second coat of average 6 mm thickness in C.M. 1:4, including necessary staggging, 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.	17,795.00	Sq.m		-

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54	Providing applying in position 6mm (average) 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.	31,029.00	Sq.m		-
	1:4 (1 cement : 4 fine sand)				
55	Providing and applying Rough cast plaster at all height above ground level with a mixture of sand and gravel or crushed stone from 6 mm to 10 mm nominal size, dashed over and including the fresh plaster in two layers, under layer 12mm cement plaster 1:4 (1 cement: 4 coarse sand) and top layer 10 mm cement plaster 1:3 (1 cement: 3 fine sand) mixed with 10% finely grounded hydrated lime by volume of cement including necessary scaffolding, curing etc. complete as directed by the Engineer-in-charge.	2,864.00	Sq.m		-
56	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part there of.	13,118.00	Sq.m		-
57	Extra for providing and mixing water proofing material in cement plaster work in proportion @1 Kg per Bag of Cement or as recommended by the manufacturers.	5,202.00	Per bag cement		-
	Paint:				
58	Putty on Internal wall Providing and applying 2 or more coats of Birla putty on internal walls of average thickness of 3 to 4 mm in line & level including its rubbing with sand paper to ensure smooth & even surface including necessary scaffolding etc. complete.	89,830.00	Sq.m		-
	Make :- Birla or approved equivalent make				
59	Distempering with 1st quality acrylic distemper (ready mixed) having VOC				
	New work (two or more coats) over and including water thinnable priming coat with cement primer having VOC content less than 50 gram/litre	8,316.00	Sq.m		-
60	Providing and applying Synthetic Enamel Paint on doors / windows frame, shutters, railing, grills, gates etc. in two or more coat of approved brand and shade including a priming coat as per manufacturs' specifications, after necessary preparation of surface with scrapping, sand paper rubbing, applying putty, including necessary scaffolding etc.complete as directed by the Engineer-incharge.				
	Paint: Asian, Nerolac, Berger, Dulux	2,070.00	Sq.m		-
61	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.	91,595.00	Sq.m		-
62	Painting wood work with Deluxe Multi Surface Paint of required shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @0.75 ltr/10 sqm of approved brand and manufacture	4,971.27	Sq.m		-

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63	<p>Providing and applying Elastomeric Paint to external walls on new surface as under: a) Providing applying 2 or more coats of External grade Birla putty on external walls in line & level including its rubbing with sand paper to ensure smooth & even surface b) Providing and applying one coat of water based Acrylic anti fungal Primer of approved quality and make as per sample approved. c) Providing and applying one coat of fibre reinforced membrane paint water proofing Coat of "Protek Basecoat" of Asian / "Weather coat long life Roof Guard" of Berger / "Aqua Touch" of ICI or equivalent approved by the SBI having crack bridging ability up to 2.00 mm, superior anticarbonation & water proofing property. d) Providing and applying 2 or more coats of approved quality External Acrylic Emulsion paint, Exterior grade having anti fungal property, resistance to dust & dirt accumulation, resistance to fading of colours etc. of approved colour and shade Apex Ultima (Asian) / Weather coat All Guard (Berger) / Weather Shield Max (ICI) or equivalent approved by the SBI.</p>				
	<p>Note: Rates to include cleaning afterwards, necessary scaffolding / Cradle, debris safety netting, labour etc complete. Make: Asian Paints Ultima Protek / Berger Weather coat Long Life or approved equivalent.</p>	17,891.00	Sq.m		-
64	<p>Providing and applying Texture Paint to all new surface comprising of: (a) Preparation of surface including scrapping wherever required to remove all loosely adhered particles followed by washing with water using wire brush to ensure thorough cleaning. (b) Providing and applying one coat (water proofing Coat) of fibre reinforced membrane paint, having crack bridging ability up to 2.00 mm, superior ant carbonation & water proofing property with life of 5 years. (c) Providing & applying 1.5-2.0 mm thick Synthetic Texture by mixing the product with clean water thoroughly with an electrical mixer for 3-5 minutes until the desired homogeneous paste is achieved so as to ensure that the mixture is free from lumps before use. (d) Applying minimum thickness of 1.5-2.0 mm of homogeneous paste those prepared on the plastered surface with a steel trowel so as to have the desired texture finish and design. If necessary, a second layer may be applied.</p>				
	<p>(e) The entire work should be carried out strictly in accordance with the manufacturers' specifications including necessary scaffolding etc. and execution of work at all heights and locations complete as per the Direction of Engineer / In-Charge.</p>	3,927.00	Sq.m		-
	<p>Make: Asian, Nerolac, Berger, Dulux</p>				
65	<p>Providing and applying two coats of fire retardant paint on cleaned wood / ply surface @ 3.5 sqm per litre per coat including preparation of base surface as per recommendations of manufacturer to make the surface fire retardant.</p>	902.00	Sq.m		-
	<p>FLOORING:</p>				
66	<p>Granite Stone Flooring (Machine Polished / Flame Burnt etc.) Providing and laying in position 18mm ± 2mm thick machine cut pre-polished Granite stone flooring and skirting in approved colour, shade, design and patterns as per architectural drawings ilaid over 20 mm (average) thick cement mortar 1:6 (1 cement : 6 coarse sand) bedding fixed and jointed with neat cement cement slurry and filling joints using white cement slurry admixed with pigment of matching shade or epoxy based joint filling compound of approved make including grinding, mirror polsihing, curing, nosing, making grooves etc. complete as specified in the Architectural drawings and as directed by the Engineer-in-Charge. (Basic rate Rs. 1,800/- per sqm)</p>				

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	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.	4,888.00	Sq.m		-
	Skirting of stair case & window sill using full width single slabs not less than 1.80 meter in length with full round mouded edges duly mirror polished.	884.00	Sq.m		-
67	<p>Vitrified Tile Flooring</p> <p>Providing & laying in-position Vitrified tiles in floor and skirting of approved make and colour uniformly in line, level and in approved design, including laying avg. 20 to 25 mm thick bed of CM 1:6 (1 cement : 6 coarse sand) and filling the joints with epoxy based joint filling compound of matching shade, curing the joints etc complete.</p> <p>Rates to include providing & fixing 100 mm high skirting as per drawing flushed with finished surface of wall in line and level and 6 mm wide groove to be made in wall at the junction of skirting and finished surface of wall etc. complete matching to flooring as per direction of Engineer</p> <p>In-Charge. Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco</p>				
	Double Charged Nano Polish Gloss / Matt finished Vitrified tiles:				
	Size of Tile 600 x 600 mm	23,936.00	Sq.m		-
	Size of Tile 800 x 800 mm	3,426.00	Sq.m		-
	Size of Tile 600 x 1200 mm	968.00	Sq.m		-
68	<p>Italian Marble Cladding Providing & Fixing in position 18mm thick ± 2mm tolerance, machine cut, Mirror finish Pre-polished Italian Marble 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 the joints etc. complete as directed by the Bank. Rate includes cost of CM 1:4 backing plaster with waterproofing compound, cahmferring of tiles at corners and excution of work all heights and locations including necessary scaffolding etc. complete..</p> <p>(Basic Rate: Rs.7,500 / Sqm)</p>				
	Wall Cladding	2,816.00	Sq.m		-
69	<p>Italian Marble Flooring</p> <p>Providing and fixing in position 18 mm ±2mm thick Prepolished Italian marble flooring using of uniform and homogeneous colour, shade and texture as per approved pattern and design including Inlay pattern as per Architectural drawings and sample approved by the Bank with machine cut edges, laid over average 20 to 25 mm thick CM 1:6 (1 cement : 6 coarse sand) bedding fixed with matching neat white cement slurry or approved tile adhesive of Roff/Bal Endura/Fevimate or equivalent approved by the Bank laid to level as required, curing etc. complete. The rate includes machine polishing of floor in mirror finished as per sample approved by the Bank and as directed by the Engineer-in-charge.</p> <p>Basic Rate of Italian Marble : Rs.5,000/- per sq.m</p>				
	In Flooring using Italian Marble slabs not less than 1.50 Sqm in plan area (except on edges/ends)..	1,388.00	Sq.m		-
	100 mm high Skirting (using not less than 0.50m long pieces.)	20.00	Sq.m		-

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70	<p>Providing & fixing in position Kitchen platform/Vanity Counters with mimum 600mm width made as under: Vertical supports: Made out of 18 mm thick white marble slabs sandwich supports (two slabs joined together using Araldite adhesive to full surfae area) placed at specified spacing as per detailed drawing and suitable to house modular kitchen under the counter Trolleys. Rate includes providing vertical garnite band to vertical supports with moulded/polished edges.</p> <p>Kitchen Counter Top : Finished with 18+/-2mm approved qulaity, Colour, shade and textutre mirror polished Granite slab (minimum length of slab shall not be less than 1.80 Meter for Kitchen counter and one single piece for Vanity Counters for wash basin etc.) resting on 18mm thick white marble base support slab (in one piece) and fixed with CM 1:2 or approved tile adhesive as directed at site. Front Facia: 50 to 75mm wide Granite band in one piece not less than 1.80 RM in length for kitchen counter and required length in one piece for Vanity counters with full round moulded mirror polish edges complete as per Architectural working drawing.</p>				
	<p>Making hole/sleeves for Gas pipe as per drawing. Rate should include chasing walls, floors to embed vertical supports and counter top using CM 1:2 including making cutout for for kitchen sink, under the counter wash basin, core cutting for pillar cock, bottle trap etc. complete as per directions & instructions of the Architect.</p> <p>Basic rate of granite - Rs. 1,800.00 per Sqm</p>				
	Kitchen / Pantry Platform	327.00	Sq.m		-
	Vanity Counter for Washbasin	209.00	Sq.m		-
71	<p>Vitrified Tile Dado</p> <p>Providing and laying in position approved qulaity and shade Nano polish/Glossy/matt finish joint free / paper cut edges Vitrified tiles in Dado, above Kitchen Platform etc. using approved colour and shade including Digital Print as per sample approved by the Engineer-in-Charge fixed over 15mm thick rough finished backing plaster in CM 1:4 fixed with approved quality tile adhesive of Bal Endura /Roff or equivalent approved make including filling joints using white cement/epoxy based joint filling compound with matching pigment including acid cleaning of tiles complete in all respect and at all heights, levels and locations. Rate includes cost of CM 1:4 backing plaster with waterproofing compound, cahmferring of tiles at corners and excution of work all heights and locations including necessary scaffolding etc. complete..</p>				
	Top layer Vitrified Wall Tiles of size 600mm x 600 mm	371.00	Sq.m		-
71A	<p>Providing and applying fibre reinforced elastomeric liquid water proofing membrane with resilient acrylic polymers having Sun Reflectivity Index (SRI) of 105 on top of concrete roof in three coats @10.76 litre/ 10 sqm. One coat of self-priming of elastomeric waterproofing liquid (dilution with water in the ratio of 3:1) and two coats of undiluted elastomeric waterproofing liquid (dry film thickness of complete application/system not less than 500 microns). The operation shall be carried out after scrapping and properly cleaning the surface to remove loose particles with wire brushes, complete in all respect as per the direction of Engineerin-Charge.</p>				
	On Terrace	4,120.00	Sq.m		-
	In 1200 mm high PARAPET WALL	840.00	Sq.m		-

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72	Providing and laying in position Anti Skid Digital Print Ceramic Tile (9 mm min. thickness) flooring of approved colour, shapes and texture laid in required pattern in uniform line, level including laying avg. 20 to 25 mm thick bed of CM 1:6 (1 cement : 6 coarse sand) and neat white cement float, filling joints with neat cement slurry of appropriate colour, curing and cleaning complete. Tiles shall be free of any variation in colour or texture. in all aspects as specified and directed by the Engineer/Architect. Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco				
	600 X 600 mm	1,646.00	Sq.m		-
73	Providing and fixing in position premium quality joint free / paper cut edges digital print ceramic wall tiles in walls/dado conforming to IS: 15622 (thickness to be specified by the manufacturer) of approved make, colours and shades as per sample approved by Engineer-in- Charge fixed over 15mm thick rough finished backing plaster in CM 1:4 fixed with neat cement slurry including filling joints using white cement/epoxy based joint filling compound with matching pigment including acid cleaning of tiles complete in all respect and at all heights, levels and locations. Rate includes cost of CM 1:4 backing plaster with waterproofing compound, cahmferring of tiles at corners and excution of work all heights and locations including necessary scaffolding etc. complete.. Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco				
	(600X600) MM	7,561.00	Sq.m		-
74	Kotah Stone Flooring Providing and laying in position average 25mm thick hand chiesel cut and machine polished mirror finish Kotah Stone flooring and skirting laid over avg. 20 to 25 mm thick cement mortar 1:6 (1 cement: 6 coarse sand) bedding fixed with neat cement slurry in proper line, level, slope as required including filling joints with approved matching shade epoxy based joint filling compound. Rate includes mirrot polishing of Kotah stone flooring as per sample approved by the Bank including making neccessary cutouts for lectrical/Data/Telephone cables etc., cleaning of floor and skirting complete in all aspects, as specified in drawings and directed by the Engineer/Architect.				
	In Flooring using Kotah Stone slabs not less than 0.50 Sqm in plan area (except on edges/ends)..				
	100 mm high Skirting (using not less than 0.50m long pieces.)				
	25 mm thick	347.00	Sq.m		-
75	Marble stone flooring with 18 mm thick marble stone, as per sample of marble approved by Engineer-in-charge, over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry, including rubbing and polishing complete with :				
	Makrana white second quality	1,660.00	Sq.m		-
Super Structure Water Proofing:					
Single Component Polymer based Elastomeric Seamless Membrane.					
76	Cleaning the surface in such a way that RCC slab appears clearly & same shall be free from mortar splashing, Lumps etc., thereafter providing and applying a single pack waterborne eco-friendly elastomer copolymer waterproof coating membrane Mfd. by M/s. Pidilite Industries Ltd.,BASF india ltd., Sunanda speciality coatings, Cika or equivalent. to be applied by brush or roller in 2 coats to achieve average thickness of 600 -800 microns with a total consumption of approx. 0.80 Litre/Sq m, having a tensile strength of ≥ 2.5 N/mm ² , & same shall have a Solid Content (w/w) $\geq 65\%$. , having elongation of minimum 300%, with adhesion of minimum 0.5 N/mm ² , with 2.00mm crack bridging capacity, with resistance to water penetration, for wet area application, Same to be applied over the horizontal and vertical wall surface etc., complete.	17,232.00	Sq.m		-

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	Providing & Laying with maximum 20 mm thick cement mortar of mix 1:4 (1cement :4 coarse sand) admixed with water proofing compound (conforming to IS : 2645) at the rate of 1 Kg per bag of cement, Including laying in required position in flooring. Curing the surface for 7 days for water tightness. also includes sealing sleeves, outlets with non shrink, free flow, high strength cementitious grout material to seal the peripheral gag between pipe and waterproofing screed.				
	Protective Epoxy Bond Coat				
	Providing and applying a bond coat of Pidilite/ Sika/Basf/ Sunanda or equivalent, as a bond coat in one layer, followed by sprinkling of Dry natural sand while the bond coat is still tacky so as to create a rough Key for the subsequent layer etc. complete.				
77	Concrete admixture for roof concrete: Supplying and mixing Dr. Fixit Polyplus CP Admix / equivalent, integral full section crystallization based waterproofing treatment having to be added into the concrete of Base slab upto 300mm Raft thickness, at a dosage rate of 1% by weight of the cement contents of the concrete. Dr. Fixit Polyplus CP Admix / equivalent waterproofing system shall be added to the concrete in the form of thin slurry by mixing Dr. Fixit Polyplus CP Admix / equivalent 1 kg, with approx.1.25 litres of water. Slurry formed shall be added to the concrete directly into the RMC transit mixer at site prior to pumping of the concrete. After adding Dr. Fixit Polyplus CP Admix / equivalent slurry into the concrete, the transit mixer shall be rotated at a full speed for around 5 minutes to ensure the uniform mixing of the Dr. Fixit Polyplus CP Admix / equivalent into the concrete. Dr. fixit Polyplus CP admix / equivalent shall conform to DIN 1048 – Part 5, ASTM C-39 / C-494, ASTM C-267- 77 (Chemical Resistance), ASTM C-231 (Air Content), ASTM C – 341 (Length change) Shrinkage. Make :- BERGER, Pidilite, Fosroc, Asian Paint, BASF or Equivalent.	3,906.00	Sq.m		-
78	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 12mm 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.	3,726.00	Sq.m		-
	LIFT, UG AND OHT Tanks				
79A	Providing and laying waterproofing and protective tank lining system through approved specialized agencies for U/G & O/H storage tank internally consisting of cleaning the surface of the internal concrete surface of the floor as well as walls thoroughly by wire brushing and washing with high pressure water jet, to remove any loose laitance as well as contaminates, thereafter inspecting the concrete surface to identify any honeycombs, crack, voids or defects in the concrete such as cracks, construction joints etc., and sealing all such locations with with solvent free epoxy mortar, using epoxy resin and hardener. Thereafter providing and applying containment membrane lining system consisting of combination of epoxy and polysulphide formulation. Epoxy Polysulphide formulation membrane lining cures to produce a tough, flexible coating system with excellent abrasion and chemical resistance and waterproof properties and consists of 2 component, which shall be applied in 2 coats by way of spray or roller to provide a minimum wet film thickness of 0.25 mm per coat with material consumption of approx. 0.3 Kg per Sq mt. per coat, all as per manufacturers recommendation etc. Complete. Treatment used should be non toxic system, to be used in drinking water and potable water tanks, tested to BS 6920. Make :- BERGER, Pidilite, Fosroc, Asian Paint, BASF or Equivalent.	1,052.00	Sq.m		-
79B	Waterproofing treatment to Podium Slab				
	Providing and laying in-position integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces, top terraces etc consisting of following operations:				

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	a) Applying a slurry coat of neat cement using 2.75 kg/Sq m. of cement admixed with water proofing compound conforming to IS. 2645 and approved by SBI/APMCF over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface neatly till RCC Slabs without any mortar lumps.Mortar splashes etc complete before treatment.			
	b) Providing & Laying with maximum 20 mm thick cement mortar of mix 1:4 (1cement :4 coarse sand) admixed with water proofing compound (conforming to IS : 2645) at the rate of 1 Kg per bag of cement, Including laying in required position in flooring. Curing the surface for 7 days for water tightness.			
	c) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm size with 50% of cement mortar 1:4 admixed with water proofing compound conforming to IS : 2645 and approved by SBI/APMCF , Followed by 20 mm thick layer of cement mortar of mix 1:4 admixed with water proofing compound conforming to IS : 2645 and approved by SBI/APMCF to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.			
	d)Application of Primer			
	Providing and applying single coat of epoxy resin based acrylic primer cum sealer Maxshield® Primer at an coverage of 5 - 6 sqm per ltr depending upon surface before further application of waterproofing coat or as per manufacturers' specification. Application of Waterproofing Coating			
	Providing and applying two coats of single component solvent based polyurtehane waterproofing coating Maxshield® PF 900 reinforced with nonwoven geotextile fabric of 60 GSM Maxshield® FABRIC soaked in Maxshield® PF 900 at an coverage of 2 kg per sqm including curing as per manufacturers' specification.			
	e) After curing the surface by ponding for 5-7 days, applying a second coat of cement slurry using 2.75kg/Sq m of cement admixed with water proofing compound conforming to IS:2645 and approved by SBI/APMCF.			
	f) Finishing the surface with 20 mm thick cement mortar of mix 1:4 (1cement :4 coarse sand) admixed with water proofing compound (conforming to IS : 2645) at the rate of 1 Kg per bag, giving proper slops, compaction, curing, finishing preparing bell mouth etc. approved by SBI/APMCF. along with Kani plaster over Round portion.(i.e. Vatta)			
	g) The whole podium so finished shall be flooded with water uptill height of rounded portion 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 SBI/APMCF. Make :- BERGER, Pidilite, Fosroc, Asian Paint, BASF or Equivalent.	973.00	Sq.m	-
	DOOR AND WINDOW:			
80	Providing & fixing 35 mm Flush doors with 4.0mm Veneer on both sides as per design. Door frame:- Providing and fixing door frames using 2nd class teakwood members of size 100mm x 50mm and finished with melamine polish. Shutter:- Providing and fixing block board shutters of 35mm thick . Skin:- The shutters shall be finished with 4mm thick venner of approved quality and make and coated with Mat / glossy finish melamine polish. The Doors to have all hardware such as 125mm SS hinges, 450 m long SS handles, SS tower bolts, Mortice Locks (Dorma/ Godrej). Exposed edges of shutter shall be provided with teakwood beading of 30mm width and finished with melamine polish. The item also includes SS rods 6mm x 6mm inserted in grooves and finished properly using putty and polish as per details complete to the satisfaction of Architects/ Bank's Engineer. Size of Door : 1000 x 2100mm including frames.			
	Door (D1) - 1100 x 2250 mm	77.00	No.	-
	Door (D2) - 1000 x 2250 mm	330.00	No.	-
	Door (D3) - 900 x 2250 mm	108.00	No.	-
	Door (D4) - 800 x 2250 mm	378.00	No.	-
	Door (D5) - 1500 x 2250 mm	18.00	No.	-
	Door (D6) - 1200 x 2250 mm	40.00	No.	-
	Door (D7) - 750 x 2250 mm	1.00	No.	-
81	Providing, supplying, fabrication & installation of aluminium chequered plate for covering ducts (STANDARD SIZE 2440mm X 1220mm X 3.00mm Thickness)	295.00	sqm	-

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82	<p>Rolling Shutter Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters. 80x1.25 mm M.S. laths with 1.25 mm thick top cover including providing and fixing ball bearing for rolling shutters, providing mechanical device chain and crank operation for operating rolling shutters etc. complete in all aspects. The rate to include applying a priming coat of approved steel primer with two 2 or more coat of synthetic enamel paint. (Outer dimensions including hood will be measured for payment purpose.)</p>				
	Mechanically Operated	50.00	sqm		-
83	<p>FIRE RESISTANT DOOR:- 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/mm2, modulus of elasticity 850 N/mm2 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.</p>				
	(1200 X 2250) MM	167.00	NOS		-

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84	35 mm thick factory made Solid panel PVC Door shutter , made out of single piece extruded solid PVC profiles, 5 mm (± 0.2 mm) thick, having styles & rails (except lock rail) of size 95 mm x 35 mm x 5 mm, out of which 75 mm shall be flat and 20 mm shall be tapered (on both side), having one side thickness of 15 mm integrally extruded on the hinge side of the profile for better screw holding power, including reinforcing with MS tube of size 40 mm X 20 mm x 1 mm, joints of styles & rails to be mitered cut & joint with the help of PVC solvent cement, self driven self tapping screws & M.S. rectangular pipes bracket of size 190 mm X 100 mm of cross section size 35 mm x 17 mm x 1 mm at each corner. Single piece extruded 5 mm thick solid PVC Lock rail of size 115 mm x 35 mm, out of which 75 mm to be flat and 20 mm to be tapered at both ends, having 15 mm solid core in middle of rail section integrally extruded, fixing the styles & rails with the help of solvent and self driven self tapping screws of 125 mm x 11 mm, including providing 5 mm Single piece solid PVC extruded sheet inserted in the door as panel. all Decorative finish (wood grained finish)	583.00	Sq.m		-
85	UPVC window shutter with Frame:- 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 15. to 2.52 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 or approved equivalent				
	Slider (3 track & 3 panels)	1,488.00	sqm.		-
86	Providing and fixing factory made uPVC glazed/wire mesh windows/ doors comprising of lead free uPVC multi-chambered frame, sash and mullion/coupler (where ever required) extruded profiles having minimum wall thickness of 1.70 mm for Series R1 and R2 profiles and 2.10 mm for Series R3 and R4 profiles conforming to EN: 12608 in any shape, colour and design duly reinforced with galvanized mild steel section made of required shape & size as per CPWD Specification, uPVC extruded glazing beads, interlocks and Inline sash adaptor (where ever required) of appropriate dimension, EPDM gasket, hardware, SS 304 grade fasteners of minimum 8 mm dia with countersunk head, comprising of matching polyamide PA6 grade sleeve for fixing frame to finished wall as per IS 1367 : Part 1 to 14, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame, sash & mullion (if required) shall be mitred cut and fusion welded/mechanically jointed duly sealed at all corners, including drilling of holes for fixing hardware and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of approved size and quality, all complete as per approved drawing conforming to CPWD specification & direction of Engineer-in-Charge.				

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	Section of steel reinforcement and cross sections of uPVC profiles to be as per design approved by Engineer-in-Charge. Wire mesh / Glazing of plain/ toughened/ laminated/ double glass unit with / without high performance coatings as per design requirements and conforming to IS: 3548 & IS: 16231 shall be paid separately. Note:- Structural design proof checked from a Government Engineering Institute, to be provided by the manufacturer for (i) Sites with basic wind speed > 45 m/sec as per IS 875 - Part 3 (il) Sites with structure height more than 20m for all wind speeds				
	Three track three panels sliding door with two glazed & one wire mesh panels with Aluminium channel for roller track, wool pile, zinc alloy (zamak) powder coated handle on two panels along with multi-point locking system, adjustable nylon rollers with SS 304 body. Using R3 series with frame (98mm & above) x (40mm & above) & both glazed and fly screen sash (30mm & above) x (74mm & above). (Height upto 2.5 metre).	906.00	Sqm.		-
87	Providing and fixing factory made uPVC white colour fixed glazed windows/ ventilators comprising of uPVC multi-chambered frame and mullion (where ever required) extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), uPVC extruded glazing beads of appropriate dimension, EPDM gasket, G.I fasteners 100 x 8 mm size for fixing frame to finished wall, plastic packers, plastic caps and necessary stainless steel screws etc. Profile of frame shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealant shall be paid separately).				
	Variation in profile dimension in higher side shall be accepted but no extra payment on this account shall be made.Note: For uPVC frame, sash and mullion extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable.				
	Fixed window / ventilator made of (R2 series) frame 47 x 50 mm & mullion 47 x 68 mm both having wall thickness of 1.9 ± 0.2 mm and single glazing bead of appropriate dimension. (Area upto 0.75 sqm.)	171.00	Sqm.		-
88	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With float glass panes of 5 mm thickness (weight not less than 12.50 kg/sqm)	125.00	Sqm.		-
89	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete. Fixed to steel windows by welding	21,070.00	KG		-
90	SS Hand Rail on Side Wall Providing and fixing stainless steel (Grade 304) 50mm dia handrail made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts, SS brackets etc., of required size, on the side wall with suitable arrangement as per approval of Engineer-in charge.				
	Using Stainless Steel Grade 304 Sections.	55,080.00	KG		-

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91	Filling the gap in between aluminium/ stone/ wood frame and adjacent RCC/Brick/ Stone/ wood/ Ceramic/ Gypsum work by providing weather/structural non sag elastomeric PU sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete, complying to ASTM C920, DIN 18540- F & ISO 11600				
	Upto 5 mm depth and 5 mm width	2,125.00	RM		-
	Upto 10 mm depth and 10 mm width	1,594.00	RM		-
	Upto 20 mm depth and 20 mm width	1,594.00	RM		-
92	DUCT LOUVERS WORK Providing, supplying & fixing of aluminium extruded "z" duct Louver system with duly powder coated (60-70 micron) and aluminium sections as per the architectural drawings and approved shop drawings , the aluminium quality as per grade 6063 T5 or T6 as per BS 1474,including super durable powder coating of 60-80 microns conforming to AAMA 2604 of required colour and shade as approved by the Engineer-in-Charge. Fabricating and supplying M.S. hot dip galvanised /Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimensional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/ masonry/structural steel framework of building structure using anchor fasteners/ bolts, nylon separator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 304, of the required capacity and in required numbers.	651.00	Sq.m		-
93	Cutting holes of required size in brick masonry wall for fixing of exhaust fan including providing and fixing 300 mm dia PVC pipe conforming BIS-12818 and making good the same etc. complete as per direction of Engineer-in-charge.	478.00	Sq.m		-
ELEVATION TREATMENT ITEMS:-					
94	ACP Cladding: Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building , for all heights and all levels etc. including: (a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design. (b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out of 4 mm thick aluminium composite panel material consisting of 3 mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5 mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc.				

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	(c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation. Base frame work for ACP cladding is payable under the relevant aluminium items.				
	The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete , as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge. However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. up to two decimal places.	1,525.00	Sqm.		-
	Make: Alstrong /Alucobond /Viva or Eqvt.				
95	Granite Dry Cladding "Providing and fixing in position at all heights and locations, dry Granite Stone cladding up to 9 metre height using av. 30 mm thick ± 2mm approved quality, texture, mirror finished pre-polished Granite slabs of minimum size 1200 x 900mm or as required as per site conditions with the help of HILTI make SS clamps/Mechanical clips, pins, anchor fasteners etc. as per sample approved by the Structural Consultant/Architects and sealing the joints with approved weather sealant complete as per Structural working drawing provided by the Architect and direction of Engineer- in charge/ Architect.				
	Rate includes cost of providing and fixing adjustable HILTI make stainless steel dry wall cladding SS clamps with 4 mm diameter 75mm long SS Pin, adjustable stainless steel nuts, bolts, washer (total weight not less than 260 gms), Anchor fasteners etc. fixed at spacing as per manufacturer's specifications including making necessary recesses in stone slab, drilling, making required holes etc complete as per Structural working drawing of the consultant and directed by the Engineer-incharge /Architects. The rate quoted should be inclusive of cost of scaffolding / staging etc. up to required height to ensure proper installation etc. complete. Make of clamps : HILTI, Fischer and equivalent make.	469.00	sqm.		-
96	Semi-unitized Glazing :- Design, Fabrication,Supply, Installation, cleaning & handover of Semi-unitize glazing system designed to with stand the wind pressure of confirming to IS -875 part III. The profile system consist of glass which structurally glazed on sash profile with double sided tape & structural silicone, with necessary brackets of Aluminium alloy of 6005 T6/ MS with HDG with three dimentional adjustment with serrations and serrated washers to arrest the wind load movement, Anchor, screws and fasteners with non staining weather sealant and Aluminium flashing sealed all around parameter inside and outside to seal the gaps between curtain wall and the building structure all complete required to perform as per specification and drawing in conjunction with BOQ.				

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<p>The system design shall be based on closed joint system & with minimum 2 barrier gaskets for improved weather performance, drainage at all floor levels, spandrel panel shall have pressure release slots on vertical side of profile system to avoid condensation. The design to accommodate building movements, thermal expansions & the seismic movements. The system shall be designed considering surface temperatures of 80-90 deg Cel & temperature differential of 25 deg cel without creating excess stress in the system. All metal joints in the wet area shall be small joint sealant applied to ensure water tightness. The two barrier gasket system consists of 1st & 2nd gasket barrier of EPDM gaskets to achieve the required compression & seal in the system. EPDM Gaskets shall be of micro cured (Online Curing) with shore A hardness of 60-65. Flasing / Trim / Floor Closure at Parapet level, floor level, beam bottom level and required flashings shall be provided continuously with required GI / Aluminium sheet. Internal & External cancelled Flashings shall be 1.2 mm thk EPDM membrane</p>				
<p>sheet . External exposed flashing shall be 2 mm thk. Aluminium sheet with SDF coated matching with external Aluminium profiles. Internal exposed flashing shall be 2 mm thk. Aluminium sheet with SDF coated matching with internal aluminium profiles. The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. The structural profiles shall have minimum 2.5 mm wall thickness. All the internal & externally visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating of 60 - 80 micron confirming to AAMA 2604 The non visible aluminium surfaces shall have minimum chromatizing treatment.</p>	4,261.00	Sq.m		-
<p>Design, Fabrication, Supply and install required structural steel frame work in line with design drawings made out of MS pipe sections / I Beams / Channels / Plates of approved make make of first quality confirming to IS standard. The steel design shall accommodate thermal stresses resulting from thermal expansion due to surface temperatures. The steel structure shall have 100 micron Hot dip Galavanize finish. The quote rate shall include all design, engineering & shop drawing approval from architect & consultant, mock-ups, sample submission, handling of all materials (loading, unloading, shifting, etc), scaffoldings, access equipments etc. The quote rate shall include all duties, statutory obligations and safety code compliance as per industry standards.</p>				
<p><u>EXTRA OVER ITEM 1 : Spandrel Shadow Box</u></p>				
<p>providing and fixing the spandrel shadow box with the mineral wool insulation of 50 mm thick 64 kg/m3 density slab with inbuilt black veil of 0.65mm firmly held on the 1.5 mm thk. Aluminium sheet shadow box on front side and G.I. sheet (mill finish) of 1.2 mm thk on back side. The assembly is kept atleast 50mm away from the glass surface. Aluminium tray have SDF black coated Finish.</p>	572.00	sq.m		-
<p><u>EXTRA OVER ITEM 1 : FIRE STOP</u></p>				
<p>Providing and fixing the fire barrier. The continuous gap between the façade and the concrete slab edge is to be filled with Fire barrier compressed to the manufacturers recommendation with a 2-hour fire resistant period (Integrity 120 min and Insulation 120 min) tested as per BS476 Part 20 when tested to EN 1364 Part 4 or ASTM E 2307 or any other laboratory with accreditation.</p>	238.00	sq.m		-

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	Thickness of the safing shall be 120 mm minimum top to bottom with factory applied impervious foil face, with foil taped joints on site. Minimum 80 kg/m ³ density rock fibre insulation, 10% compression at site as per manufacturer recommendation and tested standards. Product waste is non-hazardous with ZeroVOC content and is recycled material with class M1 environmental rating. The installation shall be in accordance with the manufacturer recommendation and joints between strips has to be sealed properly with Class O aluminum fire rated tape. Provide impaling zinc coated GI clips configured as per fire stop manufacturers requirements except as noted herein. Impaling clips shall be fastened to floor slab. Galvanized sheet shall be min 1mm thick, with sealed overlaps and interfaces for screeding or flashing. As per manufacturer's requirements, consider intumescent paint as per recommendations.				
	<u>EXTRA OVER ITEM 1 : VISION GLASS</u>				
	<u>Vision Glass:</u>				
	6 mm thk. Low-E toughened glass + 16 mm air gap with Spacer + 6 mm Clear toughened glass .	4,261.00	sq.m		-
	<u>EXTRA OVER ITEM 1 : TOP HUNG</u>				
	Top Hung Operable vent Quote extra over on item (a.1) for providing & fixing the Top Hung Open Out (operable) vent, accessories with heavy duty self-balancing stainless steel friction hinges. Vent locking accessories with cremone lock and handle with multi point locking mechanism to keep the vent weather tight. The vent shall comprise of Aluminium outer frame with drainage provisions, crimped corner & shutter frame with Euro grooves with crimped corners. The outer frame fixed to the unitised profile system with necessary SS screws & weather sealant applied from outside. The stepped glass design vent shall not be accepted. The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. The structural profiles shall have minimum 2 mm wall thickness. The transoms shall be flush transom with mullion at all levels. All the internal & external visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating of 60 - 80 micron confirming to AAMA 2604. The nonvisible aluminium surfaces shall have minimum chromating treatment. The grooves between glass to glass in the elevation shall be black in appearance.	639.00	sq.m		-
	<u>EXTRA OVER ITEM 1 : LOGO PRINTING ON GLASS</u>				
	SBI logo printing on glass (ceramic printing)	200.00	sq.m		-
97	<u>ALUMINIUM HORIZONTAL LOUVER:</u> Design, Fabrication, Supply, Installation, Cleaning & Handover of Aluminium Tubular louver system custom designed to with stand the design wind pressure confirming to IS -875 part III having free area as per MEP requirements. Aluminum Louvers shall be made out of square shape having width of 50 mm with minimum thickness of 2 mm thk. spaced at equivalent distance of 100 mm C/C. louvers are fixed with aluminium angle on aluminium tube framing with necessary fasteners in SS 316. Vertical & Horizontal groove shall be filled by non staining high performance weather sealant of grey/ black color as per architect's approval. The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. All the internal & externally visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating				

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	<p>of 60 - 80 micron confirming to AAMA 2604 (color wooden coat as per Architect's approval). The non visible aluminium surfaces shall have minimum chromatizing treatment. The quote rate shall include all design, engineering & shop drawing approval from architect & consultant, mock-ups, sample submission, handling of all materials (loading, unloading, shifting, etc),</p>	1,534.00	Sq.m	-
98	<p>ALUMINIUM PERFORATED SHEET CLADDING (Gr. AREA): Providing ,Supply and fixing of 1.5 mm thk decorative both side powder coated aluminium perforated sheet cladding as per approved design by client or architect fix on aluminium backup structure (50 x 25 x 1.5 mm)aluminium tube as per site with ,M.S. hot dip galvanized bracket 50 x 50x 5mm,Anchor Fastner 10 x 86 , S.S. 304 grade Nutbolt .Alu. sheet are fixed with aluminium angle on aluminium tube framing with necessary fasteners in SS 304 gr. The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. All the internal & externally visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating ToF 60 - 80 micron confirming to AAMA 2604 (color wooden coat as per Architect's approval). The non visible aluminium surfaces shall have minimum chromatizing treatment. The quote rate shall include all design, engineering & shop drawing approval from architect & consultant, mock-ups, sample submission, handling of all materials (loading, unloading, shifting, etc), access equipments etc.</p>	2,394.00	Sq.m	-
99	<p>VERTICAL GREEN Providing & Installation Of ELT Omnigreen Bio wall system:- Bio-wall to have modules with multi cavity, each cavity not less than 64 Cubic Inch in space,with dictaeta water reservoir, securely hung on the 3 Fold GI section using tongue & groove joinery design, modules of standard size 600mm X 150mm X 125mm, cavities detachable to fit the size of the installation, cut part also to perform as complete system, with moisture blanket at the bottom of cavities, filled with longevity enabled Growth media to last 5 years or more, Planted with approved vegetation, suitable for climatic, micro-climatic conditions of the site including shade path, supported with Drip Irrigation system (within Green wall) at every 4th row & Drain sleeves if required. The scope of supply & installation to be followed by Free maintenance of 3 months & chargeable AMC after that.</p>	226.00	Sq.m	-
100	<p>FAÇADE MATERIAL_ZINC JALI A. Zinc Interlocking System Supply and fixing of Zinc Titanium cladding system made with 1 mm or thickness Zinc Titanium Alloy (Conforming to EN 988) comprising of the following layers. Top Layer: Zinc titanium Interlocking panels wall cladding system (thickness: :1.0 mm) of 300 mm width as per manufacturer recommendation X up to 2000 mm length interlocking wall cladding panels in Pre weathered Quartz Aspect of approved makes . Interlocking panels are rainscreen system with available pan width of panels of 300 mm Centre to Centre Panels are attached to supports/substrates using stainless screws located under edges of the panels. Interlocking Panels to be installed over Aluminum framework. Panels shall have perforations with CNC punched perforation of 8/10/12 mm as per approved Pattern Make - VMZINC , SILESIA , IEQSA, Zambelli. Framework (2.0 mm thick) : 25 mm X 50 mm Aluminum Box section installed over the Main Structure / Masonry plastered surface . Zinc Interlocking panels shall be fixed over the aluminum box section substructure using stainless screws/fasteners as approved.</p>	1,865.00	Sq.m	-

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	B.ZINC FLASHING IN 1 MM THICK				
	Supply & fixing of 1 mm zinc flashing of Maximum Girth up to 250 mm in the same finish as the cladding finish for eaves , gables ,ridges,fascia,gutters ,etc as required for site detailing. RHS MS Box Section / Pultrins to be provided by Main Contractor at distance of 600 mm Centre to centre for fixing of above built up on the surface. The Perforated Panels shall be fabricated & supplied by Zinc Titanium manufacturer in India as per approved design and not by the installation agencies . The zinc sheeting manufacturer shall be ISO certified. They should have registered office in India for warranty and service support They should have successfully supplied perforated panels for projects in India. have successfully supplied perforated panels for projects in India. Item includes Designing, Supplying, installation and fixing of profiled zinc panels including stainless steel screws as required for the project.	397.00	RM		-
	False Ceiling				
101	Providing and fixing false ceiling at all heights with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595mm of approved texture, design and patterns as per CPWD Specification 2019, to be laid in true horizontal level suspended on interlocking metal T-Grid of hot dipped galvanised iron section of 0.33mmthick (galvanized @ 120 grams per sqm including both sides) comprising of main-T runners of size 24x38 mm of length 3000 mm,cross - T of size 24x32 mm of length 1200 mm and secondary intermediate cross-T of size 24x32 mm of length 600mm to formgrid module of size 600 x 600 mm, suspended from ceiling usinggalvanized mild steel items (galvanizing @ 80 grams per sqm) i.e. 12x50 mm long dash fasteners, 6 mm dia fully threaded hanger rod upto 1000 mm length and L-shape level adjuster of size 76x25x25x1.6 mm fixed with grid and Z cleat of size 25x37x25x1.6mm thick with precut hole on both 25mm flange to pierce into 12x50mm or even bigger size dash fastener if require,				
	fixed with Glavanised iron perimeter wall angle or size 24x24x0.40 mm of length 3000 mm to be fixed on periphery wall / partition with the help of plastic rawl plugs at 450mm center to center and 40 mm long dry wall S.S screws. The workshall be carried out as per specifications, drawing and as per directionsof the Engineer-in-Charge.				
	With 15 mm thick tegular/butt edged without perforation plain /designer light weight calcium silicate Anti-Microbial Bio-Safe coated false ceiling tiles Confirming to JIS-Z2801 and ASTM G-21.	1,012.00	sqm		-
102	Providing and fixing Luxalon Linear Multi B Slat Ceiling 30B/80B/130B/180B, manufactured out of 0.5mm/0.5mm/0.5mm/0.6mm thick coil coated Aluminium Alloy AA 3105 of approved colour. Panel size 30mm/80mm/130mm/180mm wide X 15 mm deep with Perforation of 2 mm diameter diagonal patten, 5 mm centre to centre apertures, 16 % openness, panel length up to 6 mtr, Coil Coated on a Continuous Paint Line, and shall be stove enamelled in a continuous coil coating process with the approved colour on the exposed side and the reverse side with polyester primer. The coated coil is passed thru Six Hi onfiguration roller levelling process to ensure the flatness of the coil. Double baked and roll formed from enamelled corrosion resistance Aluminium alloy AA 3105 (Al. Mg) forhigher strength and good roll forming characteristics.				
	Panel shall be clipped to a bakedenamelled Aluminium panel carrier of 62mm wide x 29mm deep made of 0.90mm thick instandard length of 5 mtr made of doubled baked enamelled Aluminium alloy AA 3005 (Al.Mg) black with cut outs to hold the panels in a module of 50/100/150/200 mm. 20mm gap between the panels to be filled with recessed “V” join profile. The Carrier shall besuspended by means of G.I. suspension rod 6mm diameter, and a Galvanised suspensionspring clip at a distance of 1.2mtrs centre to centre.	1,019.00	Sqm		-

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	Sub Total OF SUPER STRUCTURE =				-
	Miscellaneous Item				
103	Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge.				
	60mm thick cement concrete paver block of M-35 grade with approved colour, design & pattern.	3,468.00	Sq.m		-
104	Providing and applying 2.5 mm thick road marking strips (retro- reflective) of specified shade/ colour using hot thermoplastic material by fully/ semi automatic thermoplastic paint applicator machine fitted with profile shoe, glass beads dispenser, propane tank heater and profile shoe heater, driven by experienced operator on road surface including cost of material, labour, T&P, cleaning the road surface of all dirt, seals, oil, grease and foreign material etc. complete as per direction of Engineer-in-charge and accordance with applicable specifications.	4,692.00	Sq.m		-
105	PU Water Proofing for driveway				
	Providing and laying in-position integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces, top terraces etc consisting of following operations:				
	a) Applying a slurry coat of neat cement using 2.75 kg/Sq m. of cement admixed with water proofing compound conforming to IS. 2645 and approved by SBI/APMCF over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface neatly till RCC Slabs without any mortar lumps. Mortar splashings etc complete before treatment.				
	b) Providing & Laying with maximum 20 mm thick cement mortar of mix 1:4 (1cement :4 coarse sand) admixed with water proofing compound (conforming to IS : 2645) at the rate of 1 Kg per bag of cement, Including laying in required position in flooring. Curing the surface for 7 days for water tightness.				
	c) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm size with 50% of cement mortar 1:4 admixed with water proofing compound conforming to IS : 2645 and approved by SBI/APMCF , Followed by 20 mm thick layer of cement mortar of mix 1:4 admixed with water proofing compound conforming to IS : 2645 and approved by SBI/APMCF to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs.				
	Providing and applying single coat of epoxy resin based acrylic primer cum sealer Maxshield® Primer at an coverage of 5 - 6 sqm per ltr depending upon surface before further application of waterproofing coat or as per manufacturers' specification. Application of Waterproofing Coating				
	Providing and applying two coats of single component solvent based polyurtehane waterproofing coating Maxshield® PF 900 reinforced with nonwoven geotextile fabric of 60 GSM Maxshield® FABRIC soaked in Maxshield® PF 900 at an coverage of 2 kg per sqm including curing as per manufacturers' specification.				
	e) After curing the surface by ponding for 5-7 days, applying a second coat of cement slurry using 2.75kg/Sq m of cement admixed with water proofing compound conforming to IS:2645 and approved by SBI/APMCF				
	f) Finishing the surface with 20 mm thick cement mortar of mix 1:4 (1cement :4 coarse sand) admixed with water proofing compound (conforming to IS : 2645) at the rate of 1 Kg per bag, giving proper slops, compaction, curing, finishing preparing bell mouth etc. approved by SBI/APMCF. along with Kani plaster over Round portion.(i.e. Vatta)				
	g) The whole terrace so finished shall be flooded with water uptill height of rounded portion 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 SBI/APMCF.				
	Waterproofing to Drive way	2,813.00	Sqm		-

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106	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	98.00	metre		-
107	Providing and fixing 1 mm thick M.S. sheet sliding-shutters, with frame and diagonal braces of 40x40x6 mm angle iron, 3 mm M.S. gusset plates at the junctions and corners, 25 mm dia pulley, 40x40x6 mm angle and T- iron guide at the top and bottom respectively, including applying a priming coat of approved steel primer.	42.00	Sq.m		-
108	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	11,751.00	kg.		-
109	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P.brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				
	For fixed portion				
	Powder coated aluminium (minimum thickness of powder coating 50 micron)	26.00	KG		-
110	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
	Powder coated aluminium (minimum thickness of powder coating 50 micron)	56.00	KG		-
111	Providing and fixing Glass mosaic tiles on finished plain wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in-Charge:	12.00	Sq.m		-
112	Tensile shed material including the vertical member and the roofing.				
	A tensile shed structure is a lightweight construction that uses tensioned fabric membranes supported by a robust framework of vertical members and cables.				

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	<p>1.Horizontal & Vertical members should be frequently used, confirming to standards like IS 2062 YST 250 Gr. and Tubular Hollow Sections conforming to IS 1161/4923.</p> <p>2. Steel components are often galvanized or paint-coated to provide corrosion resistance and weather protection.</p> <p>3. For roof covering :- PTFE-Coated Fiberglass: A premium, highly durable material with a longer lifespan (30-50 years) and excellent self-cleaning properties. It is also non-combustible.</p>	147.00	Sq.m		-
113	<p>Stack Parking System (1+1): - Hydraulic Type, Max. car size (5000mm x 2500mm),1.5mm MS Hot Dip pre galvanized high Tensile steel with 22 micron galvanized, galvanized chain & electromagnet, Load capacity of each Pallet 2.0 Tones with normal cable & wire, Motor rating 1.5Kw & three phase, Motor type – Sumpersible, hoisting mode Hydraulic cylinder with safety lock of electromagnet lock every 100mm ensure safety. Operating box & magnetic coil rating to be maintain as IP-55. Safety standard as per EN ISO-14010, production certificate from TUVNORD, DIN EN ISO-3834-2. Major Make: Motor /Power Pack-Wohr, Cable/wire – LAPP, Contactor – Schneider/Eaton, Chain- Diamond, Electrical part – Teknic or equivalent.</p>	41.00	No.		-
114	<p>Stack Parking System (1+1+1): - Hydraulic Type, Max. car size (5300mm x 2750mm),1.5mm MS Hot Dip pre galvanized high Tensile steel with 22 micron galvanized, galvanized chain & electromagnet, Load capacity of each Pallet 2.0 Tones with normal cable & wire, Motor rating 5.5Kw & three phase, Motor type – Induction, hoisting mode Hydraulic cylinder with safety lock of electromagnet lock every 100mm ensure safety. Operating box & magnetic coil rating to be maintain as IP-55. Safety standard as per EN ISO-14010, production certificate from TUVNORD, DIN EN ISO-3834-2. Major Make: Motor /Power Pack-Wohr, Cable/wire – LAPP, Contactor – Schneider/Eaton, Chain- Diamond, Electrical part – Teknic or equivalent.</p>	25.00	No.		-
115	<p>Open timbering over areas including strutting, shoring etc. complete. (Measurements to be taken of the face area timbered): Depth exceeding 1.5 m but not exceeding 3 m</p>	74.00	SQM		-
116	<p>Filtering Media as directed and specified by the engineer in charge.</p>				
	<p>Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.</p>				
	<p>a. Boulders 100-200 mm size</p>	25.00	CUM		-
117	<p>Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.</p>				
	<p>b. Gravel 5-10 mm</p>	17.00	CUM		-
118	<p>Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.</p>				
	<p>c. Coarse sand</p>	9.00	CUM		-
119	<p>d. perforated brick base at the insertion point of water to safe guard filter media.</p>	85.00	SQM		-

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120	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	3.00	Each		-
121	Providing M.S. foot rests including fixing in manholes with 20x20x10 cm cement concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) as per standard design with 20 mm diameter round bar	20.00	Each		-
122	Providing and making bore well of 6" dia. By means of agar up to depth up to 200 feet and same is filled up & packed with gravels after inserting M S or slotted PVC Casing filled up & packed with gravels after inserting M S or slotted PVC Casing 150 mm nominal size dia	1.00	LS		-
123	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge. 150 mm nominal size dia	61.00	Rtm		-
Sub total in Miscellaneous					-
Landscape Garden					
124	Preparation of beds for hedging and shrubbery by excavating 60cm deep and trenching the excavated base to a further depth of 30cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%, one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary watering and finally fine dressing, levelling etc., including stacking and disposal of materials declared unserviceable and surplus earth by spreading and levelling as directed, within a lead of 50m lift upto 1.5m complete. This includes supply of labour, tools & plants including materials. Planting hedge plants in two rows at 30cm apart	1,637.00	Sq.m		-
Sub Total in Landscape Garden					-
GRAND TOTAL FOR CIVIL & ARCHITECTURE					-

PART-B : PUBLIC HEALTH ENGINEERING

GENERAL INSTRUCTION FOR VARIOUS WORKS ENNUMERATED IN THIS TENDER: -

- 1 No extra item should be executed without getting permission from concerned authorities. Any item executed other than in the tender rate analysis shall be provided prior to execution of work.
- 2 The contractor has to visit site prior to quoting rates and get familiar with the site conditions.
- 3 Rates shall be quoted for all heights, leads and lifts i.e Ground to terrace level.
- 4 For All materials, CP fittings, Sanitaryware etc prior written approval should be taken from APMC / SBI.
- 5 All pipes to be demarkated with respective colour bands (50mm wide) as per water quality and arrow signages to be marked on all exposed pipes at every 3m. All signages for shaft numbering to be installed at terrace and B2+B1+Gr+15th floors.
- 6 All Items include Supply, Transportation, Loading, Unloading, Storing, Security, Installation, Testing Commissioning.

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PLUMBING WORKS:

7 Enabling works : Rates shall include all types types of works like wall chasing, making holes, re-plastering holes, Scaffolding , double H frames, working platforms, safety harness, testing as mentioned in tech. Spec. or as per BIS code, etc.).

A. INTERNAL & EXTERNAL WORK:-					
1.0	Supplying, fixing, testing and commissioning of approved make white colour European wall mounted with concealed cistern The quoted price shall also include installation of chair brackets as per site conditions for fixing closet , 1no. CP angle cock, CP wall flanges, plastic solid seat cover with rubber buffers and flap, Heavy duty plastic hinges, CI bracket / Pedestal etc., complete. Basic cost of closet =5780 & concealed cistern with flush plate = 5520,Closet : Concealed cistern, Flush plate.				
		344	each		-
2.0	Providing and fixing toilet paper holder :				
	C.P. brass	344	each		-
3.0	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.	344	each		-
4.0	Providing and fixing C.P. brass angle valve for wc basin mixer and geyser points of approved quality conforming to IS:8931				
	15 mm nominal bore	1655	each		-
5.0	Urinal with Pushcock: Supplying,fixing, testing and commissioning approved make white colour large flat back urinals with 40mm C.P. dome type waste coupling 40mm C.P. bottle trap with C.P. extension pipe, 15 mm dia Pressmatic push cock with auto closing or angle cock etc. valve, C.P. spreader unit GI expansion bolts etc., complete , Basic cost of Urinal = 4675 & Pushcock = 1915, Urinal : Parryware make New Magnum, CP Fittings : Jaquar Make, push cock – PRS-CHR-077, Waste coupling – ALD 709, Bottle Trap – ALD 769.				
	One urinal basin with 5 litre white P.V.C. automatic flushing	123	each		-
6.0	Washbasin below counter with Pillar cock : Supplying, installing, testing and commissioning approved make wash basin white colour fixed below counter with 32mm dia CP waste coupling, 32mm dia C.P.bottle trap with C.P. extension pipe, 1 No.15mm dia C.P. Pillar cock, 1 No.15mm dia C.P. angle cock, 1 No. C.P. flexible inlet connection pipe G.I. expansion bolts etc., complete including silicon sealant. Basic cost of wash basin = 2090 & Pillar Cock = 3570,. Wash basin : Parryware make Cascade NXT C0407 CP Fittings : Jaquar Make Waste coupling – ALD 709, Bottle Trap – 769, Angle cock – 059KN, Jaquar Make FUS-29023B				
	a) White Vitreous China Wash basin size 550x400 mm with a 15 mm CP Brass single hole basin mixer	416	each		-
7.0	Supplying & fixing of approved make soap dish with necessary fittings. Basic cost = 585, Jaquar Make ACN-1131N/ Equivalent approved make.	416	each		-
8.0	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour.				
	600 mm long towel rail with total length of 645 mm, width 78 mm and effective height of 88 mm, weighing not less than 190 gms.	416	each		-
9.0	Providing and fixing PTMT shelf 440 mm long, 124 mm width and 36 mm height of approved quality and colour, weighing not less than 300 gms.	416	each		-

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10.0	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :				
	Rectangular shape 1500x450 mm	416	each		-
11.0	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :				
	100 mm inlet and 100 mm outlet				
	Sand cast iron S&S as per IS: 3989	497	each		-
12.0	Providing and fixing CP Brass Single lever telephonic wall mixer of quality & make as approved by Engineer in charge.				
	(a) 15 mm nominal dia	175	each		-
13.0	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet :				
	100 mm diameter	175	each		-
14.0	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
	25 mm nominal bore	31	each		-
	20 mm nominal bore	451	each		-
	32 mm nominal bore	69	each		-
	40 mm nominal bore	24	each		-
	50 mm nominal bore	44	each		-
	65 mm nominal bore	10	each		-
	80 mm nominal bore	8	each		-
15.0	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS:13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required :				
	Kitchen sink with drain board				
	510x1040 mm bowl depth 250 mm	79	each		-
16.0	FLR-5347SD Sink Cock with Extended Swinging Spout (Wall mounted Model) with wall Flange Rs.-2792.00	79	each		-
17.0	Shower with Single lever divertor. Supplying, Installing, testing and commissioning approved make 15mm CP shower unit comprising of CP 15mm dia single lever divertor with CP spout, overhead shower set comprising of CP shower arm, shower rose /150mm dia etc.,complete with CP wall flanges. Basic cost of set = 8600, CP Fittings : Jaquar Make Single lever Divertor - FLR-5079K, Shower Rose OHS -497N / OHS-1805, Shower Arm SHA-483 / SHA-479 L 300 , /Spout – SPJ-5429/Parryware/Essco	175.0	each		-
TOTAL FOR SANITARY FIXTURE AND FITTINGS					-
PVC SWR GRADE PIPES					
18	Supplying, laying, jointing, testing and commissioning Prince / Supreme/Astral /equivalent approved make PVC pipes SWR grade confirming to IS 13592 Class "B" with rubber ring joints confirming to IS 5382 for exposed piping in shaft .The quoted rate shall include necessary fittings like Tees, 45 or 90 deg. Bends, Couplers, Offsets, etc., G.I. brackets with pvc coated GI clamps, nuts & bolts, anchor fasteners, grip bolts, GI threaded, rods, etc., complete.(External piping in shaft & ceiling lvl) . , as directed by Engineer-in-Charge.				
a	75mm Type-A (3Mtr)single socket uPVC pipe IS-13592	44	meter		-
b	110mm Type-A (3Mtr)single socket uPVC pipe IS-13592	672	meter		-
c	160mm Type-A (3Mtr)single socket uPVC pipe IS-13592	610	meter		-
d	75mm Type-B (3Mtr)single socket uPVC pipe IS-13592	970	meter		-
e	110mm Type-B (3Mtr)single socket uPVC pipe IS-13592	3868	meter		-

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19.0	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. waste fittings complete.				
	Semi rigid pipe				-
	32mm DIA AGRICULTURE PIPE	736	meter		-
	40mm DIA	267	meter		-
	50mm DIA AGRICULTURE PIPE	363	meter		-
	TOTAL FOR DRAINAGE AND SEWERAGE PIPES AND FITTINGS				-
	INTERNAL AND EXTERNAL WATER SUPPLY PIPES AND FITTINGS				
20.0	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.				
	(a) For Exposed Work				
	20 mm dia	10387	Mtr		-
	25 mm dia	6602	Mtr		-
	32 mm dia	9450	Mtr		-
	40 mm dia	9452	Mtr		-
	50 mm dia	12581	Mtr		-
	UPVC Pipes				
	65 mm dia	10899	Mtr		-
	80 mm dia	4959	Mtr		-
21.0	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings and fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.				
	Concealed work, including cutting chases and making good the walls etc.				
	20 mm	1087	Mtr		-
22.0	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. (For underground work)				
	50 mm dia. medium quality	87	Mtr		-
	TOTAL FOR INTERNAL AND EXTERNAL WATER SUPPLY PIPES AND FITTINGS				-
	EXTERNAL DRAINAGE AND SEWERAGE				
23.0	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 : 1.5coarse 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 withfloating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mmnominal size) finished with a floating coat of neat cement complete as per standard design :				
	Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) :				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	52.00	each		-
24.0	Inside size 120x90 cm and 2.45 m. deep including C.I. cover with frame (heavy duty) 560 mm internal diameter, total weight of cover and frame to be not less than 208 kg (weight of cover 108 kg and weight of frame 100 kg) :				
	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	42.00	each		-

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25	DWC PIPE FOR EXTERNAL WORK				
	150mm SN-8 DWC pipe per Mtr	111	Mtr.		-
	200mm SN-8 DWC pipe per	465	Mtr.		-
	250mm SN-8 DWC pipe per	355	Mtr.		-
	300mm SN-8 DWC pipe per	271	Mtr.		-
	400mm SN-8 DWC pipe per	15	Mtr.		-
	TOTAL FOR EXTERNAL DRAINAGE AND SEWERAGE =				-
	RAIN WATER HARVESTING TANK (RWHT)				
	RAIN WATER RECHARGE CHAMBER:				
	Providing and constructing rain water harvesting well/filtration chamber of size 1.5 M dia. & 3M effective depth inside with RCC Ring of 300 mm width and required PCC bed for carrying out block work as per drawing with 560mm dia FRP Recessed double seal heavy duty manhole cover with RCC top slab as per drawing including 300mm duty. Boulder 10-20mm 600 MM depth, gravel 5-10mm size 600 MM depth, coarse sand 1.5-2.0mm 600 mm depth including necessary excavation, back filling and disposal of surplus earth out side the site premises complete with inlet, outlet, overflow arrangement, pvc coated Foot Rest, 100mm dia deep holes @500mm c/c to be provided 1200 above the bottom of wall.				
	Rate shall include excavation in all types of soil (mannual or mechanically), dense, wet or dry (such as yellow morrum/ gravel or mixture of any kind including highly weathered laterite or sand stone) in loose and slushy condition other than hard rock to the required level as per drawing provided. This rate shall also include dewatering with proper drainage, including any additional excavation required for workspace etc. The rate shale also include for all safety, house keeping and protection of surrounding existing structure. Carting away/ disposal of surplus earth / unsuitable earth from site to outside the site premises as per the statutory norms, including paying royalties if any as per local authority norms. Back filling with selected/ sand in layers (depth of each compacted layer should be as per specification) including watering , ramming, consolidation etc. as directed. The Rate are inclusive of all labours, tools/ tackles, pumps, vibratory/ earth compactor, temporary works etc.				
1	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 mm x 25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 x 20 x 15 cm cement concrete block 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) complete as per design.				
	Construction of recharge pit to be done as per approved GFC drawing and prior approval for all the materials to be taken from KOEPL before procurement.				
	De-Silting Chamber:				

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	Providing and constructing masonry de-silting chamber 3000mm x 2000mm with required depth inside with 75 class designated brick work in cement mortar 1:6 (1cement : 6 fine sand) with C.I double seal medium duty 560mm dia manhole cover (2Nos.). top slab 1:2:4 mix (1cement : 2coarse sand : 4 graded stone aggregate 20mm nominal size) with minimum 1.5% reinforcement, foundation concrete 1:5:10 (1cement : 5 fine sand:10 grade stone aggregate 20mm nominal size including baffle wall, necessary excavation, back filling and disposal of surface earth. Complete with inlet, outlet and overflow arrangement. Foot rest @400mm c/c, grating of required size with 16mm sq.bars and frame @20mm clear spacing fixed at month of pipe as per site conditions and direction of Engineer in charge				
	DRILLING FOR 1 NOS. OF RECHARGE WELL :				
	Drilling of percolation borehole one 250mm dia with reverse rotary method in all types of soil up to 95 m depth, including cost for mobilization of rig and making good the area upon completion of work. Contractor shall arrange for all necessary tools, water and consumable and laying for drilling.				
	Providing and laying pea gravel all around the casing pipe.				
	160 mm dia slotted & blind UPVC pipe of 6 Kg/cm ² of required length or as per site sub-strata or set as per direction of Engineer- in charge				
	Recharge pit as described above	11.00	Nos.		-
	De-Silting Chamber:				
2	Providing and constructing masonry de-silting chamber 3000mm x 2000mm with required depth inside with 75 class designated brick work in cement mortar 1:6 (1cement : 6 fine sand) with C.I double seal medium duty 560mm dia manhole cover (2Nos.). top slab 1:2:4 mix (1cement : 2coarse sand : 4 graded stone aggregate 20mm nominal size) with minimum 1.5% reinforcement, foundation concrete 1:5:10 (1cement : 5 fine sand:10 grade stone aggregate 20mm nominal size including baffle wall, necessary excavation, back filling and disposal of surface earth. Complete with inlet, outlet and overflow arrangement. Foot rest @400mm c/c, grating of required size with 16mm sq.bars and frame @20mm clear spacing fixed at month of pipe as per site conditions and direction of Engineer in charge				
		11.00	Nos.		-
	TOTAL AMOUNT FOR RAIN WATER HARVESTING =				-
	WATER TREATMENT PLANT (WTP)				
1	Supplying, installing, testing and commissioning approved make Pressure sand filter with necessary accessories complete for manual back wash, suitable supports for mounting pressure gauges, orifice plates. The filter shall be made of MS with epoxy paint protective coating. The cost of filter shall also include initial charge of under bed & multi-grade filter media to suit the requirement etc., complete as per the standards.				
	Max. working pressure = 3.5kg/sqcm				
	a) Max flow rate = 10 cum/hr at 4hrs cycle	1	unit		-
2	Supplying, installing, testing and commissioning of approved make Softener, MS vessel construction with epoxy paint protective coating. With inlet water quality of approximately 400ppm hardness , & outlet water quality of less than 50 ppm hardness, with diaphragm valves, and all other accessories, regeneration tank and considering 5/6 hrs back wash time etc, complete. Note : Actual total hardness is as per report is 278ppm, however we have considered on higher side for 400ppm				
	Max. working pressure = 3.5kg/sqcm				

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	a) Max flow rate = 10 cum/hr at 4hrs cycle	1	unit		-
3	Supplying, Installing, testing and commissioning approved make Activated carbon filter. With necessary accessories complete for manual back wash, suitable supports for mounting pressure gauges, orifice plates. The filter shall be made of MS with epoxy paint protective coating. The cost of filter shall also include initial charge of filter media to suit the requirement etc., complete as per the standards.				
	Max. working pressure = 3.5kg/sqcm				
	a) Max flow rate = 10 cum/hr at 4hrs cycle	1	unit		-
4	Supplying, Installing, testing and commissioning approved make Iron removal filter with necessary accessories complete for manual back wash, suitable supports for mounting pressure gauges, orifice plates. The filter shall be made of MS with epoxy paint protective coating. The cost of filter shall also include initial charge of required filter media to suit the requirement etc., complete as per the standards.				
	Max. working pressure = 3.5kg/sqcm				
	a) Max flow rate = 10 cum/hr at 4hrs cycle	1	unit		-
5	Supplying, installing, testing and commissioning approved make Electronic dosing system for dosing Chlorine into the treated water with pre-set dosage based on the quantity of water. The dosing system shall consist of Electronic dosing pump with positive displacement type with adjustable stroke length & frequency. The quoted rate shall also include 100 lts HDPE chemical solution tank necessary electrical etc., complete to make the operation automatic.				
	Duty =18.0 lph	1	No.		-
6	Supplying, installing, testing and commissioning approved make Electronic Alum dosing system for dosing Alum into the treated water with pre-set dosage based on the quantity of water. The dosing system shall consist of Electronic dosing pump with positive displacement type with adjustable stroke length & frequency. The quoted rate shall also include 300 lts HDPE chemical solution tank necessary electricals etc.,complete to make the operation automatic.	1	No.		-
7	Supplying, Installing, testing and commissioning approved make UV filter with necessary accessories complete for manual back wash, suitable supports for mounting pressure gauges, orifice plates. The filter shall be made of MS with epoxy paint protective coating. The cost of filter shall also include initial charge of required filter media to suit the requirement etc., complete as per the standards.	1	No.		-
	Max. working pressure = 3.5kg/sqcm				
	a) Max flow rate = 10 cum/hr at 4hrs cycle				
8	Supplying, installing, testing and commissioning inter unit . UPVC SH 80 piping with necessary flanges, bolts, nuts, neoprene gaskets, with necessary control valves, non return valves etc ., complete.	1	Lot		-
	WITH Installation & Commissioning charges				
TOTAL OF WATER TREATMENT PLANT =					-
PUMP INSTALLATION:-					
		NO OF SETS			
1	DOMESTIC WATER TRANSFER PUMP: 02 NOS. (1W +1 SB) 10 CUM/HOUR HEAD OF 75M FOR BLOCK-A & B. NOTE: [CONSIDERING 1SET=(1W +1 SB) PUMPS]	1.00	Nos.		-
2	SUMP PUMP AT PHE & FIRE PUMP ROOM 20 Cum/hour, head of 15 M NOTE: [CONSIDERING 1SET=(1W +1 SB) PUMPS]	1.00	Nos.		-

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3	WTP FEED PUMP AT PHE & FIRE PUMP ROOM 10 Cum/hour, head of 35 M . NOTE: [CONSIDERING 1SET=(1W +1 SB) PUMPS]	1.00	Nos.		-
4	BORE WELL SUBMERSIBLE PUMP 9 Cum/hour, head of 80 M NOTE: [CONSIDERING 1SET=(1W) PUMPS]	1.00	Nos.		-
5	DOMESTIC WATER TRANSFER PUMP: 02 Nos. (1w +1 sb) 20 cum/hour head of 95M for Commercial Block. NOTE: [CONSIDERING 1SET=(1W +1 SB) PUMPS]	1.00	Nos.		-
TOTAL COST OF PUMP SETS =					-
SEWAGE TREATMENT PLANT (STP):-					
FOR COMMERCIAL					
Supply of Equipment's (75 KLD)					
1	Movable Bar Screen (SS304) Movable Bar Screen Make of SS304, 1 meter X 0.75 , spacing 10 (fine) With mesh net 300 mm X 250mm – 03 Nos.				
2	Transfer Pump Submersible Submersible non- cutter raw sewage pumps for transfer of Raw sewage in EQT. Flow rate (each) – 10 cum/hr. ; 5 HP ; 3.7 kw. Head = 30 Mtr. Solid handling size for this pump up to 35 mm. Make- WILO / KIRLOSKAR. (1 working + 1 standby)				
3	Air Blower TYPE-twin rotary air blower. Air discharge capacity -50 cum/hr. at operating pressure of 0.5kg/sqcm. 2 HP motor with 1.5kw, Delivery / supply of Air up to 150 to 200 meters. Make- AKASH/ EVEREST (1 working + 1 standby)				
4	MBBR Media /FAB Media Type-Rasching ring, PVC, Quantity - Lumpsum, Make: DFPD				
5	Diffuser Network (Coarse & Fine) Coarse and fine bubble disc type diffuser. Capable of handling 3 - 5 cmf of air with oxygen transfer efficiency of 3 - 4 % per mtr. Water depth. Make- DFPD / VASU Qty.- Lumpsum				
6	Tube Pack for Tube Settler PVC tube deck settling media. Type-Hexavalent chevron. Straight height-1000 mm minimum and thickness - 1.1mm. Make- DFPD / VASU				
7	Sludge Disposal Pump Horizontal Centrifugal Sludge disposal pump. Flow rate – 15 mtr. Solid handling size for this pump up to 35 mm. Make- KIRLOSKAR / WILO (1 working + 1 Standby)				
8	Filter Feed Pump Horizontal centrifugal, Capacity-10 cum/hr; 2 HP, Head -22-30 meter. Make- KIRLOSKAR (1 working + 1 Standby), Gland packing.				
9	Pressure Sand Filter (FRP) Cylindrical, Capacity-10 cum/hr, Media-Graded gravel & Quartz sand. Working pressure should be 3.5kg/sqcm. MOC-FRP, Size- 16 mm x 72mm Ht.				
10	Activated Carbon Filter (FRP) Cylindrical, Capacity- 10 cum/hr, Media-Graded gravel & activated carbon. Working pressure should be 3.5 kg/sqcm. MOC-FRP , Size - 16 mm x 72mm Ht.				

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11	Chlorine Dosing System 100 ltr capacity HDPE Dosing tank with dosing pump (1 working), Electronic Diaphragm type. Capacity-0.6 LPH metering type. Make : E- Dose/Eq. Qty. – 01 Set.				
12	Non-cutter Plant Room Sump Pump Type-Non clog submersible with sensor base arrangement (Hi-Lo Level indicator) , Capacity- 20 cum/hr; Head-10mt. , 1 HP, Solid handling capacity up to 20mm. Make- KIRLOSKAR (1 working + 1 Standby)				
13	UPVC & MS Interconnecting piping & valves with Air Piping Type of pipes-upvcas per ASTMD -1785 .Sch-40 & UPVC pipe upto 50 mm dia as per IS:15778, SDR-11 above 50 mm dia as per ASTM-F-441 for pipe and fittings as per ASTM-F-438 with solvent cement joint only for air line. MS Pipeline for interconnected equipment's / pumps. Quantity - As required to complete the job in satisfaction of the Site In charge Butterfly / Ball valves- ITAP/Zoloto/Astral/ Kitz/Equv.				
14	Starter Panel Sewage Control Panel Astero NXT waste watersewage control panel. No. of feeders – 09 Nos. Drawing attached herewith.				
15	Electrical cabling, Pressure Gauge, level Switch Copper flexible cable 3 core upto 2.5 sq.mm with GI Earthing wire all STP pump and blower. Quantity – Lumpsum ; Cable – ISI Float type level switch. Required at collection tank , filter feed tank etc.				
16	Other Conditions (Bacteria Culture) To complete the job to achieve the desired quality of treated wastewater Bacteria Culture is required (at the time of commissioning). Make- Surya Corporation / Bactacult. Qty.- 03pac.				
17	Filter Press with Screw Pump Type-Manual plate & frame, Capacity-12 kg/batch, No of plates-06 + 02, Size of plates-300 X 300 mm, Rotary screw type, 2 cum per hour at 35 meter head , 1 HP, Make- DFPD (1 working)				
18	Water Meter Providing & fixing on line Turbine type digital flow meter at ACF outlet line including electrical wiring . Complete with all type of plumbing & electrical connections, assoseries, wiring, conduits % supports complete with all respect. Turbine type dia : 40/50 mm , Qty.: 01; Make – Aster/ Equv.				
19	Sight Tube Water level inspection tube for semi treated asnd treated water chamber. Qty . – 02 Nos. Length - 3 mtr.				
20	Submersible Bypass Pump Submersible non-cutter emergency bypass pumps for transfer of raw sewage in EQT. Flow rate (each) – 10 cum/hr. Head –30 mtr. Solid handling size for this pump upto 35 mm. Make - KIRLOSKAR (1 working)				
21	SUMP PUMP AT STP PUMP ROOM 20 Cum/hour, head of 15 M ,1(1W+1SB)				
23	FLUSHING WATER TRANSFER PUMP: 1 SET (1w +1 sb) 15 cum/hour head of 95M for Commercial Block				
COMMERCIAL STP COST =		1.00	NOS		-

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	FOR RESIDENTIAL (50 KLD)				
1	Movable Bar Screen (SS304) Movable Bar Screen Make of SS304, 1 meter X 0.75 , spacing 10 (fine) With mesh net 300 mm X 250mm – 03 Nos.				
2	Transfer Pump Submersible Submersible non- cutter raw sewage pumps for transfer of Raw sewage in EQT. Flow rate (each) – 10 cum/hr. ; 5 HP ; 3.7 kw. Head = 30 Mtr. Solid handling size for this pump up to 35 mm. Make- WILO / KIRLOSKAR. (1 working + 1 standby)				
3	Air Blower TYPE-twin rotary air blower. Air discharge capacity -50 cum/hr. at operating pressure of 0.5kg/sqcm. 2 HP motor with 1.5kw, Delivery / supply of Air up to 150 to 200 meters. Make- AKASH/ EVEREST (1 working + 1 standby)				
4	MBBR Media / FAB Media Type-Rasching ring, PVC, Quantity - Lumpsum, Make: DFPD				
5	Diffuser Network (Coarse & Fine) Coarse and fine bubble disc type diffuser. Capable of handling 3 - 5 cmf of air with oxygen transfer efficiency of 3 - 4 % per mtr. Water depth. Make- DFPD / VASU Qty.- Lumpsum				
6	Tube Pack for Tube Settler PVC tube deck settling media. Type-Hexavalent chevron. Straight height-1000 mm minimum and thickness - 1.1mm. Make- DFPD / VASU				
7	Sludge Disposal Pump Horizontal Centrifugal Sludge disposal pump. Flow rate – 15 mtr. Solid handling size for this pump up to 35 mm. Make- KIRLOSKAR / WILO (1 working + 1 Standby)				
8	Filter Feed Pump Horizontal centrifugal, Capacity-10 cum/hr; 2 HP, Head -22-30 meter. Make- KIRLOSKAR (1 working + 1 Standby), Gland packing.				
9	Pressure Sand Filter (FRP) Cylindrical, Capacity-10 cum/hr, Media-Graded gravel & Quartz sand. Working pressure should be 3.5kg/sqcm. MOC-FRP, Size- 16 mm x 72mm Ht.				
10	Activated Carbon Filter (FRP) Cylindrical, Capacity- 10 cum/hr, Media-Graded gravel & activated carbon. Working pressure should be 3.5 kg/sqcm. MOC-FRP , Size - 16 mm x 72mm Ht.				
11	Chlorine Dosing System 100 ltr capacity HDPE Dosing tank with dosing pump (1 working), Electronic Diaphragm type. Capacity-0.6 LPH metering type. Make : E- Dose/Eq. Qty. – 01 Set.				
12	Non-cutter Plant Room Sump Pump Type-Non clog submersible with sensor base arrangement (Hi-Lo Level indicator) , Capacity- 20 cum/hr; Head-10mt. , 1 HP, Solid handling capacity up to 20mm. Make- KIRLOSKAR (1 working + 1 Standby)				

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13	UPVC & MS Interconnecting piping & valves with Air Piping Type of pipes-upvcas per ASTMD -1785 .Sch-40 & UPVC pipe upto 50 mm dia as per IS:15778, SDR-11 above 50 mm dia as per ASTM-F-441 for pipe and fittings as per ASTM-F-438 with solvent cement joint only for air line. MS Pipeline for interconnected equipment's / pumps. Quantity - As required to complete the job in satisfaction of the Site In charge Butterfly / Ball valves- ITAP/Zoloto/Astral/ Kitz/Equv.				
14	Starter Panel Sewage Control Panel Astero NXT waste watersewage control panel. No. of feeders – 09 Nos. Drawing attached herewith.				
15	Electrical cabling, Pressure Gauge, level Switch Copper flexible cable 3 core upto 2.5 sq.mm with GI Earthing wire all STP pump and blower. Quantity – Lumpsum ; Cable – ISI Float type level switch. Required at collection tank , filter feed tank etc.				
16	Other Conditions (Bacteria Culture) To complete the job to achieve the desired quality of treated wastewater Bacteria Culture is required (at the time of commissioning). Make- Surya Corporation / Bactacult. Qty.- 03pac.				
17	Type-Manual plate & frame, Capacity-12 kg/batch, No of plates-06 + 02, Size of plates-300 X 300 mm, Rotary screw type, 2 cum per hour at 35 meter head , 1 HP, Make- DFPD (1 working)				
18	Water Meter Providing & fixing on line Turbine type digital flow meter at ACF outlet line including electrical wiring . Complete with all type of plumbing & electrical connections, assoseries, wiring, conduits % supports complete with all respect. Turbine type dia : 40/50 mm , Qty.: 01; Make – Aster/ Equv.				
19	Sight Tube Water level inspection tube for semi treated asnd treated water chamber. Qty . – 02 Nos. Length - 3 mtr.				
20	Submersible Bypass Pump Submersible non-cutter emergency bypass pumps for transfer of raw sewage in EQT. Flow rate (each) – 10 cum/hr. Head –30 mtr. Solid handling size for this pump upto 35 mm. Make - KIRLOSKAR (1 working)				
21	SUMP PUMP AT STP PUMP ROOM 20 Cum/hour, head of 15 M ,1(1W+1SB)				
23	FLUSHING WATER TRANSFER PUMP: 1 SET. (1W +1 SB) 10 CUM/HOUR HEAD OF 75M FOR BLOCK-A & B				
	RESIDENTIAL STP COST =	1.00	NOS		-
	GRAND TOTAL FOR PUBLIC HEALTH ENGINEERING (PHE) =				-
PART C : ELECTRICAL WORKS					
1	R.O = "RATE ONLY". CONTRACOTRS MUST PUT RATE IN THESE CELLS.				
	SUB-STATION PART:-				
	For Main Commercial Block				
1.0	11 KV CONSUMER 3 PANEL VCB SWITCH BOARD (INDOOR)				

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	Supply, Installation, Testing and Commissioning of consumer 11 kV, 25kA for 3 Sec., 630A, 3Ph, 50Hz Indoor, sheet steel enclosed, floor mounting, free standing, horizontal isolation & horizontal drawout type 3-Panel HT 11kV VCB Switch Board with Motor (230V AC) wound spring charge closing mechanism, 110V DC shunt trip & Closing coil operated through rectifier condenser unit (power pack) to be provided in the incoming panel. The 3-Panel HT 11 kV VCB Switch Board shall comprise of:				
	1- Incoming feeder breaker (VCB) panel with 'Line PT' to receive power from the local 'supply authority' (WBSEDCL), 3- Outgoing feeder breaker (VCB) to feed 2 nos. 1000 KVA 11KV/415V Dry type Resin Cast Transformers (Indoor).				
	The scope of erection includes earthing of the VCB Switch Board at two points, all alignments, leveling, coupling and assembly of panels & bus bars including assembly of dis-assembled /split up sections, loosely supplied relays, meters, bus-bars etc., grouting, bolting, fabrication and fixing of base channel as per manufacturer's/client's recommendation and site condition. The Scope also includes checking of closing & tripping mechanism, checking and setting of Relays, minor wiring modification if required, and site testing. The job to be executed to the full satisfaction of engineers of client/consultant and other statutory authority. Checking to be done for insulation resistance by megger.	1	SET.		-
2.0	11 KV/415V DRY TYPE (RESIN CAST) INDOOR 1000 KVA TRANSFORMERS				
	Supply, installation, testing and commissioning of following capacity (continuous loading) 11/0.433 KV Delta/Star, step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin /VPI (vacuum pressure impregnated) Dry Type, copper wound transformer (Electrolytic grade 99.9% pure copper, Core made of first grade Cold Rolled Grain Oriented (CRGO) Core grade MOH or better) AN (air natural) cooled transformer suitable for indoor applications with On Load Tap Changer (OLTC) on HV side having AVS relay and Remote Tap Changer Control (RTCC) for automatic sensing of incoming voltage, automatic operation of OLTC and facility for remote/manual operation of OLTC HV side in range of +5% to -15% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behavior class F1, climate class-C1, having cable end boxes on HV side suitable for 3x300 sqmm XLPE cable of 11 KV grade with necessary hardware, clamps, lugs etc. for termination on HV/MV etc. for all transformers, bus trunking arrangement on LV side complete with all accessories and safety provisions as per relevant IS Code .The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection, 3 nos. of Polymeric Zinc Oxide surge Arrestors on HV Side. Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11, i/c supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site as per CPWD specifications . <i>Design ambient condition : a) air temperature 50 deg C</i>				
	b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard. Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Thermometer pocket with cap; d) Lifting lugs for the complete transformer as well as for core and winding assembly; e) Bi-directional flat rollers (for transformers above 200 kVA); f) HV side neutral grounding strip (where one of the HV bushing terminal is connected to earth); g) Arcing horns or suitable rating lightning arrestors for HT side – 3 Nos. for transformers up to 200 kVA; h) Bird guard; i) Jacking pads (for transformer above 1 600 kVA); j) Name Rating & Diagram Plate. k) Monogram Plate.i) Additional neutral conductor brought out as bushing for earthing				
	Level 4 1000 KVA (losses at 50% loading < 2790watt, losses at 100% loading < 7700watt)				
	1000 KVA	2	SET		-
3.1	11 KV HT CABLE- LAYING/SUPPLY				

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	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
A	Above 120 sq. mm and upto 400 sq. mm	30	meter		-
	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size in the existing RCC/HUME/ METAL pipe as required.				
B	Above 120 sq. mm and upto 400 sq. mm	R.O	meter		
C	Supplying of 3C X 300 Sq.mm.-11 KV (E) GR. XLPE Al. ARM. CABLE (supply Authority HT cable excluded)	42	meter		-
3.2	Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required accessories.				
	300 sq. mm	5	NOS		-
4.0	1.1 KV L.T. POWER CABLE (LAYING & TERMINATION)				
4.1	LT POWER CABLE (SUPPLY & LAYING)				
4.1A	Supply of following sizes 1.1 KV Grade Aluminium/ Copper conductor, XLPE insulated, PVC inner sheathed, PVC type ST-2 outer sheathed and Galvanized wire/flat strip armoured/Un armoured LT Power Cables conform to IS 7098 Part-I (latest edition).				
D	(1) 4C x 16 Sq. mm. Al. Arm.	40	METER		-
II	(2) 4C x 25 Sq. mm. Al. Arm.	60	METER		-
III	(3) 3.5C x 300 Sq. mm. Al. Arm.	360	METER		-
4.2	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
	Upto 35 sq. mm (clamped with 1mm thick saddle)	100	Metre		-
	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	360	Metre		-
4.4	LT POWER CABLE (END TERMINATION)				
	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
	4 X 25 sq. mm (28mm)	4	NO.		-
	4 X 16 sq. mm (28mm)	4	NO.		-
	3½ X 300 sq. mm (70mm)	12	NO.		-
5.0	LT CONTROL CABLE (LAYING & TERMINATION)				
5.1	LT CONTROL CABLE (SUPPLY & LAYING)				
	Supply, laying, testing & commissioning of following sizes stranded copper conductor, XLPE insulated, PVC inner sheathed, PVC outer sheathed 1.1 KV grade Galvanized wire/strip armoured control cable conform to IS 7098 (Part-1). The cables shall be laid along cable trays including anchoring, fixing/ clamping in trays with supplying and fixing of cable clamps & cable identification tags. The scope excludes cost of fabrication and erection of cable tray but include dressing clamping etc. as required and to the satisfaction of engineer/consultant of client.				
	i) 7C x 2.5 Sq.mm. 2XFY (Main LT panel to capacitor panel, DG to incomer of DG at Main LT panel, Transformer to consumer Panel VCB etc.)	230	METER		-
	ii) 5C x 2.5 Sq. mm. 2XFY (for Grid source Availability for AMF)	25	METER		-
	iii) 2C x 2.5 Sq. mm. 2XFY (DG to Main LT panel- for Battery charging etc, TR to Main L T panel, ACDB to Consumer VCB panel ,Fire panel to main LT panel etc)	450	METER		-
	iv) 2C x 2.5 Sq. mm. (Cu) shielded screened cable (DG to Main LT panel- for AVR & Governor etc.)	140	METER		-
	v) Supplying and Laying of of 1.1 KV grade, 3CX2.5SQ.MM XLPE insulated, PVC inner sheathed, armoured, PVC overall outer sheathed, copper control cable confirming to IS 7098 (Part-1).				
	(Note: Quantity of different sizes of cables are tentative. Procurement to be done based on actual measurement as site.)				
5.2	LT CONTROL CABLE (END TERMINATION)				

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	Supplying and making one end termination with Nickel plated heavy duty brass single compression gland (as per IS 12943- 1990)) SIBG type consisting of Check Nut, Gland Body, Metal Washer(3 Nos.), Outer Seal Rubber Ring, Compression Nut, heavy duty Copper lugs (IS 8337- 1976) duly crimped with crimping tool, PVC tape for following size of PVC insulated & PVC sheathed/ XLPE copper conductor cable of 1100 volt grade as required.All as per pre approved by Engineer in charge.				
	i) 7C x 2.5 Sq.mm	16	NOS.		-
	ii) 5C x 2.5 Sq. mm.	4	NOS.		-
	iii) 2C x 2.5 Sq. mm.	16	NOS.		-
	iv) 2C x 2.5 Sq. mm. (Cu) shielded screened cable	8	NOS.		-
6.0	EARTHING				
6.1	Earthing Installation by CU Plate Earthing – (For Sub-station Neutral/Equipment earthing) :				
	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	8	SET		-
6.2	GI PIPE EARTHING (For Sub-station Body/Equipment earthing) :				
	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. (NOTE: Body Earthing TR, DG Sets & etc.)	14	SET		-
	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)				
	ALL MATERIALS TO BE ARRANGED BY CONTRACTOR				
6.3	Earthing connection from Earth electrode to Transformer Neutral and between Earth electrodes (Neutral Earth Pits) :				
	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	250	METER		-
6.4	Earthing connection from Earth electrode to DG Neutral				
	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with nut, bolt, spring, washer etc. as required.(Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)	125	METER		-
6.5	Earthing connection from earth electrode to body of Transformer, DG Set & Panels etc. & Between Earth electrodes (Body Earth Pits) :				
A	A)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.	450	METER		-
B	B)Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required.(Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	600	METER		-
6.6	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	20	METER		-
6.7	75 mm x 8 mm GI Bus Bar (For Earthing)	15	METER		-
6.8	50 mm x 6 mm GI strip on wall/floor /ground with GI saddles & etc. as required for installation.				
7.0	DB & ACCESSORIES				
7.1	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	16 way , Double door	1	No		-
7.2	Supplying and fixing following rating, double pole, 240 V, isolator in the existing MCB DB complete with connections,testing and commissioning etc. as required.				
	63A	1	No		-

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7.3	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	63A	1	No		-
7.4	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C"curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	Single pole	24	Nos.		-
	Double pole	R.O	Nos.		
7.5	Supply ,Installation , testing & commissioning of wall mounted flushed type, Vertical double door 4 way TPN MCCB(VTPN DB with MCCB incomer) distribution board complete with bus-bar, interconnection with FRLS cu wire, Termination of wires ,locking arrangement and fitted without MCCB/MCB) etc. as required.	1	Set		-
7.6	3KVA Online UPS - Input supply: Single Phase, Output Supply : Single Phase				
	Supplying, installation, Testing & Commissioning of following capacity at full load (Unity Power Factor) ON LINE Uninterrupted Power Supply (UPS) system suitable for Single Phase input, Single Phase output AC Supply. The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch along with provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. The UPS systems shall be Microprocessor based Digital Control, using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter with PWM (Pulse Width Modulation) Technology. The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >95% at 100% non-linear loads. Current total harmonic distortion (THD)/ total demand distortion (TDD) on the input grid shall be < 5% at 100 %load. (The required LC filters shall be included in UPS cost), extreme power factor kit to be include to limit the input pf to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1) however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC single phase 160-270V 50 Hz and delivering output AC supply true sine wave single phase 220/230/240 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins and 150% for 1 minute				
	Operating temperature 0 to 40 deg C, Relative humidity 0-95% non condensing, noise level less than 60db at 1 meter distance, Protection for Under voltage, over voltage, abnormal output voltage, battery over charging, output over current, short circuit, battery deep discharge , 10 KV surge. Display for watt/VA,Amp and Voltage power parameters etc. UPS shall comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI) type UPS (as per standard IEC 62040-1, 2 & 3) . The UPS should be with IGBT Based Inverter Technology, Communication RS232/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge. Required battery racks, DC breaker of suitable rating and interconnecting copper conductor cable of suitable size and connectors and all required accessories are inclusive in the cost. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. 3KVA	1	SET		-
7.7	PVC RIGID CONDUIT :				
	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	20 mm	50	METER		-
	25 mm	50	METER		-
7.8	CIRCUIT WIRING:				
	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.				
	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	150	METER		-
	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	250	METER		-
	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	150	METER		-

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	4 X 4 sq. mm + 2 X 4 sq. mm earth wire	30	METER		-
	4 X 6 sq. mm + 2 X 6 sq. mm earth wire	30	METER		-
7.9	POINT WIRING				
7.9A	(PRIMARY POINT)				
	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (DB to SB or SB to SB circuit wiring 3 X1.5 sq.mm FRLS PVC insulated copper conductor single core cable cost included)				
	Average run 6 mtr.	20	POINT		-
7.9B	Secondary Point Wiring :				
	Wiring for group controlled (looped) light point/fan point/exhaust fan point/ call bell point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required..				
	Group B	14	POINT		-
	Group C	6	POINT		-
7.10A	POWER SOCKET.				
	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.	16	EACH		-
7.10B	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.	6	EACH		-
7.11	FITTINGS AND FIXTURES				
7.11 A	LED Batten light (System lumen efficacy ≥105 <120 lm/Watt). Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). CRCA Sheet Body (Thickness ≥ 0.50 mm) ;18- 22 watt	21	NO.		-
7.11 B	9.1 Brush Less Direct Current (BLDC) Fan with Remote. Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal (Aluminum alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, remote (preferably mobile app based) for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC Ceiling Fan compliant to IS 374:2019 fan.Supply, earthing etc. complete as req- 1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum)	2.00	NO.		-
7.11 C	Supply, Fixing , Installation & testing of Heavy duty exhaust fan 300 mm sweep, 1-Phase complete with fixing of mounting ring, louvre, grouting, nuts, bolts,connection etc.including supply of all fixing and connecting materials. (Havells FHVEMTDSB12 or equivalent make)	5	NO.		-

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8.0	CABLE TRAY				
	CABLE TRAY				
8.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	a) 150 mm width X 50 mm depth X 1.6 mm thickness	15	Metre		-
	b) 300 mm width X 50 mm depth X 1.6 mm thickness	15	Metre		-
	c) 450 mm width X 50 mm depth X 2.0 mm thickness	15	Metre		-
	d) 600 mm width X 50 mm depth X 2.0 mm thickness	20	Metre		-
	e) 750 mm width X 62.5 mm depth X 2.0 mm thickness	10	Metre		-
	f) 900 mm width X 62.5 mm depth X 2.0 mm thickness	50	Metre		-
8.2	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	a) 150 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	b) 300 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	c) 450 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
	d) 600 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
	e) 750 mm width X 62.5 mm depth X 2.0 mm thickness	2	NOS		-
	f) 900 mm width X 62.5 mm depth X 2.0 mm thickness	2	NOS		-
8.3	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with Perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	a) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	b) 300 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	c) 450 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	d) 600 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	e) 750 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
	f) 900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
8.4	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Cross member"(galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc as required.				
	a) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	b) 300 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	c) 450 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	d) 600 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	e) 750 mm width X 62.5 mm depth X 2 mm thickness	1	NOS		-
	f) 900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
9.0	SAFETY EQUIPMENTS FOR SUB-STN:				
9.1	Supplying and fixing only CO2 type Fire Extinguishers, 4.5 kg on wall with necessary M.S.bracket including mending good damages.	4	EACH		-
9.2	Supplying and Fixing 9 Ltr capacity Fire buckets on wall with necessary M.S. brackets incl. damages to original finish.	8	EACH		-
9.3	Supplying and fixing best quality First Aid Box (Al Body) as per PWD specification, complete with all the items as required by Rule of Sub-station on M.S.brackets incl.damages to original finish	2	EACH		-
9.4	Supplying and fixing Shock Treatment Chart with wooden frame on wall with necessary screws	2	EACH		-
9.5	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	5	EACH		-

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9.6	Supplying 11 KV rubber hand gloves.	1	PER PAIR		-
9.7	Supply & laying of 6'x3'x1/2" rubber mat for 11 KV substation (best quality and ISI approved)	4	EACH		-
9.8	Pre-commissioning testing of all HT and LT equipments in the substation like VCB, Transformer, HT and LT cables, LT panels and submission of the test report to statutory authority for their approval/ acceptance and for obtaining permission towards energization.	1	LOT		-
10.0	SERVICE JOBS:				
10.1	Commissioning of the HT Sub-Station				
10.2	Co-ordination and follow-ups with statutory authority for expediting and obtaining approval for the energisation of the HT sub-station	1	L.S		-
11.0	MAIN RISER				
	Supplying, installing by suspension on ceiling, testing and commissioning of following capacity Sandwich Type Rising Mains for use on 3 phase 4 wire 415 volts, 50Hz A.C. supply with metal clad enclosure having IP-54 rating after fixing the tap off boxes and all accessories, made of 1.6mm thick steel sheet duly powder coated in convenient sections complete with 4 Nos aluminium bus bars having current density of 130 A/ sq cm at nominal current rating, necessary joints, elbow joints & expansion joints and bends, fire barrier at each floor, provision of tapping at every metre, adopter box and copper flexible for joints, continuous earthing with 2 Nos aluminium strip of suitable size (one on each side) including, G.I. clamping brackets, suspenders, angle iron bracket, steel fasteners, connecting to earthing system etc. as required				
	1600 A 50kA SC for 1 sec	10.00	METER.		-
12.0	MAIN LT. DIST CUM DG SYNC. PANEL (IP 42 RATED & (TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type 'Main LT Dist. Cum DG Sync. Panel' suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with Al. 2000A bus-bars switchgears like ACBs/MCCBs, Fuse & Fuse Base, Capacitor, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:-				
	INCOMING FEEDERS & BUS-SECTIONALIZERS				
	Incomer from 1000 kVA Transformer 1 & 2:- 2 Nos. Each Comprising of 1 no. 1600A 4P 50 kA EDO ACB with O/L, S/C & E/F (LSIG) MP Rel, S/T & U/V Rel and complete with - 1- Multi Function Meter (MFM), Schneider type EM 6400NG/EQ with Communication port compatible to IBMS, 1- Digital Ammeter (with RS 485 port)with Selector Switch, 3- 1600/5A class 0.5 CTs, for MFM & Ammeter, 3- 1600/5A class 0.5 CTs, for APFCR, 1- Digital Voltmeter with Selector Switch.				
	6- Indicating lamps (for ON, OFF, TRIP and R, Y & B Ph Indication), 1- Emergency Stop PB (Mushroom Head Stay-put type), 1- Pistol Grip, Spring Return, Breaker Control Switch (T-N-C), 1-Line Voltage Monitor (LVM), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.				
	Incomer from 1010 kVA DG-1 & 2: 1 No. Each comprising of 1 no. 1600A 4P 50 kA EDO ACB with O/L, S/C & E/F (LSIG) MP Rel, U/V & S/T Rel and complete with- 1- Multi Function Meter (MFM), Schneider type EM 6400 NG with Communication port compatible to IBMS, 1- Digital Ammeter with Selector Switch, 3- 1600/5A class 0.5 CTs, for MFM & Ammeter, 1- Digital KWH Meter with RS 485 port, 3- 1600/5A Class 0.5 CTs for KWH Meter, 1- Digital Voltmeter with Selector Switch, 1- Sync Relay (Easy-Gen 3200), 3- 1600/5A Class-1 CTs for Sync. Relay.				

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	1- REF Relay for REF protection 4-1600/5A class PS CTs for REF, 1- Lock-out Relay, 1- 6 Point Annunciator, 1- Pistol Grip, Spring Return, Breaker Control Switch (T-N-C) 1- Auto/Manual Switch, 6- Indicating lamps (for ON, OFF, TRIP and R, Y & B Ph Indication), 1- Emergency Stop PB (Mushroom Head Stay-put type), 1- Battery Charger, Set of Control MCB & accessories as required.				
	Interlock: Electrical Interlocking Arrangement to be provided between above incomer feeders to prevent paralleling of Transformers & DG Sources.(As per SLD Interlocking to be provided.				
	Bus-Sectionalizer-1: 1 No. Each comprising of 1 no. 1600A 4P 50 kA EDO ACB with O/L,S/C,E/F MP Rel, S/T & U/V Rel and complete with - 8- Indicating lamps for ON, OFF & Phase Indication (2-Bus-sections), 1- Emergency Stop PB (Mushroom head Stay-put type), 1- TNC (Trip-Neutral-Close) Switch, Set of Control equipment like Aux. Contactors, Timers, Control MCB & other accessories as required as per specification and drawing.				
	OUTGOING FEEDERS FOR BUS 01				
	SPD feeder: 1 Set. Each set comprising of 1 no. 32A, 4P, 36 kA FP MCCB with Type I+II, TP+N , SPD, 50kA. Set of Control MCB & accessories as required.				
	800A ACB Outgoing: 2 Sets. Each set comprising of 1 no. 800A50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , ST Rel. with Aux. Contact and complete with- 1- Digital Ammeter with Selector Switch and RS 485port, 1- Digital KWH Meter, 3- 800/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-01,04)				
	800A ACB Outgoing: 1 Set. Each set comprising of 1 no. 800A,50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter, 3- 800/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-07)				
	800A ACB Outgoing: 1 Set. set comprising of 1 no. 800A,50 kA TP MDO ACB having O/L, S/C & E/F protection, MP Rel , and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter, 3- 800/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-02)				
	1000A ACB Outgoing: 2 Sets. Each set comprising of 1 no. 1000A,50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , ST Rel. with Aux. Contact and complete with- 1- Digital Ammeter with Selector Switch , 1- Digital KWH Meter with RS 485port, 3- 1000/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-3 & 9.)				

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<p>1000A ACB Outgoing: 1 Set. Each set comprising of 1 no. 1000A,50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter, 3- 1000/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No. 8.)</p>				
<p>630A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 630A 36 kA FPL MCCB having O/L, S/C & E/F (LSIG), MP Rel & ST Rel. with Aux. Contact, 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 600/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-06.10)</p>				
<p>400A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 400A 50 kA FPL MCCB having O/L, S/C & E/F (LSIG), MP Rel & ST Rel. with Aux. Contact, 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 400/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-11)</p>				
<p>125A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 125A 36 kA FP MCCB having O/L, S/C, TM Rel , 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 125/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 1, O/G Feeder No.-05)</p>				
<p>OUTGOING FEEDERS FOR BUS 02</p>				
<p>SPD feeder: 1 Set. Each set comprising of 1 no. 32A, FP, 36 kA FP MCCB with Type I+II SPD TP+N, 50kA. Set of Control MCB & accessories as required.</p>				
<p>800A ACB Outgoing: 1 Set. Each set comprising of 1 no. 800A50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , ST Rel. with Aux. Contact and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 800/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-01.)</p>				
<p>800A ACB Outgoing: 1 Set. Each set comprising of 1 no. 800A50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter, 3- 800/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-03.)</p>				
<p>1000A ACB Outgoing: 2 Sets. Each set comprising of 1 no. 1000A,50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , ST Rel. with Aux. Contact and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 1000/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-2 & 6.)</p>				

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	<p>1000A ACB Outgoing: 1 Set. Each set comprising of 1 no. 1000A,50 kA FP MDO ACB having O/L, S/C & E/F protection, MP Rel , and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter, 3- 1000/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-4.)</p>				
	<p>800A ACB Outgoing: 1 Set. Each set comprising of 1 no. 800A,50 kA TP MDO ACB having O/L, S/C & E/F protection, MP Rel , and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter, 3- 800/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-8)</p>				
	<p>630A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 630A 36 kA FP MCCB having O/L, S/C & E/F (LSIG), MP Rel & ST Rel. with Aux. Contact, 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port , 3- 600/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-5 & 9)</p>				
	<p>630A MCCB Outgoing: 1 Set Each set comprising of 1 no. 630A 36 kA FP MCCB having O/L, S/C & E/F (LSIG), MP Rel , 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 600/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.- 7)</p>				
	<p>400A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 400A 50 kA FP MCCB having O/L, S/C & E/F (LSIG), MP Rel & ST Rel. with Aux. Contact, 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter and RS 485port, 3- 400/5A Class 1 CTs for KWH Meter & Ammeter, 3- Indicating Lamp ('R', 'Y' & 'B'). Set of Control MCB & accessories as required. (For BUS 2, O/G Feeder No.-10)</p>				
	<p>1) For all incomers (TR & DG) and bus-sectionalizers potential free 2NO+2NC Aux. Contacts & 1NO+1NC Trip contacts shall be wired up to respective panel terminal block. 2) PLC may be provided as per requirement considering Interlocking table within SLD. 3) Suitable provision shall be kept in the wiring circuit of all incomers and outgoing feeders for remote tripping. 4) Proper & fail safe interlocking arrangement shall be provided to prevent paralling of incoming sources. 5) All relays to be provided as mentioned in the respective panel SLD Complete as Mentioned Above. 5) Necessary components to be provided for "Feeders with Shunt trip relays with Aux contactor " to trip at "Fire Mode".</p>	1	SET		-
13.0	450KVAR - HYBRID Power Factor Correction System				

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	Supply, Installation, testing and commissioning of HYBRID APFC Panel, 3 phase 4 wire, 415 V, 50 Hz AC System for Ambient temperature -5°C to +40°C of following capacity with passive solution of 60% capacity and active solution of 40% capacity, 3Phase 4 wire Hybrid Power Factor Correction Solution (with arrangement for neutral current balance) to achieve >0.99 lag and TDDI/THDV values within IEEE recommended limits. APFC should be designed as per IS 16636 Or IEC 61921. The active section and passive section shall work in sync to give optimized output. The degree of protection of passive section should be IP 42, and of active section should be minimum IP 21. The switching device for APFC passive section should be through capacitor duty contactor and for the active compensation system shall be IGBT based with 3 level topology having 12 IGBT in inverter circuit. The active compensation system should filter harmonics from 2nd to 50th individual harmonic order and shall be selectable for the entire range. The active compensation system should have feature to improve PF correction and harmonic filtration having response time <25Micro second. The hybrid panel shall be indoor type floor mounted free standing totally enclosed, extensible, fabricated in compartmentalized designed made of CRCA sheet steel of 2.0mm thick for framework & covers, 3 mm thick for gland plate i/c cleaning & finishing complete with 9 tank process for powder coated of approved shade (RAL 7032-Siemens gray or as approved by Engineer-in-Charge), having front section (switch gear and control accessories) and rear section (capacitor and reactor), front and rear access, having suitable current carrying capacity, extensible TPN Aluminum alloy bus bar of high conductivity, DMC/SMC bus bar supports, bottom base channel of MS Section, fabrication shall be done in transportable section,				
	entire panel shall have common copper earth bar of minimum size of 25mm x 5mm with 2 nos. earth studs, the earth terminals provided on the body of capacitor bank shall also be bonded to the main capacitor panel earth bus with 2 nos. 8 SWG or 6 SWG GI earth wires/ equivalent size of copper conductor cable, forced ventilation for maintaining temperature rise not more than 5°C from ambient, interconnections, connections with 14% detuned reactor and heavy duty 525 V ISI marked Impregnated MPP(Metalized Polypropylene) Capacitor (IS 13340 Part -1 & 2) APFC Panel shall be in compliance with IS :16636 & CPWD Specifications etc. as per below details				
	(A) Incomers Suitable capacity MCCB/ACB (Upto 300 KVAR, MCCB and above 300 KVAR, ACB) Microprocessor base with O/C, S/C, E/L release of TPN 50KA breaking capacity (Ics=Icu), ON, OFF, Trip, R, Y, B - LED Indicating Lamp set along with required Instruments and accessories with extended rotary handel and door interlocking arrangement. Current rating of the Incomer in ampere shall be APFC Panel rating in KVAR x 1.4 x 1.5 or Nearest higher standards rating. (B) Instruments & Indications a)For Passive Section : i) 3-Phase current sensing APFC microprocessor relay/controller , advance 12/16 stages (12 stages for over all capacity of panel (active + passive) below 500 KVAR and 16 stages 500 KVAR & above) and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V , THD-I, harmonics up to 31 level. manual mode. iii) Digital Multi function meter with LED Display for V, A, PF, KW, KVA, KVAR, THD-V & I, Frequency. iv) Suitable rating control transformer shall be provided for control and indication circuit. v) All components like control transformer, meter, relay and indicating lamp shall be protected by using suitable rating individual MCB's. vi) Wiring of the control circuit shall be done by using 2.5 sq mm, FRLS 1100 V grade, PVC insulated multi stranded copper control wire. vii) Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.				
	b) For Active Section : Dedicated HMI (Human Machine Interface) (Minimum 7 inch display) for controlling and communication and having display of Phase wise V, A, PF, Cos-Phi, KW, KVA, KVAR, THD-V , THD-I, harmonics up to 50th level. Communication Ethernet/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge.				
	450 KVAR	2	SET		-
14	Supplying and making cable route marker with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) of size 60 cm X 60 cm at the bottom and 50cm X 50 cm at the top with a thickness of 10cm including inscription duly engraved as required	10	EACH		-
	For Residential Part				
4.0	1.1 KV L.T. POWER CABLE (LAYING & TERMINATION)				

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4.1	LT POWER CABLE (SUPPLY & LAYING)				
4.1A	Supply of following sizes 1.1 KV Grade Aluminium/ Copper conductor, XLPE insulated, PVC inner sheathed, PVC type ST-2 outer sheathed and Galvanized wire/flat strip armoured/Un armoured LT Power Cables conform to IS 7098 Part-I (latest edition).				
III)	(3) 3.5C x 300 Sq. mm. Al. Arm.	40	METER		-
4.3	Laying of PVC/XLPE insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
	Above 95 sq. mm and upto 185 sq. mm	600	Metre		-
	Above 185 sq. mm and upto 400 sq. mm	60	Metre		-
4.2	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
i)	120 mm dia (OD-120 mm & ID-103 mm nominal)	220.00			-
ii)	200 mm dia (OD-200 mm & ID-175 mm nominal)	215.00			-
5.0	LT CONTROL CABLE (LAYING & TERMINATION)				
5.1	LT CONTROL CABLE (SUPPLY & LAYING)				
	Supply, laying, testing & commissioning of following sizes stranded copper conductor, XLPE insulated, PVC inner sheathed, PVC outer sheathed 1.1 KV grade Galvanized wire/strip armoured control cable conform to IS 7098 (Part-1). The cables shall be laid along cable trays including anchoring, fixing/ clamping in trays with supplying and fixing of cable clamps & cable identification tags. The scope excludes cost of fabrication and erection of cable tray but include dressing clamping etc. as required and to the satisfaction of engineer/consultant of client.				
i)	7C x 2.5 Sq.mm.2XFY (Main LT panel to capacitor panel, DG to incomer of DG at Main LT panel, Transformer to consumer Panel VCB etc.)	20	METER		-
v)	Supplying and Laying of 1.1 KV grade, 3CX2.5SQ.MM XLPE insulated, PVC inner sheathed, armoured, PVC overall outer sheathed, copper control cable conforming to IS 7098 (Part-1) .	200	METER		-
	(Note: Quantity of different sizes of cables are tentative. Procurement to be done based on actual measurement as site.)				
6.0	EARTHING				
6.1	Earthing Installation by CU Plate Earthing – (For Sub-station Neutral/Equipment earthing) :				
	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2	SET		-
6.2	GI PIPE EARTHING (For Sub-station Body/Equipment earthing) :				
	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. (NOTE: Body Earthing TR, DG Sets & etc.)	2	SET		-
	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)	40	METER		-
	ALL MATERIALS TO BE ARRANGED BY CONTRACTOR				
6.8	50 mm x 6 mm GI strip on wall/floor /ground with GI saddles & etc. as required for installation.	50	METER		-

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8.14.11	Supplying, installation, Testing & Commissioning of Street light LED fixture, powder coated pressure die cast aluminum body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-10, CRI >80 , under voltage and over voltage protection,EMIEMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED,Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). LED Street light fixture, powder coated pressure die cast aluminum body <small>(System Lumen Efficacy > 135 lm/Watt)</small>				
	45 watt	4			
15.0	MAIN DG DISTRIBUTION PANEL (OUTDOOR TYPE IP 55 RATED)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, dust and vermin proof, front operated & without rear access, compartmentalised, cubicle type 'Main DG Distribution Panel' suitable for 415V, 3 Ph, 4W, 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for Outdoor installation and complete with 1000A TPN Al bus-bars, switchgears like ACB, MCCBs, , Control equipments as required and other accessories as required as per specification and Drawing. The panel shall comprise of following incoming and outgoing feeders:				
	<u>INCOMING COMPONENT:</u>				
	Incoming Feeder : 1 Nos. 800A 50KA FP MCCB WITH O/L, S/C,E/F (LSIG) , MP REL,S/T REL & U/V REL and complete with- 1- Multi Function Meter (MFM), 1- Digital Ammeter with Selector Switch, 3- 800/5A 10VA Class 1 CTs, for MFM & Ammeter, 1- Digital KWH Meter, 3- 800/5A 10VA Class 1 CTs for KWH Meter, LED type indicating lamp for incoming with 6A TP MCB. 1- Digital Voltmeter with Selector Switch,				
	OUTGOING FEEDERS				
	i)2 Nos. 400A, 36KA, TP+NL MCCB with O/L,Short circuit protection,E/F relay, , MP.Release .				
	ii)2 Nos. 200A, 25KA, TP+NL MCCB with O/L,Short circuit protection,E/F relay , TM.Release.				
	v)SPD feeder: 1 Set. Each set comprising of 1 no. 32A, 4P, 36 kA FP MCCB with Type I+II, TP+N , SPD, 50kA. Set of Control MCB & accessories as required.				
	Note: All outgoing feeders have indication lights(R,Y,B with required accesories)				
	Complete the panel as stated above.				
		1	Set		-
	TOTAL COST OF SUB - STATION PART =				-
	LT PANEL DB:-				
	For Main Commercial Block				
1.0	ESSENTIAL PANEL (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				

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<p>Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "ESSENTIAL PANEL" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 1250A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:</p>				
<p>INCOMING FEEDERS</p>				
<p>Incomer: For Supply from Main LT panel 2 Set- Each set comprising of 1 no. 1000A 50kA FP MDO ACB having O/L, S/C & E/F (LSIG), MP Rel. with Aux. Contact, and complete with- 1- Digital Ammeter with Selector Switch, 3- 1000/5A class 1 CTs, for Ammeter, 1- Digital Voltmeter with Selector Switch, 3- Indicating lamps (for R, Y & B Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required. Mechanical Interlock to be provided.</p>				
<p>Incomer: From Solar Panel 1 Set- Set comprising of 1 no. 250A 36kA FP MCCB having O/L, S/C & E/F (LSIG), MP Rel. with Aux. Contact, and complete with- 1- Digital Ammeter with Selector Switch, 3- 250/5A class 1 CTs, for Multi function meter, 3- Indicating lamps (for R, Y & B Ph Indication), Set of Control equipments & other accessories as required.</p>				
<p>OUTGOING FEEDERS</p>				
<p>BUS SECTION 1</p>				
<p>SPD feeder: 1 Set. Set comprising of 1 no. 32A, FP, 36 kA FP MCCB with Type I+II SPD TP+N, 50kA. Set of Control MCB & accessories as required.</p>				
<p>630A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 630A 25 kA TP+NL MCCB having O/L, S/C,E/F protection(LSIG protection) MP Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 3- 600/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p>250A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 250A 36 kA TP+NL MCCB having O/L, S/C,E/F (LSIG protection) ,MP Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-250/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p>125A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 125A 36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-125/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				

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<p><u>100A MCCB Outgoing: 3 Sets.</u> Each set comprising of 1 no. 100A 36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-100/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p><u>63A MCCB Outgoing: 2 Sets.</u> Each set comprising of 1 no. 63A36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-60/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p><u>Bus-Sectionalizer:</u> 1 No. Each comprising of 1 no. 1000A 4P 50 kAMDO ACB with O/L,S/C,E/F MP Rel, S/T & U/V Rel and complete with - 8- Indicating lamps for ON, OFF & Phase Indication (2-Bus-sections), 1- Emergency Stop PB (Mushroom head Stay-put type), 1- TNC (Trip-Neutral-Close) Switch, Set of Control equipment like Aux. Contactors, Timers, Control MCB & other accessories as required as per specification and drawing.</p>				
<p><u>BUS SECTION 2</u></p>				
<p><u>SPD feeder: 1 Set.</u> Set comprising of 1 no. 32A, FP, 36 kA FP MCCB with Type I+II SPD TP+N, 50kA. Set of Control MCB & accessories as required.</p>				
<p><u>630A MCCB Outgoing: 1 Set.</u> Each set comprising of 1 no. 630A 36 kA TP+NL MCCB having O/L, S/C,E/F protection(LSIG protection) MP Rel , 'Rotary Operating Handle' & 'Door Interlock' and complete with- 1- Digital Ammeter with Selector Switch, 3- 600/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p><u>250A MCCB Outgoing: 1 Set.</u> Each set comprising of 1 no. 250A 36kA TP+NL MCCB having O/L, S/C,E/F (LSIG protection) ,MP Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-250/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p><u>200A MCCB Outgoing: 2 Sets.</u> Each set comprising of 1 no. 200A 36 kA TP+NL MCCB having O/L, S/C,E/F protection ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-200/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
<p><u>160A MCCB Outgoing: 3 Sets.</u> Each set comprising of 1 no.160A 36 kA TP+NL MCCB having O/L, S/C,E/F protection ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-200/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				

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	63A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 63A, 36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-60/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.			
	Complete as Above	1.00	SET	-
2.0	UTILITY PANEL (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2) Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "UTILITY PANEL" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 500A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:			
	INCOMING FEEDERS			
	Incomer: 2 Nos. Each set comprising of 1 no. 630A 36kA FP MCCB having O/L, S/C & E/F protection (LSIG), MP Rel . with Aux. Contact, and complete with- 1- Digital Ammeter with Selector Switch, 3- 600/5A class 1 CTs, for Ammeter, 1- Digital Voltmeter with Selector Switch, 3- Indicating lamps (for R, Y & B Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.			
	630A FP Manual Change over Switch - 1 Nos.			
	OUTGOING FEEDERS			
	SPD feeder: 1 Set. Set comprising of 1 no. 32A, FP, 36 kA FP MCCB with Type I+II SPD TP+N, 50kA. Set of Control MCB & accessories as required.			
	125A MCCB Outgoing: 6 Sets. Each set comprising of 1 no. 125A ,36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-125/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.			
	250A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 250A 36 kA TP+NL MCCB having O/L, S/C,E/F protection (LSIG) ,MP Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-250/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.			
	200A MCCB Outgoing: 1 Set. Each set comprising of 1 no. 200A 36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-200/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.			

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	<p>160A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 160A 36 kA TP+NL MCCB having O/L, S/C,E/Fprotection) ,TM Rel,and complete with- 1- Digital Ammeter with Selector Switch, 3-160/5A class 1 CTs, for Ammeter & KWH Meter, 1- Digital KWH Meter 1- Indicating lamp (for R Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
	Complete as Above	1.00	SET		-
3.0	<p>AHU PANEL (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)</p>				
	<p>Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "AHU PANEL" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 800A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:</p>				
	<p>INCOMING FEEDERS</p>				
	<p>Incomer: 1 Nos. Each set comprising of 1 no. 630A 36kA FP MCCB having O/L, S/C & E/F protection (LSIG), MP Rel . with Aux. Contact, and complete with- 1- Digital Ammeter with Selector Switch, 3- 600/5A class 1 CTs, for Ammeter, 1- Digital Voltmeter with Selector Switch, 3- Indicating lamps (for R, Y & B Ph Indication), Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
	<p>OUTGOING FEEDERS</p>				
	<p>SPD feeder: 1 Set. Set comprising of 1 no. 32A, FP, 36 kA FP MCCB with Type I+II SPD TP+N, 50kA. Set of Control MCB & accessories as required.</p>				
	<p>100A MCCB Outgoing: 12 Sets. Each set comprising of 1 no. 100A 25 kA TP+NL MCCB having O/L, S/C,E/F protection) ,TM Rel,and complete with- 3- Indicating lamp (for R,Y,B Ph Indication)required TP MCB Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
	<p>63A MCCB Outgoing: 4 Sets. Each set comprising of 1 no. 63A 25 kA TP+NL MCCB having O/L, S/C,E/F protection) ,TM Rel,and complete with- 3- Indicating lamp (for R,Y,B Ph Indication)required TP MCB Set of Control equipments, like Aux. Contactors, timers, Control MCB & other accessories as required.</p>				
	Complete as Above	1.00	SET		-
4.0	<p>UPS INPUT PANEL 1 (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)</p>				
	<p>Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "UPS INPUT PANEL 1" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 100A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:</p>				
	<p>INCOMING FEEDERS</p>				

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	<p>Incomer: 2 Nos. Each set comprising of 1 no. 100A, 36kA TP+2N MCCB having O/L, S/C & E/F protection , TM Rel . with Aux. Contact, and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Indication lamps required with accesories for MCCB ON,OFF & TRIP indication. Set of Control equipments, like Aux. Contactors,, Control MCB & other accessories as required.</p>				
	100A FP ATS - 1 Nos.				
	OUTGOING FEEDERS				
	<p>63A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 63A 36kA TP+2N MCCB having O/L, S/C & E/F protection , TM Rel and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Set other accessories as required.</p>				
	Complete as Above	1.00	SET		-
5.0	UPS OUTPUT PANEL 1 (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "UPS OUTPUT PANEL 1" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 100A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	<p>Incomer: 2 Nos. Each set comprising of 1 no. 63A 36kA TP+2N MCCB having O/L, S/C & E/F protection , TM Rel . with Aux. Contact, and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Required CT with Multifunction Meter with RS 485 port for each incomer Set of Control equipments, like Aux. Contactors,, Control MCB & other accessories as required.</p>				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA Outgoing: 4 Sets.				
	40A DP MCB, 10KA Outgoing: 3 Sets.				
	Complete as Above	1.00	SET		-
6.0	UPS INPUT PANEL 2 (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "UPS INPUT PANEL 2" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 800A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	<p>Incomer: 2 Nos. Each set comprising of 1 no. 630A 36kA TP+2N MCCB having O/L, S/C & E/F (LSIG) protection , MP Rel . with Aux. Contact, and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Indication lamps required with accesories for MCCB ON,OFF & TRIP indication. Set of Control equipments, like Aux. Contactors,, Control MCB & other accessories as required.</p>				
	630A FP ATS with contactor - 1 Nos.				
	OUTGOING FEEDERS				
	<p>400A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 400A 36kA TP+2N MCCB having O/L, S/C & E/F protection(LSIG protection) , MP Rel and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Set other accessories as required.</p>				
	Complete as Above	1.00	SET		-

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7.0	UPS OUTPUT PANEL 2 (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "UPS OUTPUT PANEL 2" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 500A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer: 2 Nos. Each set comprising of 1 no. 400A 36kA TP+2N MCCB having O/L, S/C & E/F protection (LSIG protection) , MP Rel . with Aux. Contact, and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Required CT with Multifunction Meter with RS 485 port for each incomer Set of Control equipments, like Aux. Contactors,, Control MCB & other accessories as required.				
	OUTGOING FEEDERS				
	100A MCCB Outgoing: 2 Sets. Each set comprising of 1 no. 100A 36 kA TP+2N MCCB having O/L, S/C,E/F protection) ,TM Rel.and complete with- 3- Indicating lamp (for R,Y,B Ph Indication)required TP MCB with all accessories as required.				
	63A MCCB Outgoing: 11 Sets. Each set comprising of 1 no. 63A 36 kA TP+2N MCCB having O/L, S/C,E/F protection) ,TM Rel.and complete with- 3- Indicating lamp (for R,Y,B Ph Indication)required TP MCB with all accessories as required.				
	Complete as Above	1.00	SET		-
8.0	FLOOR FEEDER PANEL (TYPE 1) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 1)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 125A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 100A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 2 Sets.				
	63A FP MCB, 10KA: 2 Sets.				
	Complete as Above	1.00	SET		-
9.0	FLOOR FEEDER PANEL (TYPE 2) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 1)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 125A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				

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	Incomer : 1 No. Each set comprising of 1 no. 100A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 3 Sets. 63A FP MCB, 10KA: 3 Sets.				
	Complete as Above	1.00	SET		-
10.0	FLOOR FEEDER PANEL (TYPE 3) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 3)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 250A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 200A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 2 Sets. 63A FP MCB, 10KA: 3 Sets. 100A FP MCCB,25KA - 1 Set				
	Complete as Above	3.00	SET		-
11.0	FLOOR FEEDER PANEL (TYPE 4) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 4)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 200A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 160A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 2 Sets. 63A FP MCB, 10KA: 3 Sets. 100A FP MCCB,25KA -1 Set				
	Complete as Above	1.00	SET		-
12.0	FLOOR FEEDER PANEL (TYPE 5) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				

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	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 5)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 160A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 125A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 4 Sets. 63A FP MCB, 10KA: 2 Sets.				
	Complete as Above	1.00	SET		-
13.0	FLOOR FEEDER PANEL (TYPE 6) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 6)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 160A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 125A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 3 Sets. 63A FP MCB, 10KA: 3 Sets.				
	Complete as Above	9.00	SET		-
14.0	FLOOR FEEDER PANEL (TYPE 7) (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "FLOOR FEEDER PANEL (TYPE 7)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 125A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 100A 25 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB +1 nos. Digital KWH meter with required CT and accessories.				
	OUTGOING FEEDERS				
	40A FP MCB, 10KA: 2 Sets. 63A FP MCB, 10KA: 2 Sets.				
	Complete as Above	1.00	SET		-

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16.0	LIFT PANEL (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "LIFT PANEL)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 250A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. Each set comprising of 1 no. 200A 36 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB				
	OUTGOING FEEDERS				
	63A TPN MCCB, 25KA: 6 Sets.				
	63A DP MCB, 25KA: 12 Sets.				
	Complete as Above	1.00	SET		-
17.0	PANEL 1 FOR LIFT WELL PRESSURIZATION, STIARCASE PRESSURIZATION ETC (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "PANEL 1 FOR LIFT WELL PRESSURIZATION, STIARCASE PRESSURIZATION ETC)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 200A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				
	Incomer : 1 No. 1 no. 160A 36 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB				
	OUTGOING FEEDERS				
	40A TPN MCCB, 36KA with O/L,S/C prtection,TM release: 5 Sets including 1 nos. as standby. (for Lift well presurization)				
	63A TPN MCCB, 36KA with O/L,S/C prtection,TM release: 4 Sets including 1 nos. as standby. (for Lift lobby & staircase presurization)				
	63A DP MCB, 25KA: 1Set.				
	Complete as Above	1.00	SET		-
18.0	PANEL 2 FOR LIFT WELL PRESSURIZATION, STIARCASE PRESSURIZATION ETC (IP 42 RATED & TYPE TESTED AS PER IEC 61439-Part 1, Part 2)				
	Supply, Installation, Testing and Commissioning of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type "PANEL 2 FOR LIFT WELL PRESSURIZATION, STIARCASE PRESSURIZATION ETC)" suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 160A Al. bus-bars switchgears like MCCBs, Fuse & Fuse Base, CTs, Relays, Meters, Protection, Indication, Control equipments and all other accessories, Power and Control Wiring & Terminals, Name Plate etc. as required as per technical specification and Drawing (SLD). The panel shall comprise of following incoming and outgoing feeders:				
	INCOMING FEEDERS				

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	Incomer : 1 No. Each set comprising of 1 no. 125A 36 kA FP MCCB having O/L, S/C & E/F protection, TM Rel, 'Rotary Operating Handle' & 'Door Interlock' and complete with-3- Indicating lamps (for R, Y & B Ph Indication) with TP MCB				
	OUTGOING FEEDERS				
	40A TPN MCCB, 36KA with O/L,S/C prtection, TM release: 2 Sets including 1 nos. as standby. (for Lift well presurization)				
	63A TPN MCCB, 36KA with O/L,S/C prtection, TM release: 4 Sets including 1 nos. as standby. (for Lift lobby & staircase presurization)				
	63A DP MCB, 25KA: 1Set.				
	Complete as Above	1.00	SET		-
19.0	DISTRIBUTION BOARD				
19.1	Supply, installation, testing & commissioning of following Double door (IP43) MCB Distribution boards as per drawing & specification fabricated out of 16 SWG CRCA sheet steel in compartmentalized design as per specification and drawings these distribution boards shall be surface/ recessed in walls. The rate includes the painting, numbering earthing & interconnections as required etc. as required. But with out MCB,MCCB, RCCB. (For Lighting , Power ,HVAC)				
i)	4 Way VTPN DB MCCB Incomer upto 125A MCCB	5	Nos.		-
ii)	6 Way VTPN DB, MCCB Incomer upto 125A MCCB	12	Nos.		-
iii)	8 Way VTPN DB MCCB Incomer upto 125A MCCB	2	Nos.		-
iv)	12Way VTPN DB MCCB Incomer upto 125A MCCB	14	Nos.		-
v)	16Way VTPN DB MCCB Incomer upto 125A MCCB	RO	Nos.		-
vi)	16 Way VTPN DB MCCB Incomer upto 250A MCCB	RO	Nos.		-
vii)	12 Way VTPN DB MCCB Incomer upto 250A MCCB	RO	Nos.		-
viii)	8way TPN PPI DB	0	Nos.		-
ix)	4 way TPN PPI DB	29	Nos.		-
x)	8way TPN DB (INCOMER SLOT 8 MODULE)	1	Nos.		-
xi)	6way TPN DB (INCOMER SLOT 8 MODULE)	8	Nos.		-
xii)	4way TPN DB (INCOMER SLOT 8 MODULE)	23	Nos.		-
xiii)	12way TPN DB (INCOMER SLOT 8 MODULE)	9	Nos.		-
xiv)	FP MCB box	10	Nos.		-
xv)	FP MCB box(IP 65 rated)	1	Nos.		-
xvi)	6 way TPN PPI DB	1	Nos.		-
19.2	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
i)	4 way (4 + 12), Double door	10	Nos.		-
ii)	8way VTPN DB	0	R.O		-
19.3	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32 A 240 V "C" curve DP MCB complete with connections, testing and commissioning etc. as required.	11	Nos.		-
19.4	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
i)	8 way , Double door	14	Nos.		-
ii)	12 way , Double door	1	Nos.		-
iii)	6 way , Double door		Nos.		-
19.5	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
i)	100 A,30KA,FP MCCB	11	Nos.		-
ii)	250 A,36KA,FPMCCB	1	Nos.		-
iii)	200 A,36KA,FPMCCB	3	Nos.		-
iv)	63 A,18KA,FP MCCB	R.O	Nos.		-

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19.6	Providing and fixing following rating in existing DB including making connections, etc. as required.				
	i) 63A FP MCCB,18KA within Overload protection	1	Nos.		-
	ii) 160A. FP MCCB,18KA within Overload protection	R.O	Nos.		
19.7	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C"curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	i) Single pole	1074	Nos.		-
	ii) Double pole	6	Nos.		-
	iii) Triple pole	65	Nos.		-
19.8	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	i) 25 A	1	Nos.		-
	ii) 40 A	60	Nos.		-
	iii) 63 A	6	Nos.		-
19.9	Supplying and fixing 240/415 V, 10 kA, "C"curve / 'D' curve(for UPS DB part only), miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	i) 63A SP MCB (10 KA)	2	Nos.		-
	ii) 40A SP MCB C(10 KA)	9	Nos.		-
	iii) 40A DP MCB (10 KA)	14	Nos.		-
	iv) 63A DP MCB (10 KA)	12	Nos.		-
	v) 63A TP MCB (10 KA)	12	Nos.		-
	vi) 40A TP MCB (10 KA)	50	Nos.		-
	vii) 63A FP MCB, (10 KA)	44	Nos.		-
	viii) 40A FP MCB (10 KA)	16	Nos.		-
	ix) 16A-32A FP MCB (10 KA)	2	Nos.		-
19.10A	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	i) 25 A	1	Nos.		-
	ii) 40 A	1	Nos.		-
	iii) 63 A	17	Nos.		-
19.11	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 300 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	i) 63A FP RCCB (300 mA sensitivity)	5	Nos.		-
	ii) 40A FP RCCB (300 mA sensitivity)	R.O	Nos.		
19.12	Supplying and fixing 20 A, 240 V, SPN Industrial type socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 A "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	2	EACH		-
19.13	Supplying and fixing 20 A, 415 V, TPN Industrial type socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 A "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	1	EACH		-
19.14	Supplying and fixing 30 A, 415 V, TPN Industrial type socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 A "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	8	EACH		-
19.15	S.I.T.C of following rating,400A four pole Auto Transfer Switch with enclosure complete with connections etc. as required.	1	Set		-
19.16	S.I.T.C of following rating,100A four pole Manual Changeover Switch with enclosure complete with connections etc. as required.	3	Set		-

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19.17	S.I.T.C of following rating,125A four pole Manual Changeover Switch with enclosure complete with connections etc. as required.	10	Set		-
19.18	S.I.T.C of following rating,160A four pole Manual Changeover Switch with enclosure complete with connections etc. as required.	1	Set		-
19.19	S.I.T.C of following rating,200A four pole Manual Changeover Switch with enclosure complete with connections etc. as required.	3	Set		-
19.20	S.I.T.C of following rating,250A four pole Manual Changeover Switch with enclosure complete with connections etc. as required.	R.O	Set		-
For Residential Part					
19.0	DISTRIBUTION BOARD				
19.1	Supply, installation, testing & commissioning of following Double door (IP43) MCB Distribution boards as per drawing & specification fabricated out of 16 SWG CRCA sheet steel in compartmentalized design as per specification and drawings these distribution boards shall be surface/ recessed in walls. The rate includes the painting, numbering earthing & interconnections as required etc. as required. But with out MCB,MCCB, RCCB. (For Lighting , Power ,HVAC)				
viii)	8way TPN PPI DB	1	Nos.		-
ix)	4 way TPN PPI DB	4	Nos.		-
xvI)	6 way TPN PPI DB	62	Nos.		-
19.2	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
i)	4 way (4 + 12), Double door	3	Nos.		-
ii)	8way VTPN DB	0	R.O		-
19.3	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32 A 240 V "C" curve DP MCB complete with connections, testing and commissioning etc. as required.	12	Nos.		-
19.4	Supplying and fixing following way, single pole and neutral,sheet steel, MCB distribution board, 240 V, on surface/ recess,complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
i)	8 way , Double door	4	Nos.		-
ii)	12 way , Double door	2	Nos.		-
iii)	6 way , Double door	2	Nos.		-
19.7	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C"curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
i)	Single pole	1340	Nos.		-
ii)	Double pole	5	Nos.		-
iii)	Triple pole	65	Nos.		-
19.8	Supplying and fixing following rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
ii)	40 A	186	Nos.		-
19.9	Supplying and fixing 240/415 V, 10 kA, "C"curve / "D" curve(for UPS DB part only), miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
ii)	40A SP MCB C(10 KA)	3	Nos.		-
iii)	40A DP MCB (10 KA)	7	Nos.		-
v)	63A TP MCB (10 KA)	7	Nos.		-
vi)	40A TP MCB (10 KA)	1	Nos.		-
vii)	63A FP MCB, (10 KA)	17	Nos.		-
viii)	40A FP MCB (10 KA)	67	Nos.		-
ix)	16A-32A FP MCB (10 KA)	3	Nos.		-

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x)	25A FP MCB, (10 KA)	4	Nos.		-
xi)	32A TP MCB, (10 KA)	6	Nos.		-
19.10A	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
ii)	40 A	5	Nos.		-
19.11	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 300 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
i)	63A FP RCCB (300 mA sensitivity)	10	Nos.		-
20.00	Supply, Installation, Testing & Commissioning of DIN Mounting whole current operated Energy meter of Accuracy class 1.0 within suitable metal enclosure , shall have suitable provision for incoming and outgoing termination of PVC insulated FRLS Cu. wire . Rates are inclusive of supply, fixing installation, testing and commissioning.3 Phase, 10-60A, Cl 1 - Parameters (Voltage,Current,kW & kWh etc)	2	EACH		-
21.00	Supplying and fixing FP sheet steel enclosure on surface/ recess along with 40 A FP MCB ,415 V "C" curve complete with connections, testing and commissioning etc. as required.	6	EACH		-
22.00	Supplying and fixing FP sheet steel enclosure on surface/ recess along with 63 A FP MCB ,415 V "C" curve complete with connections, testing and commissioning etc. as required.	8	EACH		-
23.00	Supplying and fixing FP sheet steel enclosure on surface/ recess along with 25 A 415 V "C" curve FP MCB complete with connections, testing and commissioning etc. as required.	12	EACH		-
24.00	Supplying and fixing following rating, four pole, 415 V, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	a)40 A	3	EACH		-
	b)63A	9	EACH		-
25.00	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, 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. (But without MCB/RCCB/Isolator)				
	4 way (4 + 12), Double door	7	EACH		-
	8 way (4 + 24), Double door	R.O	EACH		
20.0	PANEL				
20.1	METERING KIOSK - 1 (BLOCK - A)				
	SUPPLY OF DUST AND VERMIN PROOF, FRONT OPERATED, FRONT OPEN ABLE, EXTENDABLE AT BOTH ENDS HAVING PRESPEX SHEET COVER ON FRONT DOOR FACILIAE METER READING 433 VOLTS CUBICAL TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL (DULY POWDER COATED), WITH SUITABLE ANGLES AND FLATS, HAVING 500A CAPACITY AL BUS BAR, WITH ALL INTER CONNECTIONS WITH COPPER BAR / FLEXIBLE CABLE. A WOODEN BOARD OF 12 MM THICKNESS SHALL BE PROVIDED ON THE INSIDE BACK WALL OF THE BOARD FOR MOUNTING OF METER & MCB HAS. COMPLETE WIRING TO BE DONE BY SUITABLE SIZE OF CU STRANDED FLEXIBLE WIRES COMMENSURATING WITH THE RATING OF THE MCB. THE CABLE ENTRY PROVISION SHALL BE FROM TOP AS WELL AS BOTTOM. THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGREASING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFICATIONS, AND TO AVOID ANY SORT OF RUSTING. THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMER :				
	1 NO. 400A FP MCCB WITH LSIG PROTECTION,36KA. EACH INCOMER SHALL BE HAVING R,Y,B PHASE INDICATING LAMPS FOR INCOMING WITH TP MCB.				
	INSTRUMENTAL COMPONENT :-				

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	3 nos. LED type indicating lamp for incoming with 6A TPN MCB.				
	OUT-GOING FEEDERS :				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR 3BHK+3T FLATS : 8 SETS				
	SUPPLY & INSTALLATION OF 40A FP MCB 8 SETS AS PER THE REQUIREMENT OF THE 3BHK+3T FLATS OF THE TOWER FIXING OF METER WITH LOOP CONNECTION AS PER SUPPLY AUTHORITY				
	40A 3PH/3PH ACCL WITH 3000 W DG LOAD limiter alongwith proper connection. Position of ACCL should be placed properly as required - 8 Sets				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR 3BHK+4T FLATS : 4 SETS				
	SUPPLY & INSTALLATION OF 40A FP MCB 4 SETS AS PER THE REQUIREMENT OF THE 3BHK+4T FLATS OF THE TOWER FIXING OF METER WITH LOOP CONNECTION AS PER SUPPLY AUTHORITY				
	40A 3PH/3PH ACCL WITH 4000 W DG LOAD limiter alongwith proper connection. Position of ACCL should be placed properly as required - 4 Sets				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR COMMON SERVICE PANEL: 1 SET				
	SUPPLY & INSTALLATION OF 1 NO. 100A FP MCCB, 25KA, TM REL , O/L, S/C protection				
	NOTE : AGENCY SHOULD ARRANGE THE INSPECTION AND OBTAIN NECESSARY APPROVAL OF METER BOARD FROM WBSEDCL.				
	NOTE : ENERGY METERS WILL BE SUPPLIED AND INSTALLED BY WBSEDCL. BUT ALL WIRING SHALL BE DONE BY PANEL SUPPLIER				
	ALL NECESSARY WIRING / TERMINALS / CONTROL MCB SHALL HAVE TO BE PROVIDED BY VENDOR AS PER WBSEDCL REQUIREMENT	1	SET		-
20.2	COMMON SERVICE PANEL				
	SUPPLY OF INDOOR TYPE COMMON SERVICES DISTRIBUTION PANEL, DUST AND VERMIN PROOF, COMPARTMENTALIZED, FRONT OPERATED, DOUBLE DOOR WITH CANOPY TOP, 415 VOLTS CUBICLE TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL, WITH SUITABLE ANGLES AND FLATS, HAVING 125 A TPN AL BUS BAR AT BUS SECTION WITH ALL INTER CONNECTIONS AS REQUIRED.THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGRASSING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFAICATIONS, AND TO AVOID ANY SORT OF RUSTING.THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMING COMPONENT :-				
	2nos. 415V, 100A FP MCCB with O/L, S/C protection ,25 KA & 1 Nos. 100A FP ATS.				
	1nos. 415V, 63A FP MCCB,25kA with O/L, S/C protection for Solar Power Incomer.				
	INSTRUMENTAL COMPONENT :-				
	3nos. LED type indicating lamp for with 6A TP MCB for each Incomer.				
	BUSBAR COMPONENT :-				
	1 set. 125A, 415V, 3PH, 4 Wire, 50 HZ. aluminium busbar.				
	1 no. 50mm x 6mm G.I. earth busbar.				
	OUTGOING :-				
	40A FP MCB(C series),10KA - 10NOS. as per SLD.				
	63A FP MCB (C series),10KA - 3NOS. as per SLD.				
	32A DP MCB (C series),10KA - 5NOS. as per SLD.				
	40A DP MCB (C series),10KA - 1NO. as per SLD.				
	Complete the above as stated.				

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		1	SET		-
20.3	DG SUB PANEL (BLOCK A)				
	SUPPLY OF INDOOR TYPE , DUST AND VERMIN PROOF, COMPARTMENTALIZED, FRONT OPERATED, DOUBLE DOOR WITH CANOPY TOP, 415 VOLTS CUBICLE TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL, WITH SUITABLE ANGLES AND FLATS, HAVING 250 A TPN AL BUS BAR AT BUS SECTION WITH ALL INTER CONNECTIONS AS REQUIRED.THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGRASSING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFAICATIONS, AND TO AVOID ANY SORT OF RUSTING.THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMING COMPONENT :-				
	1NO. 415V, 200A FP MCCB, 25KA LSIG PROTECTION accessories as required as per specification & drawing				
	INSTRUMENTAL COMPONENT :-				
	3nos. LED type indicating lamp for with 6A TP MCB for Incomer .				
	BUSBAR COMPONENT :-				
	1 set. 250A, 415V, 3PH, 4 Wire, 50 HZ. aluminium busbar.				
	1 no. 50mm x 6mm G.I. earth busbar.				
	OUTGOING :-				
	20A FP MCB(C series),10KA - 14 NOS.				
	Complete the above as stated.	1	SET		-
20.4	UTILITY PANEL				
	SUPPLY OF INDOOR TYPE UTILITY PANEL , DUST AND VERMIN PROOF, COMPARTMENTALIZED, FRONT OPERATED, DOUBLE DOOR WITH CANOPY TOP, 415 VOLTS CUBICLE TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL, WITH SUITABLE ANGLES AND FLATS, HAVING 200 A TPN AL BUS BAR AT BUS SECTION WITH ALL INTER CONNECTIONS AS REQUIRED. THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGRASSING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFAICATIONS, AND TO AVOID ANY SORT OF RUSTING.THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMING COMPONENT :-				
	Incomer: 2 Nos. Each set comprising of 1 no. 160A 25ka TPN MCCB having O/L, S/C & E/F (LSIG) protection , TM Rel , and complete with- 3- Indicating lamps (for R, Y & B Ph Indication) with required MCB, Indication lamps required with accesories for MCCB ON,OFF & TRIP indication. Set of Control equipments, like Aux. Contactors,, Control MCB & other accessories as required. 160A FP ATS with auto controller - 1 Nos.Outgoing of ATS shall have 3 nos Indication Lights.				
	OUTGOING :-				
	63A TP+NL MCCB,25KA, TM REL , with LSIG protection, Shunt trip relay with Aux. contactor with necessary components to trip the the relay at fire mode 1Nos..				
	125A TP+NL MCCB,25KA, TM REL , with LSIG protection, Shunt trip relay with Aux. contactor with necessary components to trip the the relay at fire mode 2Nos..				
	100A TP+NL MCCB,25KA, TM REL , with LSIG protection, Shunt trip relay with Aux. contactor with necessary components to trip the the relay at fire mode 1Nos..				
	Complete the above as stated.	1	SET		-
20.5	METERING KIOSK - 1 (BLOCK - B)				

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	SUPPLY OF DUST AND VERMIN PROOF, FRONT OPERATED, FRONT OPEN ABLE, EXTENDABLE AT BOTH ENDS HAVING PRESPEX SHEET COVER ON FRONT DOOR FACILIAE METER READING 433 VOLTS CUBICAL TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL (DULY POWDER COATED), WITH SUITABLE ANGLES AND FLATS, HAVING 500A CAPACITY AL BUS BAR, WITH ALL INTER CONNECTIONS WITH COPPER BAR / FLEXIBLE CABLE. A WOODEN BOARD OF 12 MM THICKNESS SHALL BE PROVIDED ON THE INSIDE BACK WALL OF THE BOARD FOR MOUNTING OF METER & MCB HAS. COMPLETE WIRING TO BE DONE BY SUITABLE SIZE OF CU STRANDED FLEXIBLE WIRES COMMENSURATING WITH THE RATING OF THE MCB. THE CABLE ENTRY PROVISION SHALL BE FROM TOP AS WELL AS BOTTOM.THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGREASING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFICATIONS, AND TO AVOID ANY SORT OF RUSTING.THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING				
	INCOMER :				
	1 NO. 400A FP MCCB WITH LSIG PROTECTION,36KA. EACH INCOMER SHALL BE HAVING R,Y,B PHASE INDICATING LAMPS FOR INCOMING WITH TP MCB.				
	INSTRUMENTAL COMPONENT :-				
	3 nos. LED type indicating lamp for incoming with 6A TPN MCB.				
	OUT-GOING FEEDERS :				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR 3BHK+2T FLATS : 25 SETS				
	SUPPLY & INSTALLATION OF 40A FP MCB 8 SETS AS PER THE REQUIREMENT OF THE 3BHK+2T FLATS OF THE TOWER FIXING OF METER WITH LOOP CONNECTION AS PER SUPPLY AUTHORITY				
	40A 3PH/1PH ACCL WITH 1000 W DG LOAD limiter alongwith proper connection. Position of ACCL should be placed properly as required - 25 Sets				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR CLUB : 1 SET				
	SUPPLY & INSTALLATION OF 1 NO. 63A FP MCCB, 25KA, TM REL , O/L, S/C protection				
	1 Nos. 63A FP ATS.				
	NOTE : AGENCY SHOULD ARRANGE THE INSPECTION AND OBTAIN NECESSARY APPROVAL OF METER BOARD FROM WBSEDCL.				
	NOTE : ENERGY METERS WILL BE SUPPLIED AND INSTALLED BY WBSEDCL. BUT ALL WIRING SHALL BE DONE BY PANEL SUPPLIER				
	ALL NECESSARY WIRING / TERMINALS / CONTROL MCB SHALL HAVE TO BE PROVIDED BY VENDOR AS PER WBSEDCL REQUIREMENT	1	SET		-
20.6	METERING KIOSK - 2 (BLOCK - B)				

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	SUPPLY OF DUST AND VERMIN PROOF, FRONT OPERATED, FRONT OPEN ABLE, EXTENDABLE AT BOTH ENDS HAVING PRESPEX SHEET COVER ON FRONT DOOR FACILIAE METER READING 433 VOLTS CUBICAL TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL (DULY POWDER COATED), WITH SUITABLE ANGLES AND FLATS, HAVING 800A CAPACITY AL BUS BAR, WITH ALL INTER CONNECTIONS WITH COPPER BAR / FLEXIBLE CABLE. A WOODEN BOARD OF 12 MM THICKNESS SHALL BE PROVIDED ON THE INSIDE BACK WALL OF THE BOARD FOR MOUNTING OF METER & MCB HAS. COMPLETE WIRING TO BE DONE BY SUITABLE SIZE OF CU STRANDED FLEXIBLE WIRES COMMENSURATING WITH THE RATING OF THE MCB. THE CABLE ENTRY PROVISION SHALL BE FROM TOP AS WELL AS BOTTOM. THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGREASING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFICATIONS, AND TO AVOID ANY SORT OF RUSTING. THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMER :				
	1 NO. 630A FP MCCB WITH LSIG PROTECTION,36KA. EACH INCOMER SHALL BE HAVING R,Y,B PHASE INDICATING LAMPS FOR INCOMING WITH TP MCB.				
	INSTRUMENTAL COMPONENT :-				
	1 no. 0-600A, Ammeter with 3 nos. 400/5A CTs and 4 positions (3 way & off) selector switch.				
	3 nos. LED type indicating lamp for incoming with 6A TPN MCB.				
	OUT-GOING FEEDERS :				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR 3BHK+2T FLATS : 25 SETS				
	SUPPLY & INSTALLATION OF 40A FP MCB 8 SETS AS PER THE REQUIREMENT OF THE 3BHK+2T FLATS OF THE TOWER FIXING OF METER WITH LOOP CONNECTION AS PER SUPPLY AUTHORITY				
	40A 3PH/1PH ACCL WITH 1000 W DG LOAD limiter alongwith proper connection. Position of ACCL should be placed properly as required - 25 Sets				
	KEEPING OF SPACE PROVISION FOR 3PH KWH METER OUTGOING FEEDER FOR COMMON SERVICE PANEL : 1 SET				
	SUPPLY & INSTALLATION OF 1 NO. 125A FP MCCB, 25KA, TM REL , O/L, S/C protection				
	NOTE : AGENCY SHOULD ARRANGE THE INSPECTION AND OBTAIN NECESSARY APPROVAL OF METER BOARD FROM WBSEDCL.				
	NOTE : ENERGY METERS WILL BE SUPPLIED AND INSTALLED BY WBSEDCL. BUT ALL WIRING SHALL BE DONE BY PANEL SUPPLIER				
	ALL NECESSARY WIRING / TERMINALS / CONTROL MCB SHALL HAVE TO BE PROVIDED BY VENDOR AS PER WBSEDCL REQUIREMENT	1	SET		-
20.7	COMMON SERVICE PANEL - BLOCK B				
	SUPPLY OF INDOOR TYPE COMMON SERVICES DISTRIBUTION PANEL, DUST AND VERMIN PROOF, COMPARTMENTALIZED, FRONT OPERATED, DOUBLE DOOR WITH CANOPY TOP, 415 VOLTS CUBICLE TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL, WITH SUITABLE ANGLES AND FLATS, HAVING 125 A TPN AL BUS BAR AT BUS SECTION WITH ALL INTER CONNECTIONS AS REQUIRED.THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGRASSING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFAICATIONS, AND TO AVOID ANY SORT OF RUSTING.THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMING COMPONENT :-				

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	2nos. 415V, 125A FP MCCB with O/L, S/C protection ,25 KA & 1 Nos. 125A FP ATS.				
	1nos. 415V, 63A FP MCCB with O/L, S/C protection for Solar Power Incomer.				
	INSTRUMENTAL COMPONENT :-				
	3nos. LED type indicating lamp for with 6A TP MCB for each Incomer.				
	BUSBAR COMPONENT :-				
	1 set. 160A, 415V, 3PH, 4 Wire, 50 HZ. aluminium busbar.				
	1 no. 50mm x 6mm G.I. earth busbar.				
	OUTGOING :-				
	40A FP MCB(C series),10KA -5NOS. as per SLD.				
	63A FP MCB (C series),10KA - 8NOS. as per SLD.				
	32A DP MCB (C series),10KA - 3NOS. as per SLD.				
	40A DP MCB (C series),10KA - 4Nos.. as per SLD.				
	Complete the above as stated.	1	SET		-
20.8	DG SUB PANEL (BLOCK B)				
	SUPPLY OF INDOOR TYPE), DUST AND VERMIN PROOF, COMPARTMENTALIZED, FRONT OPERATED, DOUBLE DOOR WITH CANOPY TOP, 415 VOLTS CUBICLE TYPE PANEL, FABRICATED OUT OF 2 MM THICK SHEET STEEL, WITH SUITABLE ANGLES AND FLATS, HAVING 320 A TPN AL BUS BAR AT BUS SECTION WITH ALL INTER CONNECTIONS AS REQUIRED.THE BOARD SHOULD BE PROPERLY PAINTED, WITH POWDER COATED, AFTER DEGRASSING, WASHING AND PROPER TREATMENT OF ALL SHEET METAL PARTS, AS PER TECHNICAL SPECIFAICATIONS, AND TO AVOID ANY SORT OF RUSTING.THE BOARD SHOULD BE PROVIDED WITH INSCRIPTION LABEL, EARTH BUS AND EARTH LEAD BOLTS, FOR EARTH CONNECTION, DANGER BOARD AND WITH THE FOLLOWING INCOMING AND OUTGOING SWITCHGEARS ETC.				
	INCOMING COMPONENT :-				
	1NO. 415V, 250A FP MCCB, 25KA, MP release with LSIG protection .				
	INSTRUMENTAL COMPONENT :-				
	3nos. LED type indicating lamp for with 6A TP MCB for Incomer .				
	BUSBAR COMPONENT :-				
	1 set. 320A, 415V, 3PH, 4 Wire, 50 HZ. aluminium busbar.				
	1 no. 50mm x 6mm G.I. earth busbar.				
	OUTGOING :-				
	20A FP MCB(C series),10KA - 53 NOS.				
	63A FP MCB(C series),10KA - 1 NO.				
	Complete the above as stated.	1	SET		-
	TOTAL COST OF LT PANEL =				-
	CABLE INTERNERNAL ELECTRICAL WORKS:-				
	For Main Commercial Block				
1	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.				
	i) 2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	4400	METER		-
	ii) 2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	2550	METER		-
	iii) 2 X 4 sq. mm + 1 X 4 sq. mm earth wire	5500	METER		-
	iv) 2 X 6 sq. mm + 1 X 6 sq. mm earth wire	150	METER		-
	v) 2 X 10 sq. mm + 1 X 6 sq. mm earth wire	350	METER		-
	vi) 2 X 16 sq. mm + 1 X 6 sq. mm earth wire	255	METER		-
	vii) 4 X 2.5 sq. mm + 2 X 2.5 sq. mm earth wire	25	METER		-
	viii) 4 X 4 sq. mm + 2 X 4 sq. mm earth wire	150	METER		-
	ix) 4 X 6 sq. mm + 2 X 6 sq. mm earth wire	350	METER		-
	x) 4 X 10 sq. mm + 2 X 6 sq. mm earth wire	765	METER		-
	xi) 4 X 16 sq. mm + 2 X 6 sq. mm earth wire	840	METER		-
	xii) 2 X 6 sq. mm earth wire	1100	METER		-
	xiii) 1 X 6 sq. mm earth wire	265	METER		-

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2	Supplying and fixing metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc. as required.				
	100 mm X 100 mm X 60 mm deep	34	EACH		-
	150 mm X 150 mm X 60 mm deep	50	EACH		-
	200 mm X 150 mm X 60 mm deep	20	EACH		-
	200 mm X 300 mm X 60 mm deep	20	EACH		-
3	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	i) 20 mm	200	METER		-
	ii) 25 mm	200	METER		-
5	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.	230	EACH		-
6	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.	358	EACH		-
7	POINT WIRING				
	(PRIMARY POINT)				
7A	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (DB to SB and SB to SB circuit wiring 3X1.5 sq.mm FRLS PVC insulated copper conductor single core cable cost shall be included)				
	Group C	187	POINT		-
7B	Average run 6 METER	197	POINT		-
7C	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 2.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 2.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (DB to SB and SB to SB circuit wiring 3X2.5 sq.mm FRLS PVC insulated copper conductor single core cable cost shall be included)				
	i) Average run 4.5 METER	141	POINT		-
	ii) Average run 7 METER	150	POINT		-
	iii) Average run 8 METER	111	POINT		-
	Secondary Point Wiring :				
7D	Wiring for group controlled (looped) light point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/medium class PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required. Total 3 Runs of wires to be laid including Earth Wire.				
	i) Average run 4.5 METER	103	POINT		-
	ii) Average run 6 METER	134	POINT		-
7E	Wiring for group controlled (looped) light point (without independent switch etc.) with 2.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/medium class PVC conduit, and earthing the point with 2.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required. Total 3 Runs of wires to be laid including Earth Wire.(either MCB controlled or Switchboard controlled secondary point)				
	i) Average run upto 4.5 METER	362	POINT		-
	ii) Average run upto 7 METER	313	POINT		-
	iii) Average run upto 8 METER	217	POINT		-
	(MCB CONTROLLED -PRIMARY POINT) except lift well				
12A	Distribution wiring with circuit from light point to light point with 3 x 1.5 Sq.mm. FRLS Cu wire by supplying and laying 20mm/25mm. dia. rigid PVC conduit with required accessories in concealed and control the point by MCB including cutting the wall and mending good the damages,painting etc. as required. (complete the wiring in all respect)				
	i) Average run 4.5 METER	63	POINT		-

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ii)	Average run 7 METER	70	POINT		-
12B	Distribution wiring with circuit from light point to light point with 3 x 2.5 Sq.mm. FRLS Cu wire by supplying and laying 20mm/25mm. dia. rigid PVC conduit with required accessories in concealed and control the point by MCB including cutting the wall and mending good the damages, painting etc. as required. (complete the wiring in all respect)				
i)	Average run 5 METER	63	POINT		-
ii)	Average run 7 METER	113	POINT		-
iii)	Supplying and fixing power point for Electric Vehicle charging point with Power on LED Indication, Restricted Access to On/Off switch via key lock in recess, including providing and fixing 16 A switch & Socket similar to Panasonic make WIZZ EV outlet or equivalent , connections etc. as required.(for Car charging point)	R.O	EACH		
13	LT POWER & CONTROL CABLE (SUPPLY & LAYING)				
	LT POWER CABLE (SUPPLY)				
14.1	Supply of following sizes 1.1 KV Grade Aluminium/ Copper conductor, XLPE insulated, PVC inner sheathed, PVC type ST-2 outer sheathed and Galvanized wire/flat strip armoured/Un armoured LT Power Cables conform to IS 7098 Part-I (latest edition).				
i)	(1) 4C x 6 Sq. mm. Cu. Arm.	25	METER		-
ii)	(2) 4C x 16 Sq. mm. Al. Arm.	1200	METER		-
iii)	(3) 4C x 25 Sq. mm. Al. Arm.	1150	METER		-
iv)	(4) 3.5C x 35 Sq. mm. Al. Arm.	550	METER		-
v)	(5) 3.5C x 50 Sq. mm. Al. Arm.	680	METER		-
vi)	(6) 3.5C x 70 Sq. mm. Al. Arm.	1650	METER		-
vii)	(7) 3.5C x 95 Sq. mm. Al. Arm.	10	METER		-
viii)	(8) 3.5C x 120 Sq. mm. Al. Arm.	620	METER		-
ix)	(9) 3.5C x 150 Sq. mm. Al. Arm.	R.O	METER		
x)	(10) 3.5C x 185 Sq. mm. Al. Arm.	550	METER		-
xi)	(11) 3.5C x 240 Sq. mm. Al. Arm.	R.O	METER		
xii)	(12) 3.5C x 300 Sq. mm. Al. Arm.	4451	METER		-
xiii)	(13) 3.5C x 400 Sq. mm. Al. Arm.	R.O	METER		
xiv)	(14) 4C x 25 Sq. mm. Al. Un Arm.	60	METER		-
xv)	(15) 3C x 4 Sq. mm. Cu Arm.	50	METER		-
xvi)	(16) 4C x 16 Sq. mm. Arm. CU cable	30	METER		-
xvii)	(17) 3C x 16 Sq. mm. Al. Arm.	505	METER		-
xviii)	(18) 3C x 25 Sq. mm. Al. Arm.	25	METER		-
xix)	(19) 3C x 35 Sq. mm. Al. Arm.	R.O	METER		
xx)	(20) 3C x 2.5 Sq. mm. Copper. Arm. cable	25	METER		-
xxi)	(21) 3C x 4.0 Sq. mm. Copper. Arm. cable	25	METER		-
xxii)	(22) 4C x 10 Sq. mm. XLPE Un arm. CU cable	50	METER		-
xxiii)	(23) 4C x 16 Sq. mm. XLPE Un arm. CU cable	50	METER		-
xxiv)	(24) 4C x 35 Sq. mm. XLPE Un arm. CU cable	R.O	METER		
xxv)	(25) 3C x 6.0 Sq. mm. Copper. Arm. cable	25	METER		-
xxvi)	(26) 1C x 25.0 Sq. mm. Copper. Arm. cable	180	METER		-
xxvii)	(27) 1C x 150.0 Sq. mm. Copper. Arm. cable	200	METER		-
xxviii)	(28) 4C x 4 Sq. mm. Cu Arm.	50	METER		-
xxix)	(29) 2C x 4 Sq. mm. Cu Arm.	50	METER		-
14.2	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
i)	3 X 16 sq. mm (25mm)	38	NO.		-
ii)	3 X 25 sq. mm (25mm)	2	NO.		-
iii)	3 X 35 sq. mm (28mm)	2	NO.		-
iv)	4 X 10 sq. mm (25mm)	2	NO.		-
v)	4 X 16 sq. mm (28mm)	54	NO.		-
vi)	4 X 25 sq. mm (28mm)	30	NO.		-
vii)	3½ X 35 sq. mm (32mm)	30	NO.		-
viii)	3½ X 50 sq. mm (35mm)	38	NO.		-
ix)	3½ X 70 sq. mm (38mm)	36	NO.		-
x)	3½ X 95 sq. mm (45mm)	2	NO.		-

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xi)	3½ X 120 sq. mm (45mm)	16	NO.		-
xii)	3½ X 150 sq. mm (50mm)	2	NO.		-
xiii)	3½ X 185 sq. mm (57mm)	12	NO.		-
xiv)	3½ X 240 sq. mm (62mm)	2	NO.		-
xv)	3½ X 300 sq. mm (70mm)	96	NO.		-
xvi)	3½ X 400 sq. mm (82mm)	R.O	NO.		-
14.3	Supply of material and end termination & connection including dressing and clamping of following sizes 1.1 KV Grade XLPE insulated, aluminium conductor armoured LT Power cables of following sizes using heavy duty single compression brass cable gland (upto25sqmm single compression gland & above 25 sqmm double compression gland), crimping type socket & other consumables as required. The scope includes supply of all consumable and accessories.				
i)	1C x 50 Sq. mm.	10	NO.		-
ii)	1C x 150 Sq. mm.	10	NO.		-
iii)	3C x 4 Sq. mm.	4	NO.		-
iv)	3C x 6 Sq. mm.	25	NO.		-
v)	4C x 6 Sq. mm.	6	NO.		-
vi)					
14.4	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
i)	Upto 35 sq. mm	35	Metre		-
ii)	Above 35 sq. mm and upto 95 sq. mm	100	Metre		-
iii)	Above 95 sq. mm and upto 185 sq. mm	450	Metre		-
iv)	Above 185 sq. mm and upto 400 sq. mm	650	Metre		-
14.5	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	2300	Metre		-
ii)	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	2470	Metre		-
iii)	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	350	Metre		-
iv)	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	1900	Metre		-
14.6	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
i)	Upto 35 sq. mm	400	Metre		-
ii)	Above 35 sq. mm and upto 95 sq. mm	50	Metre		-
iii)	Above 95 sq. mm and upto 185 sq. mm	600	Metre		-
iv)	Above 185 sq. mm and upto 400 sq. mm	1700	Metre		-
15.1	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
i)	120 mm dia (OD-120 mm & ID-103 mm nominal)	1250	Metre		-
ii)	200 mm dia (OD-200 mm & ID-175 mm nominal)	10	Metre		-
15.2	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching(75 cm deep) and refilling etc as required.				
	300 mm dia ID	15.00	Metre		-
15.3	Providing and fixing G.I pipes complete with G.I fittings including trenching and refilling etc.				
	50 mm dia nominal bore	50	Metre		-
16.0	CABLE TRAY				
	PERFORATED/LADDER TYPE CABLE TRAY				

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16.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	150	Metre		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	450	Metre		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	150	Metre		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	120	Metre		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	75	Metre		-
	vi) 750 mm width X 62.5 mm depth X 2.0 mm thickness	40	Metre		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	30	Metre		-
16.2	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
	vi) 750 mm width X 62.5 mm depth X 2.0 mm thickness	2	NOS		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	2	NOS		-
16.3	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with Perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	vi) 750 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
16.4	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Cross member"(galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	1	NOS		-
	vi) 750 mm width X 62.5 mm depth X 2 mm thickness	1	NOS		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
17.0	SUPLY , INSTALLATION, TESTING & COMMISIONING OF FOLLOWING ITEMS:LIGHT/EXHAUST FAN / AVIATION LIGHT ETC.				

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17.1	<p>LED Batten light (System lumen efficacy ≥105 <120 lm/Watt). Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing requiredper BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast / Extruded aluminium Body (Thickness ≥ 1.20 mm).</p>				
	18- 22 watt (LED Batten light (System lumen efficacy ≥105 <120 lm/Watt))	600	Each		-
17.2	<p>Supplying, installation, Testing & Commissioning of LED Recessed / surface Down lighter (Round / square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140- 270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. "complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector. LED Down lighter (COB Type) (System lumen efficacy ≥120 lm/Watt) .</p>				
	18 watt ((System lumen efficacy ≥120 lm/Watt))	808	Each		-

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17.3	LED Down lighter (COB Type) (System lumen efficacy $\geq 105 \leq 120$ lm/Watt). Supplying, installation, Testing & Commissioning of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F. ≥ 0.95 , IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K /4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥ 105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermalmanagement: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C) Powder coated die cast /Extruded aluminum Body including trim with Aluminum Reflector - Sub Head 8.4.3 - 12 -15 watt	250	NOS.	-
17.4	Supplying, installation, Testing & Commissioning of Led Strip Lights 4000K, Led Tape (Havells LHEHDL6UN1W024 or equivalent) with 3x1.5 mm. PVC copper wire, connections , Drivers etc. as required .	550	METER	-
17.5	Supplying, installation, Testing & Commissioning of Driver Constant Voltage 12 V 2 A Driver for 24 W Strip (for the Item No 9.10) Havells :LSSLNW0150/ LHFxBGNNIN1W024 or approved equal in quality and complete in all respect.	120	NOS.	-
17.6	"Supply, Installation, Testing of 20 W LED MIRROR light fixture complete with fixing with accessories as required.(Havells model number LHLDESAARANA020 or equivalent)	190	NOS.	-
17.7	Brush Less Direct Current (BLDC) Fan with Remote: Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminium alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body. Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, remote (preferably mobile app based) for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 OC (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC supply Ceiling Fan compliant to IS 374:2019 fan i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required. Sub head Item No 9.1.3 1200mm, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	2	EACH	-
17.8	Supplying, installation, Testing & Commissioning of electronic modular fan speed controller 2 module type including making necessary connection .	R.O	EACH	-
17.9	Supplying, installation, Testing & Commissioning of Heavy duty exhaust fan 300 mm sweep, 1-Phase complete with fixing of mounting ring, louvre, grouting, nuts, bolts,connection etc.including supply of all fixing and connecting materials. (Havells FHVVEMTDSB12 or equivalent make)	120	EACH	-
17.10	Supplying, installation, Testing & Commissioning of of aviation obstruction light (LED ,"TYPE -B"-Medium intensity AOL's - A minimum radial light intensity of 3200 ± 25 % cd in flashing red.), weather proof glass dome etc. including angle iron support, Control and Monitoring Controller(with Surge protection & 3. Electronic Photoelectric switch unit with amplifier activating a solid-state relay for automatic switch ON at dusk and switch OFF) :suitable short piece G.I.pipe, nuts, bolts, grouting connection etc. and supply of all fixing and connecting materials.(Make Binay Opto MIB-ST-1200 or equivalent)	4	NOS.	-
17.11	Supplying, installation, Testing & Commissioning of of aviation obstruction light (LED ,"TYPE -B"-Medium intensity AOL's - A minimum radial light intensity of 3200 ± 25 % cd in flashing red.), weather proof glass dome etc. including angle iron support, suitable short piece G.I.pipe, nuts, bolts, grouting connection,Control and Monitoring Controller(with Surge protection & 3. Electronic Photoelectric switch unit with amplifier activating a solid-state relay for automatic switch ON at dusk and switch OFF) etc. and supply of all fixing and connecting materials.(Make Binay Opto MIB-ST-900 or equivalent)	4	NOS.	-

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17.12	Supplying, installation, Testing & Commissioning of of Bulk head light 18watt fixture,CCT: 6500K, IP 65 rated. Wipro :LW07-141-XXX-57-G1 or approved equal in quality and design complete with LEDs, ballast and all accessories as required or equivalent.(for liftwell, Roof area etc)	172	NOS.		-
18.0	EARTHING				
18.1	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.	24.00	NO.		-
18.2	EARTHING STRIPS				
	Supplying, laying, jointing and connection of earthing strips for equipotential bonding, interconnecting system Netral/ equipment body and earthing station. The scope includes supply & fittings of accessories like earthing clamp, saddle etc. and <u>jointing of strips by welding/ brazing/soldering etc.</u>				
a	50mmx6 mm. GI strip. (Equipotential bonding, Earth pit to Earth bus & within Electrical shaft)	850	METER		-
b	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	700	METER		-
c	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	200	kg		-
d	Supplying and fixing of 75x6 mm and 500 mm long GI Earth Busbar with G.I.nuts, bolts and spring washers as required.No of holes in earth busbar for termination of strips should be as per drawing & as directed by EIC.	22.00	NOS.		-
19.0	RISING MAIN & TAP OFF BOX				
A	Supplying, installing by suspension on ceiling/wall, testing and commissioning of following capacity Sandwich Type Rising Mains for use on 3 phase 4 wire 415 volts, 50Hz A.C. supply with metal clad enclosure having IP-54 rating after fixing the tap off boxes and all accessories, made of 1.6mm thick steel sheet duly powder coated in convenient sections complete with 4 Nos aluminium bus bars having current density of 130 A/ sq cm at nominal current rating, necessary joints, elbow joints & expansion joints and bends, fire barrier at each floor, provision of tapping at every metre, adopter box and copper flexible for joints, continuous earthing with 2 Nos aluminium strip of suitable size (one on each side) including, G.I. clamping brackets, suspenders, angle iron bracket, steel fasteners, connecting to earthing system etc. as required				
	1000 A 50kA SC for 1 sec	120	METER		-
B	SITC of Sheet steel enclosed plug in type Tap off Boxes on above bus bars with 4P MCCBs of following ratings:				
i)	100A FP MCCB, 25KA with accessories and adequate space shall be provided for cable terminations.	6	SET		-
ii)	125A FP MCCB, 25KA with accessories and adequate space shall be provided for cable terminations.	20	SET		-
iii)	160A FP MCCB, 25KA with accessories and adequate space shall be provided for cable terminations.	2	SET		-
iv)	200A FP MCCB, 25KA with accessories and adequate space shall be provided for cable terminations.	6	SET		-
v)	250A FP MCCB, 25KA with accessories and adequate space shall be provided for cable terminations.	1	SET		-
C	End Cover	2	SET		-
D	Supply, installation, testing and commissioning of End Feed Unit (Terminal Chamber with 1000A FP MDO ACB Fixed type, 50KA) complete with connections & wiring etc as required.	2	SET		-
13.0	ELECTRICAL VEHICLE CHARGER				

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13.1	Supplying Installation, Testing and Commissioning of EV charging station As per specifications and in Compliance to relevant IS codes etc. Parkbay AC Charger (Mode -3) Power Level 2: Normal Power ~11kW/ 22 kW, 3 phase 415VAC(-40% to +20%), Frequency:50 Hz +/-5%, output supply: 240Volt AC, Operational temperature range : -25 to 55 0C (outdoor), -5 to 55 0C (Indoor), RH upto 95%, Charging Device as per IS-17017-1 EV-EVSE ISO-15118 for Smart Charging, Infrastructure Socket as per IS-17017-2-2, Vehicle Connector as per IS- 17017-2-2 Vehicle Inlet/ Connector As per EV manufacturer, suitable for 4 wheelers. Indoor use: at least IP42; Outdoor use: at least IP 54. Mechanical Strength : protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262. O/L,S/C protection. Insulation Resistance > 1M Ω. Cable Length: 7.5 . RCD having a rated residual operating current not exceeding 30 mA; Separate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1): 2010. OCPP(Open charge point protocol) 1.6J upgradable to occpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevant IS Codes.	3	Each		-
13.2	Supplying Installation, Testing and Commissioning of EV charging station As per specifications and in Compliance to relevant IS codes etc. Light EV AC Charger (Mode-3) Power : 7 kW, Input power supply: 1phase 230 +10% Volt, output supply: 230 Volt AC, Frequency:50 Hz +/-3%, Operational temperature range : -25 to 55 0C (outdoor), -5 to 55 0C (Indoor), RH upto 95%, Charging Device as per IS-17017-2-2 1 EV-EVSE Communication: as per relevant IS Codes, Bluetooth Low Energy, one Charge Point Plug/ Socket as per IS-60309 and IS-17017-2, Vehicle Inlet/ Connector As per EV manufacturer, suitable for 2 Wheelers and 4 wheelers. Indoor use: at least IP42; Outdoor use: at least IP54. Mechanical Strength: protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262.O/L,S/C protection. Insulation Resistance > 1 MΩ. Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Separate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1): 2010. OCPP(Open charge point protocol) 1.6J upgradable to occpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevant IS Codes.	R.O	Each		
14.0	Supplying, Installation, Testing and commissioning of Passive Infrared(PIR) technology based occupancy sensor with day light dimming(lighting level shall be regulated as per availability of natural day light in an area along with occupancy detection.) having high performance, regulating programmable type, suitable for connected load upto 10Amp , for mounting height up to 3 mtr and for 5 m diameter coverage area along with necessary fixingarrangements i/c programming at site etc. complete as required.	1530	Each		-
For Residential Part Cable , Internal Electrical work:					
1	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.				
	i) 2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	4365	METER		-
	ii) 2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	6802	METER		-
	iii) 2 X 4 sq. mm + 1 X 4 sq. mm earth wire	1380	METER		-
	iv) 2 X 6 sq. mm + 1 X 6 sq. mm earth wire	230	METER		-
	v) 2 X 10 sq. mm + 1 X 6 sq. mm earth wire	10	METER		-
	vi) 2 X 16 sq. mm + 1 X 6 sq. mm earth wire	10	METER		-
	ix) 4 X 6 sq. mm + 2 X 6 sq. mm earth wire	194	METER		-
	x) 4 X 10 sq. mm + 2 X 6 sq. mm earth wire	420	METER		-
	xi) 4 X 16 sq. mm + 2 X 6 sq. mm earth wire	100	METER		-
xiv)	Supplying, laying, testing and commissioning of wiring with 1.1 KV grade single core FRLS/HFFR PVC insulated copper multi stranded wires in prelaid 20/25 mm dia PVC rigid conduit in concealed system conduit on surface / cable tray complete with cutting chase in wall, mending good damages,supply of sand cement etc as reqd./ G.I. saddles, heavy gauge brass couplers, screws, painting of conduit (2 coats synthetic enamel) & necessary connection in both ends etc as required. Rates are inclusive of supply and fixing of FRLS/HFFR Cu wire. Wire 4 X 16 sq.mm	162	METER		-
xv)	Supplying, laying, testing and commissioning of wiring with 1.1 KV grade single core FRLS/HFFR PVC insulated copper multi stranded wires in prelaid 20/25 mm dia PVC rigid conduit in concealed system conduit on surface / cable tray complete with cutting chase in wall, mending good damages,supply of sand cement etc as reqd./ G.I. saddles, heavy gauge brass couplers, screws, painting of conduit (2 coats synthetic enamel) & necessary connection in both ends etc as required. Rates are inclusive of supply and fixing of FRLS/HFFR Cu wire. Wire 4 X 10 sq.mm	24	METER		-

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xvi)	Supplying and drawing following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in the existing surface/recessed steel/ PVC conduit as required.				
xvi)a	2 x 4 sq. mm	730	METER		-
xvi)b	4 x 6 sq. mm	180	METER		-
xvi)c	4 x 4 sq. mm	180	METER		-
2	Supplying and fixing metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc. as required.				
	100 mm X 100 mm X 60 mm deep	80	EACH		-
	150 mm X 150 mm X 60 mm deep	45	EACH		-
3	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
i)	20 mm	600	METER		-
ii)	25 mm	300	METER		-
5	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required.	843	EACH		-
6	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.	295	EACH		-
7	POINT WIRING				
	(PRIMARY POINT)				
7A .	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required.(DB to SB and SB to SB circuit wiring 3X1.5 sq.mm FRLS PVC insulated copper conductor single core cable cost shall be included)				
	Group C	2526	POINT		-
7B	Average run 6 METER		POINT		-
7C	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 2.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 2.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (DB to SB and SB to SB circuit wiring 3X2.5 sq.mm FRLS PVC insulated copper conductor single core cable cost shall be included)				
i)	Average run 4.5 METER	5	POINT		-
ii)	Average run 7 METER	10	POINT		-
	Secondary Point Wiring :				
7D	Wiring for group controlled (looped) light point (without independent switch etc.) with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/medium class PVC conduit, and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required. Total 3 Runs of wires to be laid including Earth Wire.				
iii)	Average run 4 METER	153	POINT		-
iv)	Average run 6 METER	90	POINT		-
7E	Wiring for group controlled (looped) light point (without independent switch etc.) with 2.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/medium class PVC conduit, and earthing the point with 2.5 sq. mm FRLS PVC insulated copper conductor single core cable etc. as required. Total 3 Runs of wires to be laid including Earth Wire.(either MCB controlled or Switchboard controlled secondary point)				
i)	Average run upto 4.5 METER	₹ 90.00	POINT		-
iv)	Average run upto 6 METER	₹ 12.00	POINT		-
7F	Wiring for Twin control light point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable in surface /recessed medium class PVC conduit, 2 way modular switch,modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS/HFFR PVC insulated copper conductor single core cable etc. as required.(DB to SB and SB to SB circuit wiring cost (3X 1.5 sq.mm) included.)	56	POINT		-

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8	Supplying and fixing two module stepped type Electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	354	EACH		-
9	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
A	5/6 A switch	342	EACH		-
B	15/16 A switch	348	EACH		-
C	3 pin 5/6 A socket outlet	418	EACH		-
D	6 pin 15/16 A socket outlet	152	EACH		-
E	Bell push	8	EACH		-
10	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required.				
A	1 or 2 Module (75mmX75mm)	1260	EACH		-
B	3 Module (100mmX75mm)	10	EACH		-
C	4 Module (125mmX75mm)	1	EACH		-
D	6 Module (200mmX75mm)	240	EACH		-
11	Supplying and fixing 25A motor Starter(for AC) within existing modular plate & switch box including connections etc. as required.	4	EACH		-
	(MCB CONTROLLED -PRIMARY POINT) except lift well				
iii)	Supplying and fixing power point for Electric Vehicle charging point with Power on LED Indication, Restricted Access to On/Off switch via key lock in recess, including providing and fixing 16 A switch & Socket similar to Panasonic make WIZZ EV outlet or equivalent , connections etc. as required.(for Car charging point)	R.O	EACH		
13	LT POWER & CONTROL CABLE (SUPPLY & LAYING)				
	LT POWER CABLE (SUPPLY)				
14.1	Supply of following sizes 1.1 KV Grade Aluminium/ Copper conductor, XLPE insulated, PVC inner sheathed, PVC type ST-2 outer sheathed and Galvanized wire/flat strip armoured/Un armoured LT Power Cables conform to IS 7098 Part-I (latest edition).				
i)	(1) 4C x 6 Sq. mm. Cu. Arm.		METER		-
ii)	(2) 4C x 16 Sq. mm. Al. Arm.	525	METER		-
iii)	(3) 4C x 25 Sq. mm. Al. Arm.	650	METER		-
iv)	(4) 3.5C x 35 Sq. mm. Al. Arm.	150	METER		-
v)	(5) 3.5C x 50 Sq. mm. Al. Arm.	280	METER		-
viii)	(8) 3.5C x 120 Sq. mm. Al. Arm.	115	METER		-
xi)	(11) 3.5C x 240 Sq. mm. Al. Arm.	75	METER		-
xvii)	(17) 3C x 16 Sq. mm. Al. Arm.	335	METER		-
xxx)	(30) 4C x 16 Sq. mm. Al. Un. Arm.	2000	METER		-
xvi)	(31) 4C x 25Sq. mm. Arm. CU cable	40	METER		-
14.2	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
i)	3 X 16 sq. mm (25mm)	12	NO.		-
v)	4 X 16 sq. mm (28mm)	132	NO.		-
vi)	4 X 25 sq. mm (28mm)	24	NO.		-
vii)	3½ X 35 sq. mm (32mm)	8	NO.		-
viii)	3½ X 50 sq. mm (35mm)	8	NO.		-
ix)	3½ X 70 sq. mm (38mm)	4	NO.		-
xi)	3½ X 120 sq. mm (45mm)	10	NO.		-
xiv)	3½ X 240 sq. mm (62mm)	2	NO.		-
14.3	Supply of material and end termination & connection including dressing and clamping of following sizes 1.1 KV Grade XLPE insulated, aluminium conductor armoured LT Power cables of following sizes using heavy duty single compression brass cable gland (upto25sqmm single compression gland & above 25 sqmm double compression gland), crimping type socket & other consumables as required. The scope includes supply of all consumable and accessories.				
v)	4C x 6 Sq. mm.	4	NO.		-

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14.5	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
	i) Upto 35 sq. mm (clamped with 1mm thick saddle)	3550	Metre		-
	ii) Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	185	Metre		-
	iii) Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	90	Metre		-
	iv) Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	15	Metre		-
15.1	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc. complete as required.				
	i) 120 mm dia (OD-120 mm & ID-103 mm nominal)	220	Metre		-
	ii) 200 mm dia (OD-200 mm & ID-175 mm nominal)	215	Metre		-
16.0	CABLE TRAY				
	PERFORATED/LADDER TYPE CABLE TRAY				
16.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	20	Metre		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	15	Metre		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	60	Metre		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	70	Metre		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	135	Metre		-
	vi) 750 mm width X 62.5 mm depth X 2.0 mm thickness	40	Metre		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	30	Metre		-
16.2	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	7	NOS		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	3	NOS		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
	vi) 750 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
16.3	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with Perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	3	NOS		-
	iv) 450 mm width X 50 mm depth X 2.0 mm thickness	3	NOS		-
	v) 600 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
	vi) 750 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
	vii) 900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
16.4	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Cross member"(galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc as required.				
	i) 100 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-
	ii) 150 mm width X 50 mm depth X 1.6 mm thickness	1	NOS		-
	iii) 300 mm width X 50 mm depth X 1.6 mm thickness	2	NOS		-

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iv)	450 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
v)	600 mm width X 50 mm depth X 2.0 mm thickness	2	NOS		-
vi)	750 mm width X 62.5 mm depth X 2 mm thickness	1	NOS		-
vii)	900 mm width X 62.5 mm depth X 2.0 mm thickness	1	NOS		-
17.0	SUPLY , INSTALLATION, TESTING & COMMISIONING OF FOLLOWING ITEMS:LIGHT/EXHAUST FAN / AVIATION LIGHT ETC.				
17.1	LED Batten light (System lumen efficacy ≥105 <120 lm/Watt). Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% ,Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitary), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing requiredper BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast / Extruded aluminium Body (Thickness ≥ 1.20 mm).				
	18- 22 watt (LED Batten light (System lumen efficacy ≥105 <120 lm/Watt))	1428	Each		-
17.2	Supplying, installation, Testing & Commissioning of LED Recessed / surface Down lighter (Round / square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140- 270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), life time of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. OEM must have its own in house NABL lab setup for all testing facilities for LED fixtures. "complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥120 <135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast /Extruded aluminium Body including trim with Aluminium Reflector. LED Down lighter (COB Type) (System lumen efficacy ≥120 lm/Watt) .				
	18 watt ((System lumen efficacy ≥120 lm/Watt))	1303	Each		-
17.6	"Supply, Installation, Testing of 20 W LED MIRROR light fixture complete with fixing with accessories as required.(Havells model number LHLDESAARANA020 or equivalent)	154	NOS.		-
17.7	Brush Less Direct Current (BLDC) Fan with Remote: Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal(Aluminium alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body. Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, remote (preferably mobile app based) for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 OC (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC supply Ceiling Fan compliant to IS 374:2019 fan i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required. Sub head Item No 9.1.3 1200mm, service value ≥ 6.0 CM/Min/Watt, air delivery 210 CM/Min (Minimum)	279	EACH		-

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17.8	Supplying, installation, Testing & Commissioning of electronic modular fan speed controller 2 module type including making necessary connection .		EACH		-
17.9	Supplying, installation, Testing & Commissioning of Heavy duty exhaust fan 300 mm sweep, 1-Phase complete with fixing of mounting ring, louvre, grouting, nuts, bolts,connection etc.including supply of all fixing and connecting materials. (Havells FHVVEMTDSB12 or equivalent make)	228	EACH		-
17.11	Supplying, installation, Testing & Commissioning of of aviation obstruction light (LED ,"TYPE -B"-Medium intensity AOL's - A minimum radial light intensity of 3200 ± 25 % cd in flashing red.), weather proof glass dome etc. including angle iron support, suitable short piece G.I.pipe, nuts, bolts, grouting connection,Control and Monitoring Controller(with Surge protection & 3. Electronic Photoelectric switch unit with amplifier activating a solid-state relay for automatic switch ON at dusk and switch OFF) etc. and supply of all fixing and connecting materials.(Make Binay Opto MIB-ST-900 or equivalent)	2	NOS.		-

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17.12	Supplying, installation, Testing & Commissioning of Bulk head light 18watt fixture,CCT: 6500K, IP 65 rated. Wipro :LW07-141-XXX-57-G1 or approved equal in quality and design complete with LEDs, ballast and all accessories as required or equivalent.(for liftwell, Roof area etc)	132	NOS.		-
17.13	LED Down lighter (SMD Type) (System lumen efficacy >135lm/Watt) . Supplying, Installation, Testing & Commissioning of LED Recessed/surface Down lighter (Round /square/Rectangular) SMD type of following body material with PMMA and prismatic diffuser and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range - 5 0C to 40 0C, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED, Driver & electrical circuitry), life time of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K/ 4000°K /5700°K / 6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard. Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c external connections with 1.5 sq mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output. LM79 & LM80 Test report and all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer in-Charge as per requirement. (Thermal management: heat sink of aluminium housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast /Extruded aluminium Body including trim .18 watt	R.O	EACH		
17.14	LED Down lighter (COB Type) (System lumen efficacy ≥ 105 < 120lm/Watt)-Supplying, installation, Testing & Commissioning of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K / 4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C) Powder coated die cast /Extruded aluminum Body including trim with Aluminum Reflector. ITEM NO 1.4.4 - 18 WATT	134	EACH		-
17.15	"Supply, Installation, Testing of 20 W LED MIRROR light fixture complete with fixing with accessories as required.(Havells model number LHLDESAARANA020 or equivalent)	15	EACH		-

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17.16	Supplying, installation, Testing & Commissioning of LED surface mounted Batten light of following body material and construction as per IS : 10322 with driver (Replaceable) as per the requirement with Driver efficiency >85% .Operating voltage AC 140-270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with , 70% of initial Lumen maintained till life ends, CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing requiredper BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast / Extruded aluminium Body (Thickness ≥ 1.20 mm). 18- 22 watt (LED Batten light (System lumen efficacy ≥105 <120 lm/Watt)	132	EACH	-
17.17	Supplying, installation, Testing & Commissioning of LED Recessed/ surface Down lighter (Round/ square/ Rectangular) COB Type of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140-270 Volt, frequency 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection ,THD < 10% , P. F.≥0.95, IP20, CRI >80 , UGR (Unified Glare Rating) < 19, Flicker free (flicker should be below 5%), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends , CCT 3000°K /4000°K / 5700°K / 6000°K / 6500°K (As per ANSI Bin), SDCM (Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be confirming to relevant BIS standards and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing Complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 and <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermalmanagement: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C) Powder coated die cast /Extruded aluminum Body including trim with Aluminum Reflector			
17.17a	8 - 10 watt	3	EACH	-
17.17b	18 watt	214	EACH	-
17.17c	30 watt	16	EACH	-
17.18	LED Panel light 2x2 ft. (System lumen efficacy ≥105 <120 lm/Watt) Supplying, installation, Testing & Commissioning of Panel light 2x2 ft., of following body material and construction as per IS : 10322 with driver as per the requirement with Driver efficiency >85%, Operating voltage AC 140- 270 Volt, freq 50/60 hz, Operating temp range -15 deg to 40 deg centigrade, internal surge protection of 2.5 KV with Short & Open circuit protection, THD < 10% , P. F.≥0.95, IP20, CRI >80, UGR (Unified Glare Rating) < 19, Flicker free, (flicker should be below 5 %), life time (LED,Driver & electrical circuitry), of minimum 50000 Burning Hours with, 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report, CCT 3000°K / 4000°K / 5700°K /6000°K / 6500°K (As per ANSI Bin), SDCM(Standard Deviation Color Matching) <3, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard and trade mark certificate (T.C.). Manufactures Word Mark/ Name Engraved/ Embossing/ Screen printing on housing. complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy ≥105 <120 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). Powder coated die cast / Extruded aluminium Body (Thickness ≥ 1.20 mm) Item No 1.6.4 -36 watt	4	EACH	-
17.19	S.I.TC of LED foot light with light warm white/cool day light equivalent to Panasonic WIDM4013	52.00	EACH	-

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18.0	EARTHING				
18.1	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.	20.00	NO.		-
18.2	EARTHING STRIPS				
	Supplying, laying, jointing and connection of earthing strips for equipotential bonding, interconnecting system Netral/ equipment body and earthing station. The scope includes supply & fittings of accessories like earthing clamp, saddle etc. and jointing of strips by welding/ brazing/soldering etc.				
a	50mmx6 mm. GI strip. (Equipotential bonding, Earth pit to Earth bus & within Electrical shaft)	400	METER		-
b	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	700	METER		-
e	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required.(Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	120.00	METER		-
f	Supplying and fixing of 50x6 mm and 500 mm long G.I.Earth busbar with G.I.nuts, bolts and spring washers as required.No of holes in earth busbar for termination of strips should be as per drawing & as directed by EIC.	70.00	NOS		-
g	Supplying and laying 6 SWG G.I. wire at 0.50 Meter below ground level for conductor earth electrode, including connection/ termination with GI thimble etc.as required.	25.00	METER		-
13.0	ELECTRICAL VEHICLE CHARGER				
13.2	Supplying Installation, Testing and Commissioning of EV charging station As per specifications and in Compliance to relevant IS codes etc. Light EV AC Charger (Mode-3) Power : 7 kW, Input power supply: 1phase 230 +10% Volt, output supply: 230 Volt AC, Frequency:50 Hz +/-3%, Operational temperature range : -25 to 55 0C (outdoor), -5 to 55 0C (Indoor), RH upto 95%, Charging Device as per IS-17017-22 1 EV-EVSE Communication: as per relevant IS Codes, Bluetooth Low Energy, one Charge Point Plug/ Socket as per IS-60309 and IS-17017-2, Vehicle Inlet/ Connector As per EV manufacturer, suitable for 2 Wheelers and 4 wheelers. Indoor use: at least IP42; Outdoor use: at least IP54. Mechanical Strength: protection of the external enclosure against mechanical impact shall be IK08 according to IEC 62262.O/L,S/C protection. Insulation Resistance > 1 MΩ. Cable Length: 7.5 m. RCD having a rated residual operating current not exceeding 30 mA; Separate RCD for multiple outputs. Telecommunication port of the EV supply equipment according to IS 13252 (Part 1): 2010. OCPP(Open charge point protocol) 1.6J upgradable to ocpp 2.0. Device Should follow 17017 series of IS codes in general and the installation of the system shall comply with relevant IS Codes.	R.O	Each		
14.0	Supplying, Installation, Testing and commissioning of Passive Infrared(PIR) technology based occupancy sensor with day light dimming(lighting level shall be regulated as per availability of natural day light in an area along with occupancy detection.) having high performance, regulating programmable type, suitable for connected load upto 10Amp , for mounting height up to 3 mtr and for 5 m diameter coverage area along with necessary fixingarrangements i/c programming at site etc. complete as required.	362	Each		-
15.0	Supplying, Installation, Testing and commissioning of wall mounted Electric water heater (geyser) with inbuilt 10 liters water storage stainless steel body tank, 02KW rated copper heating element ,08 bar max operating pressure, 05 star BEE rating, fully automatic, thermostat, indicators etc.This also includes all accesories required during installation like safety vavles,NRV,connection pipes(hot & cold), suitable capacity electric plug top,electric cable etc. and suitable for 01 phase,230volt,50H, A.C supply as per standard practice and directions of Engineer in charge.Make-Racold/Bajaj/CG/AO smith/CG/Jaquar or equivalent. Warranty/Guaranty: Minimum one year on product or as per OEM.	140	Each		-
COST OF CABLE INTERNERNAL ELECTRICAL WORKS:-					0
UPS SYSTEM:-					
For Main Commercial Block					
1	Online UPS- Input supply: Three Phase, Output supply: Three Phase - 160KVA				

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<p>Supplying, installation, Testing & Commissioning of of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 deg C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swappable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of moduels requird for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction. The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for reliable operation using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design, manufacturing and inspection process should confirm to the relevant International standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect(ITHD) on the input grid shall be < 5% at 50 %load. (The required LC (inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor (PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1), however UPS shall be suitable to take load at 0.7 laging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC Output voltage: 3Phase 415 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins, Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI)-</p>				
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	For 20KVA UPS a suitable VAH to be provided for each along with suitable rack, cable and supporting steel structure for Battery cabinet complete & as per specification etc complete as required. 160KVA (Each Power module shall be < 25 KVA)	2.00	EACH		-
2	Online UPS- Input supply: Three Phase, Output supply: Three Phase - 20KVA				
	<p>Supplying, installation, Testing & Commissioning of of following capacity at full load (Unity Power Factor) at operating temperature 0 to 40 deg C, Relative humidity 0 to 95%, Online double conversion true sine wave Uninterrupted hot swappable (allow for the replacement or addition of battery modules without shutting down the entire system) modular Power Supply (UPS) system with N+1 modules (N denotes total number of moduels requird for rated capacity). The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch alongwith provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. UPS shall have inbuilt phase sequence correction. The UPS systems offered are to be of the latest technology with Digital Control Microprocessor based for reliable operation</p> <p>using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter (3 Level) with PWM (Pulse Width Modulation). The quality of design, manufacturing and inspection process should confirm to the relevant International standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >96% while operating on battery mode and delivering quality power to the 100% non-linear loads. Current total harmonic effect(ITHD) on the input grid shall be < 5% at 50 %load. (The required LC (inductor (L) and a capacitor (C)) filters shall be included in UPS cost), extreme power factor kit to be included to limit the input power factor (PF) to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1), however UPS shall be suitable to take load at 0.7 laging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC : 3Phase 400V +/-20%, 50 Hz +/-5 Hz, AC Output voltage: 3Phase 415 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins, Sine wave output. Non condensing, noise level less than 60db at 1 meter distance, protections: Input Under voltage over voltage, abnormal out voltage, battery over charging, output over current, short circuit protection, battery deep discharge protection, 10KV surge. UPS must comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and</p>				
	For 20KVA UPS a suitable VAH to be provided for each along with suitable rack, cable and supporting steel structure for Battery cabinet complete & as per specification etc complete as required. 20KVA (Each Power module shall be < 10 KVA)	2.00	EACH		-
For Residential Part					

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3	<p>Online UPS - Input supply: Single Phase, Output Supply : Single Phase Supplying, installation, Testing & Commissioning of following capacity at full load (Unity Power Factor) ON LINE Uninterrupted Power Supply (UPS) system suitable for Single Phase input, Single Phase output AC Supply. The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch along with provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. The UPS systems shall be Microprocessor based Digital Control, using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier & inverter with PWM (Pulse Width Modulation) Technology. The quality of design, manufacturing and inspection process should confirm to the relevant Inter-national standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be >95% at 100% non-linear loads. Current total harmonic distortion (ITHD)/ total demand distortion (TDD) on the input grid shall be < 5% at 100 %load. (The required LC filters shall be included in UPS cost), extreme power factor kit to be include to limit the input pf to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1) however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC single phase 160-270V 50 Hz and delivering output AC supply true sine wave single phase 220/230/240 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins and 150% for 1 minute. Operating temperature 0 to 40 deg C, Relative humidity 0-95% non condensing, noise level less than 60db at 1 meter distance, Protection for Under voltage, over voltage, abnormal output voltage, battery over charging, output over current, short circuit, battery deep discharge , 10 KV surge. Display for watt/VA,Amp and Voltage power parameters etc. UPS shall comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2,</p>				
	<p>it shall be a Voltage and Frequency Independent (VFI) type UPS (as per standard IEC 62040-1, 2 & 3) . The UPS should be with IGBT Based Inverter Technology, Communication RS232/RS485/SNMP port open protocol for BMS integration as per approved by Engineering in charge. Required battery racks, DC breaker of suitable rating and interconnecting copper conductor cable of suitable size and connectors and all required accoseries are inclusive in the cost. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc- 2KVA UPS</p>	1	EACH		-
	TOTAL COST OF UPS =				0
	LPS SYSTEM:-				
	For Main Commercial Part				
1	Supply, installation, testing and commissioning of CPRI tested Air terminal (ESE System) with all accessories complete as required.Based on site condition/roof layout Protection radius of ESE system be considerd..(protection radius 107 meter at level 4)	1	No		-
1	Supply and installation of 50 mm dia 5 meter long G.I Mast with base plate and adapter. as required	1	No		-
1	Supply and installation of guy kit suitable for 5 mtr mast with W.R.Grips etc as required complete.	1	No		-
1	Supply and installation of SS cable ties as required complete.	1	Set		-
1	Supply and installation of 70 sq mm insulated copper cable as required complete.	185	Metre		-
1	Supply and installation of conductive saddles as required complete.	180	Nos		-
1	Supply and installation of fixings for conductive saddles as required complete.	180	Nos		-
1	Supply and installation of lightning event counter as required complete.	1	No		-
1	Supply and installation of 25mm x 6mm copper strip as required complete.	15	Metre		-
1	Supply and installation of copper bonded Earth rod 17.2mm dia (3000mm long) as required complete.	3	Nos		-
1	Supply and installation of earth rod clamp as required complete.	3	Nos		-
1	Supply and installation of Ground Enhancement Material (GEM) Each Bag of 11.3 kg as required complete.	6	Nos		-
1	Supply and installation of lower termination kit as required complete.	1	No		-
	For Residential Block				
2	Supply of Al Air Terminal of 2000mm Length	4	No.		-
2	Supply of Air Terminal Interception Tip	4	No.		-
2	Supply of Air Terminal conductor joining clamp	4	No.		-
2	Supply of Air Rod Base with fixing accessories	4	No.		-
2	Supply of 10 mm Al round conductor/ (25mm x 3mm) Al Tape for ring at roof level	225	Meter		-

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	Supply of Clamp for fixing the above rod	225	No.		-
	Supply of Aluminium Ferrule/Suitable Clamp for interconnecting Aluminum round conductor/ Al Tape	25	No.		-
	Supply of Cross Clamp	15	Set		-
	Supply of Tee Clamp	25	Set		-
3	Supply of 10 mm Al round conductor / (25mm x 3mm) Al Tape through the surface	1100	Meter		-
	Supply Suitable clamps for fixing the Al round conductor / (25mm x 3mm) Al Tape through the surface	1100	Set		-
	Supply of Aluminium Ferrule/Suitable Clamp for interconnecting Aluminum round conductor/ Al Tape	22	No.		-
					-
4	Supply of (25mm x 6mm) GI Strip for connection between Test joint to Earth pit	75	Meter		-
	Supply of Welding as per IEC Standard	22	UNIT		-
	Supply of Test Joint	22	No.		-
	Supply of 17.2 mm Cu. Bonded Steel Earth Rod (3000mm long)	22	No.		-
	Supply of Universal Clamp	22	Set		-
	Installation Cost -				
	Cost for Contingency -				
TOTAL COST OF LPS =					0
AREA LIGHTING SYSTEM:-					
For Main Part					
1.0	LT POWER & CONTROL CABLE (SUPPLY & LAYING)				
	LT POWER CABLE (SUPPLY)				
1.1	Supply of following sizes 1.1 KV Grade Aluminium/ Copper conductor, XLPE insulated, PVC inner sheathed, PVC type ST-2 outer sheathed and Galvanized wire/flat strip armoured/Un armoured LT Power Cables conform to IS 7098 Part-I (latest edition).				
a	(1) 3C x 4 Sq. mm. Cu Arm.	300	METER		-
b	Supplying & fixing PVC insulated PVC sheathed copper conductor submersible flat cable ISI Marked in existing metal/ HDPE / PVC/ pipe/ in bore well/ in sump including fixing the cable to GI/HDPE pipe with suitable cable tags of following sizes etc. complete as required.(For area lighting). (i) 3 Core 2.5 Sq mm Flat Cable	450	METER		-
1.2	Supply of material and end termination & connection including dressing and clamping of following sizes 1.1 KV Grade XLPE insulated, aluminium conductor armoured LT Power cables of following sizes using single compression brass cable gland , crimping type socket & other consumables as required. The scope includes supply of all consumable and accessories.				
	i) 3C x 4 Sq. mm.	10	NO.		-
1.3	Laying of one number PVC insulated and PVCsheathed /XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
	Upto 35 sq. mm	300	Metre		-
2	Providing and fixing G.I pipes complete with G.I fittings including trenching and refilling etc.				
	i) 50 mm dia nominal bore	50	Metre		-
3.0	SUPPLY , INSTALLATION, TESTING & COMMISSIONING OF FOLLOWING ITEMS: EXTERNAL LIGHT ETC.				

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3.1	Supplying, installation, Testing & Commissioning of Street light LED fixture, powder coated pressure die cast aluminum body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-10, CRI >80 , under voltage and over voltage protection,EMIEMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED,Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). LED Street light fixture, powder coated pressure die cast aluminum body (System lumen efficacy >135 lm/Watt)				
	45 watt	23	EACH		-
3.2 (a)	Supplying, installing, testing, commissioning of 4.5 mtr. 62.5mm dia. steel tubular pole complete with 12 mm thick heavy duty 250x250mm base plate, foundation bolts, connectors and cable glands, earth bolt, pole cap, cable entry hole with all hardware and accessories. Junction box with DP MCB to be provided and fixed by suitable clamp with the pole with loop-in & loop-out facility, 2 no. 25 mm dia. PVC pipe to be kept as required for cable entry/ exit. The work shall also include RCC of grade M 20 for foundation of size 500 mm (L) x 400 mm (B) x 1000 mm (D) below ground level/ as per respective vendor's dwg . The work to be executed as per drawing and direction of Engineer in charge. The job also includes necessary wiring with 3x 1c x1.5 sq.mm. FRLS copper wire from junction box to connector to light fittings. Along with 750mm length x 40mm dia Arm bracket at 300 angle with the pole. (Pole Foundation as per respective vendor's dwg)	23	NOS.		-
3.2 (c)	Painting of Steel Tubular Pole of lengths and no. of coats of paint, as given below with ready mixed paint/primer of approved make, and brand incl. preparation of surface by sand paper/emery paper, cleaning etc. for receiving fresh coat of paint				
	A) Upto 9.0 mtr. long pole				
	i) (i) 1st coat of aluminium paint over 1 coat of RO priming	23	NOS.		-
	ii) (ii) 2nd coat of aluminium paint over 1st coat	23	NOS.		-
3.3	Supply,Installation & testing of Decorative Post Top light (WIPRO model number LP07-501-XXX-57-CL (45W) or equivalent)	4	NOS.		-
3.4	Supply, Installation, testing & commissioning of 1.83 Mtr. Length, 15mm dia. GI earth spike with interconnection etc. as required.	23	NOS.		-
3.5	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	20	KG		-
4	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	20 mm	450	METER		-
	25 mm	600	METER		-
5	Supply , Installation, Testing & Commissioning of 200 x 150 x 125 mm polycarbonate weather proof (IP-55) junction box and 6A SP MCB's and terminal block. Supplying and laying cable through GI pipe upto junction box including excavation and back filling, wiring with 3 x 1.5 sq.mm PVC insulated 1100 volts grade copper conductor wires from junction box to lighting fixture .	5	NOS.		-
6	Supply,Installation & testing of 12W Bollards Light, and design complete with LEDs (color temperature 4000K /5700K/6000K as per client/architect requirement) and all accessories as required . Similar to Signify Vibe Model No. 582089 or approved equal in quality) and design complete with LEDs and all accessories as required .	12	NOS.		-

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7	Supply,Installation & testing of 12W 4000K /5700K/6000K (as per client/architect requirement), Tree Uplight/Spike light and design complete with LEDs and all accessories as required . Similar to Signify Garden Spike Model no. 31386 or approved equal in quality) and design complete with LEDs and all accessories as required .	16	NOS.		-
For Residential Block					
3.0	SUPPLY , INSTALLATION, TESTING & COMMISSIONING OF FOLLOWING ITEMS: EXTERNAL LIGHT ETC.				
3.1	Supplying, installation, Testing & Commissioning of Street light LED fixture, powder coated pressure die cast aluminum body with built in or separate driver as per the requirement with Driver efficiency >85%, Input voltage: 140-270 Volt AC, freq 50/60 hz, Operating temp range -15 deg to 50 deg centigrade, internal surge protection of 5 KV L,N,E as per IEC 61000-4-5, Driver efficiency >85%,THD < 10% as per IEC 61000-3-2 , P. F.≥0.95, IP-66,IK-10, CRI >80 , under voltage and over voltage protection,EMIEMC as per CISPR-15, lenses for beam angle as per IESNA type I/II/III as per the width of the road and the project requirement., suitable to fit in up to 65mm dia pipe, life time (LED,Driver & electrical circuitry) of minimum 50000 Burning Hours with 70% of initial Lumen maintained till life ends as per LM80 extrapolation IES TM-21-11 report , CCT 3000°K / 4000°K / 5700°K /6000°K/6500°K (As per ANSI Bin) , SDCM(Standard Deviation Color Matching) <5, Maximum power consumption should not more than the specified rating and Fixture shall be of relevant BIS standard complete in all respect i/c connections with 1.5 sq mm FRLS, PVC insulated copper conductor single core cable and earthing etc. as required with Minimum 5 year OEM warranty. System lumen efficacy >135 lm/Watt output . LM79 & LM80 Test report from NABL lab for all testing required for LED fixtures as per BIS shall be submitted. Shape size and CCT shall be as approved by Engineer-in-Charge as per requirement. (Thermal management: heat sink of aluminum housing such that LED junction temperature shall not rise above 90°C). LED Street light fixture, powder coated pressure die cast aluminum body (System lumen efficacy >135 lm/Watt)				
	45 watt	4	EACH		-
TOTAL COST OF AREA LIGHTING =					0
FAÇADE LIGHTING :-					
For Main Commercial Part					
1.0	LT POWER & CONTROL CABLE (SUPPLY & LAYING)				
LT POWER CABLE (SUPPLY)					
1.1 A	Supplying & fixing PVC insulated PVC sheathed copper conductor submersible flat cable ISI Marked in existing metal/ HDPE / PVC/ pipe/ in bore well/ in sump including fixing the cable to GI/HDPE pipe with suitable cable tags of following sizes etc. complete as required.(For area lighting). (i) 3 Core 4.0 Sq mm Flat Cable	1600	METER		-
1.1 B	Supplying & fixing PVC insulated PVC sheathed copper conductor submersible flat cable ISI Marked in existing metal/ HDPE / PVC/ pipe/ in bore well/ in sump including fixing the cable to GI/HDPE pipe with suitable cable tags of following sizes etc. complete as required.(For area lighting). (i) 3 Core 2.5 Sq mm Flat Cable	2000	METER		-
1.1 C	Supplying & fixing PVC insulated PVC sheathed copper conductor submersible flat cable ISI Marked in existing metal/ HDPE / PVC/ pipe/ in bore well/ in sump including fixing the cable to GI/HDPE pipe with suitable cable tags of following sizes etc. complete as required.(For area lighting). (i) 3 Core 1.5 Sq mm Flat Cable	900	METER		-
1.2	Supply of material and end termination & connection including dressing and clamping of following sizes 1.1 KV Grade XLPE insulated, aluminium conductor armoured LT Power cables of following sizes using heavy duty single compression brass cable gland (upto25sqmm single compression gland & above 25 sqmm double compression gland), crimping type socket & other consumables as required. The scope includes supply of all consumable and accessories. i) 3C x 4 Sq. mm.	15	NO.		-
1.3	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				

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	Upto 35 sq. mm	350	Metre		-
2	Providing and fixing G.I pipes complete with G.I fittings including trenching and refilling etc.				
i)	50 mm dia ID	50	Metre		-
3.0	SUPPLY , INSTALLATION, TESTING & COMMISSIONING OF FOLLOWING ITEMS: FAÇADE & LANDSCAPE LIGHTING ETC.				
3.1A	<p>LED Linear Profile (DC) Supplying Installation, Testing and Commissioning of LED RGB/RGBWW/RG BNW/ RGBA/ RGBW (as per site requirement) Linear Profile / Wall Washer luminaire for Facade lighting with aluminium extruded/ Die Cast housing with inbuilt driver of following wattage as given below. The luminaire bracket shall be made of cold-rolled steel & shall be so designed that the luminaire can be tilted to ±90°, having the rotation degrees scale shall be provided. The luminaire shall be IP66 protection also having silicon gasket between optical cover & LED chamber to ensure proper IP66 protection. CRI>80, SDCM<5, THD<10%. as per IEC 61000-3-2, under voltage, over voltage protection, driver inbuilt surge protection of 4KV and external surge protection (SPD) of 10 KV common mode/differential mode, Driver Efficiency>85%, EMI/ EMC as per CISPR-15. There should be options of beam angles of 10/20/30/40/60, asymmetric degree. Luminaire should have efficacy of minimum 40 lm/W for RGB/RGBNW/RGBWW/TNW and 65 lm/W for mono colour options. Luminaire shall be capable of producing dynamic colour changing light for with 16 million colours by DMX/Ethernet based control. The beam angle of the fitting shall be narrow, medium, wide or asymmetric as per the requirement. Luminaire shall be complete with replaceable driver and capable of operating at line voltage without any separate power supply from 24 V DC. Fixture shall be suitable to operate at an ambient temperature range of - -10°C to +50°C and shall have impact resistance of IK 07. Lifetime of complete luminaire (LED ,Driver , Electrical & control circuitry) shall be at least L70:50000 burning hours at 50°C. Luminaire shall be conforming to BIS (IS 10322) with dully R Number marked and shall be complete with all necessary accessories required for proper working of fixture including connection/inter connection with weather proof ISI Marked copper conductor of minimum size 1.5sqmm</p>				
	connection cables and accessories , Integral male/female water proof connectors of IP68 etc. as required. The successful bidder shall submit the following certifications/reports for approval before supply of materials: product data sheets, LM79 report from NABL accredited lab, illuminance diagram, polar curve & LM80 report issued by LED manufacturer, Rohs Compliance. Wattage per meter				
i)	40watt	40	EACH		-
ii)	50watt	200	EACH		-
3.2A	<p>Supply,Installation & testing of Supply of surface mounted, exterior rated and compact sized architectural LED direct view dot lighting luminaire that is designed for façade and outdoor lighting applications. The product is with 9W , 420lumen, max candela 253 Cd, NIT value of minimum 35,360, light emission cover should be spherical with diamond cut for a more aesthetic look by day and unique light effect by night with RGBNW. The luminaire controls via DMX512 with Auto addressing for easy configuration with input 24V DC. The luminaire shall be made up of Die cast aluminum, per luminaire minimum dimension of 136mm x 83mm x 124mm. The LED luminaire shall have SDCM<4 for white, the life of Luminaire shall be 50000hrs L70B50 at 35deg C. The luminaire should be IP66 & IK-06. The operating temperature of Luminaire shall be -40°C to 50°C and storage shall be -40°C to 70°C. Similar to Signify BGS302 G2 6LED RGBNW 24V DSC DMX</p>	200	NOS.		-

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3.2B	Supply,Installation & testing of Supply of 1000 mm long RGBNW (NW=4000°K) LED Rigid Linear Uplighter with System wattage of maximum 50-watt, min lumen output of 1640lm, 25x40 degree beam angle, complete with integrated power supply, suitable IP66 connectors, luminaire controls via DMX512 with Auto addressing for easy configuration. The connectivity should be of a daisy chain topology, allowing easy installation to form long run lengths. The luminaire shall be extruded Aluminium with Electrostatically applied polyester powder coating, silicon gasket and clear tempered glass, minimum dimension of 1000mm x 105mm x 45mm (with bracket) and minimum weight of 3.5 kg. The LED luminaire shall have SDCM<4 for white, the life of Luminaire shall be 50000hrs L70B50 at 35deg C. The luminaire should be IP66 & IK06. The operating temperature of Luminaire shall be -40°C to 50°C and storage shall be -40°C to 70°C. The product shall comply to and shall have test reports for IEC 60598-2-5:2015, IEC 60598-1:2014 + A1, IEC TR 62778:2014 (for LED chips), EN IEC 55015:2019+A11, EN 61547:2009, EN 61000-3-2:2019, EN 61000-3-3:2013, IS 10322 (Part 5/Sec5):2013, LM80. Manufacturers self-declaration shall be uploaded along with the technical bid confirming to compliance of CE Declaration of Conformity, CQC declaration of conformity, RoHS compliance & ASTM B117 for 500 hours. The bidder should also submit the BIS for proposed family of product. Light fixtures and design complete with LEDs and all accessories as required .	R.O	NOS.		
3.3 A	Supplying and Fixing of 5 pin XLR Male/Female connectors having 5 pole cable connector, Male/Female connector with improved latch, cage type contacts, "solder stop" for easy soldering, and additional ground contact for best contact integrity between chassis and cable connector. More durable housing for maximum reliability etc as required.	120	Each		-
3.3 B	Supply,Installation & testing of DMX MALE SUPPLY CABLE 1M 4 PIN Signify ZXP399 lead 4P DMX cable OR approved equal in quality) .	R.O	Each		
3.4 A	Supply,Installation & testing of DMX MALE SUPPLY CABLE 1M 4 PIN (It should be compatible with relevant luminaries) .	180	NOS.		-
3.4 B	Supply,Installation & testing of DMX EXTENSION CABLE 1M 4 PIN (It should be compatible with relevant luminaries) .	90	NOS.		-
3.5	RGB LED Strip Supplying Installation, Testing and Commissioning of LED RGB/RGBWW/RGBNW/ RGBA/RGBW suitable for exterior use having IP68 rating (as per site requirement). Flexible light strip of 5 mtr standard length with 12-15 Watt per meter. Luminaire shall be capable of producing dynamic colour changing light for with 16 million colours by DMX/Ethernet based control. Minimum System lumens 450 lumens/meter and System Lumen Efficacy > 30lm/w. Luminaire light beam spread - 100-110°. The Strip should have IP 68 protection and is offered IP 68 rated connectors to join the LED Strips in continuity. The luminaire must be offered with Aluminium channel for mounting the strip lights. The product should be complete with all accessories and Driver. Lifetime of complete luminaire (LED, Driver, Electrical & control circuitry) shall be at least L70:50000 burning hours at 50°C. Luminaire shall be conforming to BIS (IS 10322) with dully R Number marked. Luminaire shall be complete with replaceable driver and capable of operating at line voltage without any separate power supply from 24 V DC, Fixture shall be suitable to operate at an ambient temperature range of -10°C to +50°C. The successful bidder shall submit the following certifications/reports for approval before supply of materials: product data sheets, LM79.report from NABL accredited lab, illuminance diagram,polar curve & LM80 report issued by LED manufacturer & RoHS Compliance along with CE certificate.	90	EACH		-
3.6A	Supplying Installation, Testing and Commissioning of Signal Amplifier to boost the Signal, IP 65 rated module to enhance the depleting DMX Signals, should have IP 66/67 rates inbuilt connectors compatible with Luminaires. It should be offered with inbuilt electronic circuit for functioning. No external LED driver needed etc., complete as required. (The DMX amplifier shall be from the same make/brand/manufacturer as that of façade lighting luminaires.)	20	NOS.		-
3.6B	Supplying, Installation, Testing and Commissioning of Signal Amplifier of RGB signal as require i/c connection along with 2 years free replacement guaranty etc. complete as required..	6	NOS.		-
3.6C	Supplying, Installation, Testing and Commissioning of RGB controller with remote Kit wattage not less than 200 watt i/c connection along with 2 years free replacement guaranty etc. complete as required.	R.O	NOS.		
3.7A	Supply & Installation DMX CABLE for RGB/RGBWW/ RGBNW/ RGBA/RGBW strip, Length of 1Meter	51	NOS.		-
3.7B	Supply & Installation of Extension for DMX Cable RGB/RGBWW/ RGBNW/ RGBA/RGBW strip, Length of 1 Meter.	20	NOS.		-

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3.8	<p>Supplying Installation, Testing and Commissioning of Circular/ Rectangular/square LED RGB/ RGBWW/ RGBNW/RGBA/RGBW (as per site requirement) Facade Floodlight/ Projector luminaire for facade lighting with Pressure Die-cast aluminium housing, powder-coated finish, with inbuilt driver of following wattage as given below. The luminaire bracket shall be made of cold-rolled steel & shall be so designed that the luminaire can be tilted to ±90°, the scale shall be provided for rotation degrees. The luminaire shall be IP66 protection also having silicon gasket between optical cover & LED chamber to ensure proper IP66 protection and impact resistance of IK 07. CRI>80, SDCM<5, THD<10%. as per IEC 61000-3-2, under voltage, over voltage protection, driver inbuilt surge protection of 4KV and external surge protection (SPD) of 10 KV common mode/differential mode, Driver Efficiency>85%, EMI/EMC as per CISPR-15. There should be options of beam angles of 5/10/15/20/25/30/40/45/60 degree. Luminaire should have efficacy of minimum 35 lm/W for RGB/RGBNW/RGBWW/TNW and 65 lm/W for mono colour options. Luminaire shall be capable of producing dynamic colour changing light for with 16 million colours by DMX/Ethernet based control. The beam angle of the fitting shall be narrow, medium, wide or asymmetric as per the requirement. Luminaire shall be complete with replaceable driver and capable of operating at line voltage without any separate power supply from 100-270 V AC, 50 Hz with power factor > 0.9. Fixture shall be suitable to operate at an ambient temperature range of -10°C to +50°C. Lifetime of complete luminaire(LED ,Driver , Electrical & control circuitry) shall be at least L70:50000 burning hours at 50°C. Luminaire shall be conforming to BIS: (IS 10322) with dully R Number marked and shall be complete with all necessary accessories required for proper working of fixture including connection/inter connection with weather proof ISI Marked copper conductor of minimum size</p>				
	<p>1.5sqmm connection cables and accessories, Integral male/female water proof connectors IP 68 etc. as required.The successful bidder shall submit the following certifications/reports for approval before supply of materials: product data sheets, LM79 report from NABL accredited lab, illuminance diagram, polar curve & LM80 report issued by LED manufacturer, RoHS Compliance. - 200watt</p>	5	EACH		-
3.9	<p>Supply,Installation & testing ofSupply of UniDot G2 is a surface mounted, exterior rated and compact sized architectural LED direct view dot lighting luminaire that is designed for façade and outdoor lighting applications. The product is with 9W , 420lumen, max candela 253 Cd, NIT value of minimum 35,360, light emission cover should be spherical with diamond cut for a more aesthetic look by day and unique light effect by night with RGBNW. The luminaire controls via DMX512 with Auto addressing for easy configuration with input 24V DC. The luminaire shall be made up of Die cast aluminum, per luminaire minimum dimension of 136mm x 83mm x 124mm. The LED luminaire shall have SDCM<4 for white, the life of Luminaire shall be 50000hrs L70B50 at 35deg C. The luminaire should be IP66 & IK-06. The operating temperature of Luminaire shall be -40°C to 50°C and storage shall be -40°C to 70°C. (Similar to Signify BGS302 G2 LED RGBNW 24V DSC DMX)</p>	200	NOS.		-
3.10A	<p>Supply,Installation & testing of LED node with System wattage of minimum 2/2.5 watt, with minimum lumen per pixel of 140lm and min candela per node of 53Cd, NIT value of minimum 84100, light emission cover should be clear (not diffused), 110/110-degree beam angle, CCT-4000°K, complete with integrated power supply, suitable IP66 connectors, luminaire controls via DMX512 with Auto addressing for easy configuration. The connectivity should be of a daisy chain topology, allowing easy installation to form long run lengths. Lighting automation control equipment should be of the same company as of light fixtures Installation clamps, 5core/cat-6 or suitable control cables UV and weatherproof, other required accessories & hardware. The luminaire shall be PC fireproof Plastic housing, silicon gasket, per node minimum dimension of 60.1mmX 15.5mmX57.2mm Track mounted and minimum weight of 0.055kg/node. The LED luminaire shall have SDCM<4 for white, the life of Luminaire shall be 50000hrs L70B50 at 35deg C. The luminaire should be IP66 & IK-06. The operating temperature of Luminaire shall be -40°C to 50°C and storage shall be -40°C to 70°C.Manufacturers self-declaration shall be uploaded along with the technical bid confirming to compliance of CE Declaration of Conformity, CQC declaration of conformity, RoHS compliance & ASTM B117 for 500 hours. The bidder should also submit the BIS for proposed family of product. Approved make Signify BWS302 Led or equivalent and design complete with LEDs and all accessories as required .</p>	200	NOS.		-
3.10B	<p>Supply,Installation & testing of ZXP399 Lead 5P DC/DMX cable 2meter length for Item no 3.10A</p>	70	NOS.		-
3.10C	<p>Supply,Installation & testing of ZXP399 Jump 5P DC/DMX cable or equivalent of 2meter length for Item no 3.10A</p>	350	NOS.		-
3.10D	<p>Supply,Installation & testing of 150W DRIVER 24V DC IP67 rated.</p>	31	NOS.		-

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3.11A	<p>Supplying Installation, Testing and Commissioning of DMX Controller for the system including address writer and programming the DMX controller with the suitable designs as decided by the Engineer-in-charge/client department (not less than 10 nos designs) and all other accessories required for the running of the system Controller should have Input Power 5-5.5V DC 0.6A and Output Protocol DMX512 with 4 universe, 2 universe should work in Stand Alone Mode and 2 universe should work in live mode with laptop/ tablet / computer. The universe should be expandable from 2 to 4 DMX512 universes. It should be compatible for Programmability with PC, Mac, Tablet, Smartphone by using USB & Ethernet. Dmx controller should have network controllability feature to control the scene remotely through LAN and triggered via UDP packets on port 2430. It's must have Connections Type C USB, XLR3, Ethernet, battery. There should be provision for Memory microSD card. Device should have Intuitive backlit keyboard with 10 presents and also have provision of keypad on device for changing scene manually from device. Device should be capable to work on Extended triggering possibilities (TCA) & also have Smart Upgrade Technology (SUT). It is an IP 20 unit and has an Operating Temperature of 0°C to 50°C.OS Requirements for the controller is Mac OS X 10.8-10.12, Windows 7/8/10/11. Standards should be EC, EMC, ROHS. The controller should have a variety of features including 2048 DMX channels, clock/calendar, iPhone/iPad /Android remote control, Ethernet facilities, dry contact port triggering and multi-zone SD card memory. Network synchronization of one area across hundreds of universes with the possibility of 99 scenes across 5 areas with auto clock triggering for sunrise and sunset and as per the festivals for specific occasions. Device should be equipped with meta clamp to mount on wall with data enablers and splitters as required. To be provided with IP 66 enclosure if installed in external environment.</p>	R.O	EACH		
3.11B	<p>Supplying,Installation, Testing, and Commissioning of Main controller DMX - Main Controller: Industrial grade controller that can control the sub controllers of up to 6000 DMX universes. Wiring accessories include leader and jumper cables with male and female IP67 connectors and end-caps. Connected in Stand Alone mode, receiving power from an adapter. Compatible with Windows 10 32-bit or 64-bit version or equivalent. Complies with standard DMX control protocol. Amplifier or Repeater is used here for to extend the installation without limits is also called 'Booster' or repeater. They work on their own power supplies (drivers) work with 12 or 24V drivers. The controller shall have stable signal transmission and can synchronize with NTP and GPS. The controller shall support power on start-up and scheduled time-start, automatic scenes play-back and scheduling, supports upgrading devices firmware over the network. It shall have two RJ45 network interfaces (100/1000M adaptive). The housing shall be of steel, Aluminium with black finish weighing approx. 11.6kg. It shall work at a temperature range of 0deg C to 40 deg C and input voltage range of 100-240V AC/50-60 Hz, Humidity range 10 to 85% (no condensation). Approved make Signify Uniplayer 8 port or approved equal in quality</p>	1	EACH		-
3.11C	<p>CHARGES FOR DMX PROGRAMING AS MENTIONED IN THE ITEM NO 3.11B</p>	1	EACH		-
3.12	<p>Supplying Installation, Testing and Commissioning of DMX Splitter with Input Voltage range : 190-240V AC, Power Consumption 5W max. Housing is made of CRCA with powder coated finish Mounting, 19 inch rack mountable, Operation Temperature - 30°C to +55°C, 8 Output with 3pin XLR terminal sockets, Ingress Protection Rating IP20. This unit takes the DMX Signal from DMX Controller & split the signal into 8 separate output channels. The output terminals of Splitters are optically isolated from the input. Splitters should be capable to amplify the DMX signal & allowing the data link to be extended by max. 300 m (1044 ft.) using AWG 22 DMX cable or 150 m (500 ft.) using AWG 24 DMX cable or maximum 20-25 fixture per output channel. To be provided with IP enclosure if installed in external environment etc., complete as required.</p>	R.O	EACH		
3.13	<p>Supplying Installation, Testing and Commissioning of RDM-6Wall Splitter, should be able to provide 6- output DMX/RDM splitter with DMX/RDM passthrough supporting bidirectional communications for discovery, addressing and DMX control of Ethernet/DMX products. This unit takes the incoming DMX/RDM signal and splits the signal into six separate output channels allowing for expanding the number of devices controlled from 32 to 6x32. The output terminals are electronically isolated from the input & RDM-through port and share a common ground reference. All six output ports have an independent output driver to boost the DMX/RDM signal. Surface or DIN-rail mountable, Isolated DMX/RDM Input/Outputs, Automatic switching between DMX and RDM mode for auto-discovery, Environment-IP20, Interior applications, Finish/Color Polycarbonate, Certification: CE Certified. DMX Splitter/Booster etc. as required.</p>	4	EACH		-

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3.14	Supply,Installation & testing of Addressing Kit which shall automatically write address to a whole group of interconnecting luminaires within minutes. It shall be Miniature industrial design, compact size and touch screen. It can be powered by a power bank with a Micro-B type USB port for on-site programming and testing after installation. The housing shall be extruded Aluminum with black finish weighing approx. 0.2Kg with temperature range -10°C to 40°C, input voltage of 6-24V DC and humidity range of 10 to 90% (no condensation). The product shall be compact in size, compatible with multiple types DMX512 chips, with Built-in test animation effects, SD card slot to store animation and scenes. The addressing kit shall support standard RDM protocol, searching for RDM luminaires and static detection, Colorpick functions, and can be powered by Micro-B type USB power supply. (kit should be compatible with relevant luminaries)	1	NOS.		-
3.15A	Supplying Installation, Testing and Commissioning of Signal Amplifier to boost the Signal, IP 65 rated module to enhance the depleting DMX Signals, should have IP 66/67 rates inbuilt connectors compatible with Luminaires. It should be offered with inbuilt electronic circuit for functioning. No external LED driver needed etc., complete as required. (The DMX amplifier shall be from the same make/brand/manufacturer as that of façade lighting luminaires.)	10	NOS.		-
3.16	Supplying, installation, testing and commissioning of high quality DMX decoder, Power Input : DC 24V etc complete as required.	96	EACH		-
3.17	Supplying and laying of flexible PVC conduit of 25mm dia with all accesories etc. as required.	800	METER		-
3.18	Supplying, installation, testing and commissioning of high quality DMX decoder, Power Input : DC 24V etc complete as required.	960	NOS.		-
4	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	20 mm	600	METER		-
	25 mm	500	METER		-
5	Other IT Components(Server, PC etc)				
a	Supplying and laying of DMX CAT6 Cable UTP Outdoor Type etc. as required.	4000	METER		-
b	Supplying and laying of LapTop /PC+Monitor+Keyboard+Mouse as per requirement. (for façade lighting purpose)	1	NOS		-
c	Supplying and laying of LIU Box as per requirement	7	NOS		-
d	Supplying and laying of Pigtails as per requirement	50	NOS		-
e	Supplying and laying of Fiber Optic Duplex Patch code 1Mtr	30	NOS		-
g	Supplying and installation of 6U Network Rack	1	NOS		-
h	Supplying and installation of Single mode transceiver	15	NOS		-
i	Supplying and installation of 8Port Gigabyte Switch 10/100/1000 with SFP Port and SM Transceiver (Industrial grade)	7	NOS		-
j	Supplying and laying of Fiber Optic Cable 6C OS2 SM Armored	800	METER		-
6	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	4	KG		-
7a	Providing and fixing IP65 Enclosure made up of PVC Approx .300mmx300mmx200 mm for DMX Splitter , amplifier, power supply.	110	NOS		-
7b	Providing and fixing JB for DMX and Power Connection 3'x3' PVC IP65 rated.	600	NOS		-
8	Supply and laying of 5Cx 1 sq.mm PVC Cu armoured cable multistrain)	500	METER		-
9a	Termination of 3Cx 1.5sq.mm/2.5sq.mm PVC Flexible Cu cable multistrain)	800	Nos		-
TOTAL COST OF FAÇADE LIGHTING =					-
SOLAR SYETEM:-					
For Main Commercial Part					

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<p>1</p>	<p>Supplying Installation, Testing and Commissioning of on-grid Solar Photovoltaic Power Plant conforming to various applicable standards BIS, IEC, MNRE guidelines, the Central Electricity Authority Regulations and CPWD Specifications as amended up to date, consisting of Mono/Poly Crystalline silicon solar cells module, net metering facility, necessary control, protections, earthing, cabling, mounting structure, junction boxes, power conditioning units, Real time online web interfaced Data Monitoring System, Distribution panels, grid connecting arrangement, conduits, pipes, cable trays and other accessories etc. as required.</p> <p>a) High Energy Efficiency Solar Photovoltaic Module of capacity 330 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 23% at STC with temperature coefficient of Pmax better than -0.30% per 0C. 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 Modules shall be designed to operate in relative humidity upto 100% with temperature between -10 0C and +85 0C. Further, each PV module used in any solar power project must have Radio frequency identification tag with information such as name of manufacturer, month and year of manufacturing, country of origin (separately for Solar cell and module), I-V curve, Unique Serial No and Model No of the module, Wattage, Im, Vm and FF name of test lab issuing IEC certificate</p>				
	<p>b)Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 415 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC with a variation of 10% at nominal voltage. Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 0C, Minimum IP-65 for outdoor and Minimum IP 21 for indoor, Built-in meter and data logger, MPPT, switching devices IGBT/MOSFETs and controller Microprocessor /DSP. PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU shall be able to withstand unbalanced load conforming to IEC standard with shutdown/standby mode. It must be provided with grid islanding along with manual disconnect pole isolation switch besides automatic disconnection. Minimum protections: Mains Under / Over Voltage, Over current, Over/Under grid frequency, Over temperature, Surge voltage induced at output due to external source, Short-circuit, Lightning, Anti Islanding (for grid synch. Mode) and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltage and current (all 3 phases, in case of 3 phase), Instantaneous & cumulative AC output power, Daily DC energy produced and other parameters applicable standard.</p> <p>Communication interface RS 485 / RS 232. c) Module mounting structure: The roof top solar plant generation units shall be installed by using supporting Aluminium/Galvanized MS structure (mass of zinc coating shall be as per IS4759) having minimum head room clearance of 2.4 meter above the terrace level /ground</p>				
	<p>d) Real time online web interfaced Data Monitoring System complete with accessories for various parameters such as Solar Irradiance, temperature, AC Output Voltage and current, Output Power, Power factor, DC Input Voltage and Current, Time Active, Time disabled, Time Idle, Power produced and other parameters as per standard practices. e) 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. Each junction box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement with High quality Suitable capacity Metal Oxide Varistors(MOVs) (semiconductor diode with resistant applied voltage)/ surge arrestors and suitable Reverse Blocking Diodes, isolation switches isolate the DC input to Inverter, copper bus bar etc. f) Lightning, surge voltage protection, earthing protection and grid islanding. g) Cables: Connections & Interconnections by required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables(ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required. h) DC Distribution Board And AC Distribution Panel Board: IP65, free standing, metal clad, having copper bus bar, having required protection and control gears, connection-interconnection, etc. as required. (SITC of 17KW Solar Photovoltaic Power Plant and complete in all respect including cabling and accessories).</p>	<p>70.00</p>	<p>kWp</p>		<p>-</p>

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2	<p>a)Supply,Insatallation, Testing and commisioning of 8KWp Roof Top Solar (PV) Power system(Mono C SiPERC panel 545 watt or above) with Hybrid Inverter of 48V DC (or as per Manufacturer standards) with power back up of 19000VAH TGEL VRLA Battery Bank with supply of suitable metal rack for placing batteries(Batteries shall be of fully charged, not be more than three months older, and should mention Battery Sr. No, date, and year of manufacturing on each Batteries).b) Plant with SIM based remote monitor feature with one year recharge by vendor. c) Solar plate cleaning arrangement at rooftop with CPVC water pipe.(FOR EL V SYSTEM at Main Block)</p>	1.00	L.S		-
For Residential Block					
1	<p>Supplying Installation, Testing and Commissioning of on-grid Solar Photovoltaic Power Plant conforming to various applicable standards BIS, IEC, MNRE guidelines, the Central Electricity Authority Regulations and CPWD Specifications as amended up to date, consisting of Mono/Poly Crystalline silicon solar cells module, net metering facility, necessary control, protections, earthing, cabling, mounting structure, junction boxes, power conditioning units, Real time online web interfaced Data Monitoring System, Distribution panels, grid connecting arrangement, conduits, pipes, cable trays and other accessories etc. as required.</p> <p>a) High Energy Efficiency Solar Photovoltaic Module of capacity 330 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 23% at STC with temperature coefficient of Pmax better than -0.30% per 0C. 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 Modules shall be designed to operate in relative humidity upto 100% with temperature between -10 0C and +85 0C. Further, each PV module used in any solar power project must have Radio frequency identification tag with information such as name of manufacturer, month and year of manufacturing, country of origin (separately for Solar cell and module), I-V curve, Unique Serial No and Model No of the module, Wattage, Im, Vm and FF name of test lab issuing IEC certificate</p>				
	<p>b)Power Conditioning Unit (PCU) of 350-800 V DC Input voltage range and 415 V AC, three phase, 4 wire, 50Hz +/- 2.5 Hz, output voltage suitable to generate AC with a variation of 10% at nominal voltage. Power with efficiency not less than 97%, total harmonic distortion less than 3% and suitable for ambient temperature from 0 to 50 0C, Minimum IP-65 for outdoor and Minimum IP 21 for indoor, Built-in meter and data logger, MPPT, switching devices IGBT/MOSFETs and controller Microprocessor /DSP. PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown. The PCU shall be able to withstand unbalanced load conforming to IEC standard with shutdown/standby mode. It must be provided with grid islanding along with manual disconnect pole isolation switch besides automatic disconnection. Minimum protections: Mains Under / Over Voltage, Over current, Over/Under grid frequency, Over temperature, Surge voltage induced at output due to external source, Short-circuit, Lightning, Anti Islanding (for grid synch. Mode) and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltage and current (all 3 phases, in case of 3 phase), Instantaneous & cumulative AC output power, Daily DC energy produced and other parameters applicable standard.</p> <p>Communication interface RS 485 / RS 232. c) Module mounting structure: The roof top solar plant generation units shall be installed by using supporting Aluminium/Galvanized MS structure (mass of zinc coating shall be as per IS4759) having minimum head room clearance of 2.4 meter above the terrace level /ground level. The mounting structure would be designed to sustain wind load and seismic parameter of the site of installation. All the structure shall be design as per applicable BIS code and the material shall also confirm the applicable BIS Code. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. The suitable arrangements for maintenance and cleaning shall be provided.</p>				

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	<p>d) Real time online web interfaced Data Monitoring System complete with accessories for various parameters such as Solar Irradiance, temperature, AC Output Voltage and current, Output Power, Power factor, DC Input Voltage and Current, Time Active, Time disabled, Time Idle, Power produced and other parameters as per standard practices. e) 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. Each junction box shall be made of GRP/FRP/Powder Coated Aluminium /cast aluminium alloy with full dust, water & vermin proof arrangement with High quality Suitable capacity Metal Oxide Varistors(MOVs) (semiconductor diode with resistant applied voltage)/ surge arrestors and suitable Reverse Blocking Diodes, isolation switches isolate the DC input to Inverter, copper bus bar etc. f) Lightning, surge voltage protection, earthing protection and grid islanding. g) Cables: Connections & Interconnections by required size IR/UV protected XLPE insulated copper conductor 1.1 kV grade armored power and control cables(ISI Marked) along with supplying & fixing of necessary channel/conduit, GI cable trays, supports, lugs, thimble and other accessories etc. as required. h) DC Distribution Board And AC Distribution Panel Board: IP65, free standing, metal clad, having copper bus bar, having required protection and control gears, connection-interconnection, etc. as required. (SITC of 17KW Solar Photovoltaic Power Plant and complete in all respect including cabling and accessories).</p>	28.00	kWp		-
TOTAL COST OF SOLAR SYSTEM =					0
DG SET :-					
For Main Commercial Block					
1	DG works for main block				
1.1	Out Door D.G. SETs with Accoustic enclosure				
	<p>Supply , loading , unloading, Including Transportations to The Site and Installation, testing and commissioning of 3 phase 415 volts 50 cycle per second, 1500 RPM prime duty, Radiator fan cooled Diesel Generator SETs . The engine shall be complete with turbo charger, flywheel to suit flexible coupling with guard, air cleaner, blower fan, heat exchanger, fuel pump, variable speed electronic governor, fuel filter, lub oil filter and pump, primary water circulating pumps, battery charger, 12/24 volt batteries of compatible capacity, Battery Leads, MS battery stand and instrument panel comprising of switch with key, lub oil pressure gauge, water temperature gauge, battery charging voltMETER, safety control for low lub oil pressure, over speed and high cooling water temperature with tripping etc. The alternator shall be self excited, self regulated, brushless and continuously rated for 1010kVA at 0.8 P.F., 3 phase 415 volts, 50 cycle per second, 4 wire system and shall be provided with static excitation unit.(DG SEng, Anti Islanding (for grid synch. Mode) and other protections as per applicable standards. LCD/LED display of minimum parameters: DC input voltage, DC current, AC Voltag</p>				
	<p>Alternator insulation shall be class 'H' suitable to withstand tropical conditions and shall generally comply with latest upto date amendment to IS Code. The overload capacity shall not be less than 110% of rated capacity for 1 hour in every 12 hours. The DG SET shall be mounted on a fabricated rigid common base frame with anti-vibration mountings to provide 98% vibration isolation. The DG SET shall include all accessories, fittings, instruments and standard tool kit complete as per specification and as required including control cabling. The cost shall include providing and fixing adaptor box for cable termination as required.</p>				
	<p>The Alternator shall be compatible to be synchornized to the Main LT Panel through controllers of approved make.</p>				
The D.G. SETs shall be inclusive of but not limited to the following standard accessories:					
1.1.1	Radiator Fan Cooled system .				
1.1.2	Fly Wheel to suit flexible/rigid coupling.				
1.1.3	Fly wheel housing complete with starter gear ring and coupling.				
1.1.4	Fuel hoses.				
1.1.5	Electronic Governor.				
1.1.6	Air Cleaner with Vacuum Indicator.				
1.1.7	Fuel and Lub Oil Filter.				
1.1.8	By pass filter				
1.1.9	Fuel Pump PT Type.				
1.1.10	Water Pump.				

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1.1.11	Lub Oil Pump.				
1.1.12	Drip Tray for fuel tank				
1.1.13	Drip Tray below engine crank case				
1.1.14	Electric Starter 24 Volts DC.				
1.1.15	Battery Charging Alternator with Built-in-regulator - 24 Volts, 30 Amps and battery stand .				
1.1.16	Residential Silencer including baffle plates and 75mm thick LRB rock wool (64 Kg/m3 density) insulation clad with 26 SWG aluminium sheet cladding.				
1.1.17	i) Expansion bellow				
1.1.18	ii) Flue pipe of required size from DG SET FLUE OUTLET upto Silencer				
1.1.19	Safety Control against low lub oil pressure, over speed and high cooling water temperature along with tripping.				
1.1.20	Lub Oil Cooler.				
1.1.21	Flexible Pipe joints for Silencer.				
1.1.22	Anti Vibration Pads.				
1.1.23	Any other item not specifically mentioned but required for proper performance and safe working of the system.				
1.1.24	Rotor temperature detector and bearing temperature detector				
1.1.25	990Ltr Fuel Tank inbuilt or out side as per manufacturer standard				
1.1.26	2 NOS light fixture inside accoustic enclousher				
1.1.27	Local breaker inside accoustic enclosure to be considered.				
1.1.28	Any other item not specifically mentioned but required for proper performance and safe working of the system.				
1.2	1010 kVA Accoustic DG SETs				
	SET Acoustic Treatment as per CPCB latest norms.	2	SET		-
2	1600A FP, 50kA ACB o/c, S/C, E/Releases mounted on Alternator with Adopter Box suitable for Cable termination.	2	SET		-
3.0	EXHAUST SYSTEM :				
	Note :				
a)	The system shall comply with the norms of PCB / other statutory bodies				
b)	Class B MS pipes as per IS 3589 shall be supplied. The exhaust system including the silencer must be sized to ensure that back pressure on system does not exceed the back pressure recommended by engine manufacturer. Back pressure Design calculation in support to be submitted.				
c)	Pipe shall be thoroughly cleaned of rust and painted with heat resistant paint after fabrication and erection.				
d)	Exhaust piping and silencer shall be hermallly insulated and clad with aluminium sheet. Silencer portion shall be measured double.				
e)	Silencers and Horizontal runs shall be supported on spring supports fixed to ceiling. Expansion bellows to be provided where ever necessary and cost of same should be included in exhaust pipe				
f)	Flexible expansion joint of multiple corrugated stainless steel shall be provided between engine exhaust manifold and exhaust piping.				
g)	Earthing Weather cowl at the top and aviation lights are to be provided.				
h)	Dia of pipe to be used shall be indicated in the tender. If more than one size is proposed to be used, estimated quantities with rates of each size shall be furnished.				
i)	Bend shall be measured double in actual length of bend used.				
j)	Inspection chamber shall be provided at the top as per pollution control board standards.				
k)	Design and engineering for the support structure for Exhaust pipe.				
3.1	400mm (16")dia./required Dia. for 1010 kVA DG SET The exhaust pipe shall be insulated with 100 mm thick mineral wool insulation wrapped in chicken mesh and clad with 24 gauge aluminium sheet including all necessary material				
	SITC of exhaust pipe	180	METER		-
a)	250 mm or required dia 4.85 mm thick MS ERW Pipe	as per actual requirement	METER		
A	Expansion Bellow				
	400 mm dia/ required size(to be mentioned in the tender) 200 mm long SS Bellow	as per actual requirement	NOS.		
B	Silencer Insulation				
			NOS.		

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3.2	Supporting MS items:				
	Supply and erection of 'Exhaust pipe supporting system with ISMC, ISAs 'complete including redoxide and black enamel painting and RCC foundation				
	Supply (tentative qty to be mentioned)	as per actual requirement , to be quoted	KG.		
3.3	Lightning Arrestor , Aviation Lamp & 25X3 GI Strip for Exhaust Structure				
	Supply	2	SET		-
4.0	Control Cables and End terminations -				
	Supply, installation, testing and commissioning of Cable and End termination 1100 voltage cables shall be copper conductor, PVC insulated, FRLS outersheathed and steel wire armored construction Control Cable				
4.1	3Cx2.5 Sqmm,				
	Supply	140	METER		-
4.2	End Termination (Glands, Lugs etc) for above cables				
	Supply	8	NOS		-
4.3	4Cx1.5 Sqmm,				
	Supply	140	METER		-
4.4	End Termination (Glands, Lugs etc) for above cables				
	Supply	20	NOS		-
4.5	12Cx2.5 Sqmm,				
	Supply	140	METER		-
4.6	End Termination (Glands, Lugs etc) for above cables				
	Supply	12	NOS		-
4.5	7Cx2.5 Sqmm,				
	Supply	160	METER		-
4.6	End Termination (Glands, Lugs etc) for above cables				
	Supply	8	NOS		-
	Fuel Tanks & accessories				
	990ltr day fuel tank with canopy shall be fabricated out of 4mm thick MS sheets and shall include the removable cover with locking arrangement, mechanical float valve, painting, providing all the required apparatus like inlet & outlet connection, float valves, external glass tube fuel oil level indicator and low level/high level alarms and necessary MS support arrangement for mounting etc & tanks should be earthed & grounded at both ends. complete as per specification-. Lower Limit : 150 ltrs and upper limit : 900 ltrs	2	NOS		-
	Supply & Fixing of HOSE PIPE OF 1.5 METERS EACH, END CONNECTION WITH MALE & FEMALE	2	NOS		-
	Note:				
	Diesel tanks level calibration should be done, Engraved level marking should be done on SS scale and to be fitted behind the level indicator pipe (should not be screwed). Calibration certificate to be provided.				
	Diesel tank level indicator pipe should be of transparent type.				
	DG breather outlet pipe should be extended outside the DG enclosure & should be extended in the opposite direction of Radiator.				
	Fuel Piping				
	Class " B" 25mm dia M.S. Pipes duly painted of suitable sizes for fuel pumping between Day Tanks/Intermediate tanks, overflow tanks , and engine etc.. Quoted rate shall include Fuel Piping with Ball Valves, flanges, and accessories,necessary hardware, collars, bends, adopters, valves,etc..	40	METER		-
	Class " B" 32mm dia M.S. Pipes duly painted of suitable sizes for fuel pumping between Day Tanks/Intermediate tanks, overflow tanks , and engine etc.. Quoted rate shall include Fuel Piping with Ball Valves, flanges, and accessories,necessary hardware, collars, bends, adopters, valves,etc..	40	METER		-

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	Hand operated fuel transfer pump with flexible hose PVC pipe of 5M length.	2	No		-
	Over flow fuel transfer pump	2	No		-
	Valves				
	Supply & Fixing of 32mm - ball valves and necessary hard ware and flanges.	4	NOS		-
	Supply & Fixing of 25mm - ball valves and necessary hard ware and flanges.	4	NOS		-
5	MISCELLANEOUS ITEMS.				
5.1	Supply and Installation of following safety accessories				
5.2	1.1kV class-1 approved tested quality rubber mat of 6mm thick and 2000mm wide and 1000mm long, installed in front of the electrical boards and other DBs				
	SITC	2	SET		-
5.3	A1 size drawing display board with laminated drawings				
	SITC	1	NOS		-
5.4	Shock treatment chart in English and local language duly framed with glass cover				
	SITC	1	NOS		-
5.5	Danger Boards in English and local language				
	SITC	2	NOS		-
5.6	4.5Kg Class CO2 type portable fire extinguisher				
	SITC	2	NOS		-
5.7	First aid box complete with all standard first aid materials				
	SITC	1	NOS		-
5.8	SET of two sand buckets with stand				
	SITC	1	NOS		-
5.9	SITC and erection of LED Pilot lamp on the DG Exhaust stack structure with 3x1.5sqmm armoured copper cable in suitable MS conduit.	1	LS		-
6.0	CEIG Approval	1	Job		-
7.0	Factory Acceptance Test (Rates on hourly basis per DG-SETs)	8	hour		-
8.0	Site Acceptance Test (Rates on hourly basis per DG-SET) Note: Site testing will be done on the actual load present at site)	RO	hour		
	(FOR 2NOS DG SETS)				
	For Residential Part				
9	DG works for RESIDENTIAL PART				
	S.I.T.C OF 380KVA D.G. SET				
	Supply, installation, Testing & Commissioning of 'Silent Type Diesel Generating SET as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual,Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings:				

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<p>(A) Diesel Engine: Turbocharged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 Degree C, 50% RH & at 1000 METER MSL , capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528. The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications. (B) Engine mounted Instrument Panel fitted with and having digital display for following: (i) Start-stop switch with key (ii) Water temperature indication (iii) Lubrication oil pressure indication (iv) Lubrication oil temperature indication (v) Battery charging indication and Voltage indication (vi) RPM indication (vii) Over speed indication (viii) Low lubrication Oil trip indication (ix) Engine Running Hours indication (x) Fuel Level</p>				
<p>(C) Alternator: Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 METER MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation.</p>				
<p>(D) Base Frame & Foundation: Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.</p>				
<p>(E) FUEL TANK: Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.</p>				
<p>(F) Exhaust System: Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor.</p>				
<p>(G) Starting System: 12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be housed inside the acoustic enclosure of DG SET.</p>				
<p>(H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure. The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications.</p>				

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<p>(I) AMF Panel: Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG SET complete with relays, timers, SET of CTs for METERing & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reative Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminum) and control (copper) cabling of suitable size upto 15 METER between AMF panel, LT Panel and DG SET including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG SET OEM make etc. as per approved by Engineering in charge and including the following:</p> <ol style="list-style-type: none"> 1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip. 2. Auto/Manual/Test/Off selector switch 3. Protection for under and over voltage phase reversal (2 NOS Over voltage relay, 2 NOS. reverse power relay and 2 NOS. under voltage relay). 4. 3 SETs of current transformers 15 P 10 accuracy for protection and 15 VA class-I for METERing 5. Energy analyser unit to indicate current, Voltage(L-N & L-L), kW, kVA (Phase & Total), Frequency, KWH, PF. 6. LED Indicating lamps for load on mains and load on SET. 7. Fuse/ MCB for instruments. 8. Battery charger, complete with transformer/ rectifier, D.C. voltMETER and amMETER, selector switch for trickle, off and boost and current adjustment. 9. Main supply failure monitor. 10. Supply failure timer. 				
<ol style="list-style-type: none"> 11. Restoration timer 12. Control unit with three impulse automatic engine start/stop and failure to start lockout. 13. Impulse counter with locking and reSET facility. 14. ON/OFF/Control circuit switch with indicator 15. Audio/Video annunciation for <ol style="list-style-type: none"> (i) High water temperature (ii) Low lubricating oil pressure (iii) Engine over speed (iv) Engine fails to start (v) Full load/maximum load warning 16. Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories 17. Maintenance notification based on Engine Run Hour & due date. 18. Load Management through PLC to achieve auto opening and closing of incomer breakers, bus coupler switching of essential panel , interlocking providing signal to AMF Panel for load status and AMF shall give command to DG SET to auto start / auto stop depending upon load status and requirement etc. and necessary hardware and software required to perform the operation shall be provided by the 				
<p>380KVA</p>	<p>1.00</p>	<p>EACH</p>		<p>-</p>
<p>TOTAL COST OF DG SET =</p>				<p>0</p>
<p>GRAND TOTAL FOR ELECTRICAL WORK =</p>				<p>-</p>
<p>PART D : FIRE PROTECTIONS, DETECTION & ALARM, EXTINGUISHER, PUBLIC ADDRESS & TALK-BACK SYSTEM</p>				
<p>For Main Commercial Part</p>				
<p>A. FIRE PUMPING SYSTEM.</p>				

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1	<p>Supply, erection, testing & commissioning of Electrical Motor driven main pump, centrifugal horizontal type, with Mechanical Seal capable of deliver 2850 LPM at 70 MWC LOWER HEAD & 120 MWC HIGHER HEAD (Hydrant Pump).</p> <p>Electric driven Main Fire Pump suitable for automatic operation and consisting of following, complete in all respects, as required :</p> <p>(a) Horizontal type, centrifugal, Multi- Stage, Split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.</p> <p>(b) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Suitable cement concrete foundation duly plastered with anti vibration pads.</p>	1	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo/Lubi & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				
2	<p>Supply, erection, testing & commissioning of Electrical Motor driven main pump, centrifugal horizontal type, with Mechanical Seal capable of deliver 2850 LPM at 70 MWC LOWER HEAD & 120 MWC HIGHER HEAD (Sprinkler Pump).</p> <p>Electric driven Main Fire Pump suitable for automatic operation and consisting of following, complete in all respects, as required :</p> <p>(a) Horizontal type, centrifugal, Multi- Stage, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.</p> <p>(b) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Suitable cement concrete foundation duly plastered with anti vibration pads.</p>	1	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo/Lubi & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				
3	<p>Supplying, installation, testing and commissioning of diesel engine driven common stand by pump suitable for automatic operation and consisting of following,complete in all respects, as required : (Diesel DrivenPump) 2850 LPM at 70 MWC LOWER HEAD & 120 MWC HIGHER HEAD (Stand by Pump).</p> <p>(a) Horizontal type, multistage, centrifugal pump of cast of iron body and bronze impeller with stainless steel shaft,mechanical seal conforming to IS1520.Description of Item DSRCode No. Description of Item Unit Rate</p> <p>(b) Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant IS standard complete with auto starting mechanism, 12 /24 volts electric starting equipment, diesel tank, exhaust pipe extended upto 10 m outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer,instruments and protection as per standard specification, stop solenoid for auto stop in the event of fault with audio indications, painted with post office red colour etc. as required.</p> <p>(c) M.S fabricated, common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Suitable cement concrete foundation duly plasteredand with anti vibration pads.</p>	1	Nos		0

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	(Make- Grundfos / Wilo / Kirloskar / CRI Mather Plate & Diesel Engine - Kirloskar/Cummins/CatterPillar /Perkins/Mitsubishi)				
4	Supply, erection, testing & commissioning of electric motor driven Jockey Pump, horizontal, centrifugal type capable to deliver 180LPM at 70 MWC LOWER HEAD & 120 MWC HIGHER HEAD. The pump shall coupled to TEFC motor of suitable KW with speed of 2900 RPM with all accessories mounted on common base frame. Electric driven pressurization pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Jockey Pump) Horizontal type, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS : 1520. Suitable HP squirrel cage induction motor TEFC type suitable for operation on 415 volts, 3 phase 50 Hz AC supply with IP 55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS : 325. M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required. Suitable cement concrete foundation duly plastered and with anti vibration pads.	2	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo/Lubi & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				
7	TERRACE PUMP (BOOSTER PUMP)				
7.1	Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump)- 900 LPM at 35 MWC (a) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical confirming to IS : 1520 b) Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase, 50 Hz, AC supply with IP55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325. (c) M.S.fabricated common base plate, coupling, coupling guard, foundation bolts etc.as required. (d) Suitable cement concrete foundation duly plastered and with anti vibration pads.	1	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				
7.2	Supply, erection, testing & commissioning of compartmentalised COMMON CONTROL PANEL FOR ABOVE TERRACE PUMP. All components shall be housed in a common cubical made of 16 swg. M.S. sheet with required stiffners(if required). The panel shall be powder coated of approved colour both inside and out side. The panel shall have both bottom and top cable entry provisions and panel shall be mounted on pedestal of 300mm height. The panel should have sufficient NO / NC contacts for extending the status of fire pumps to the fire alarm panel. (FOR TERRACE PUMP)	1	Nos		0
	(Make- Tenco System and Switchgear Pvt. Ltd. Indore/ Pristine/ SPC Electrotech Pvt. Ltd /Solution System Bhopal/ Universal Transformers/ Power Control & Equipment, Indore/ RP Control, Noida./ Adlec Power Pvt. Ltd.)				
8	FIRE MCC PANEL (IP 42 RATED & TYPE TESTED AS PER IEC 61439-1, PART-2)				

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	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre shall be fabricated out of 14 gauge CRCA sheet steel in form in 3b formation with reinforcement of suitable size angle iron, channel 'T' sections irons and / flats wherever necessary. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 No. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel before fabrication.. rates shall inclusive of cables, control wiring, earthing and trays (in accordance to specification) with earthing from panel to each motor / equipment.				
a)	<u>Incoming</u>				
	2 Set of 800 amps FP MCCB with the following accessories:				
	a. 0-500 volts 96 x 96 mm square voltmeter with selector switch protected by 2 amps TP MCB. 2 Set.				
	b. 0-800 amps 96 x 96 mm square ammeter with selector switch and 600/5 amps 10 VA CL:1 CTs. 2 Set				
	c. Phase indicating lamps protected by 2 amp SP MCB 6 Sets.				
	800 Amp 4 Pole Auto Transfer Switch with Auto Contoller- 1 Set				
b)	<u>Bus Bar</u>				
	1000 amps TPN (36 KA) aluminium bus bar with heat shrinkable insulation sleeves.				
c)	<u>Outgoings</u>				
1a.	3 No 110 kW Soft starter feeder to Hydrant & Sprinkler Pump motor.				
1b.	Each Feeder consisting of 1 No. TP MCCB (rating as per soft starter incoming feeder) , with suitable rated Contactor & Overload realy .				
2a.	3 No 9.3 kW star delta starter feeder to Jockey Pump motor.	1	set		0
2b.	Each Feeder consisting of 1 No. TPN MCCB (rating as per "Type 2 Coordination Chart") with suitable rated Contactor & Overload realy as per "Type 2 Coordination Chart" .				
3.0	3 Nos. 40 Amp FP MCB (C Series) for Deisel Engine Battery Charger, 1 Nos industrial Socket, 1 nos as Spare.				
	The diesel engine driven fire pump shall start automatically in the event of pressure drop beyond present limit on mains failure or failure of electrical driven pumps to start. AMF logic for starting the diesel engine fire pump with trickle / boost battery charger, DC ammeter Voltmeter, Hooter indication etc. to meet the system requirement.				
	Necessary cable alleys, internal wiring, and interlocking, earthing,auxiliary contact,necessary accessories to triping arrangement to other penel in fire mode etc for all equipment shall also be included.				
	All feeders shall have Potential free contacts for BMS connection – Status – ON,OFF, Trip Command – ON,OFF . All outgoing feeders shall have ON/OFF/Trip indication lamps.				
	<u>Notes :</u>				

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	All MCCBs shall be of 36 KA breaking capacity and suitable for motor duty application. All internal power & control wiring with Halogen free copper wires				
	<u>Note:</u> This panel shall be kept in plant room.				
	Contactor, Overload relay & MCCB should be same manufacturer .				
	FIRE MCC Panel 01 as described above.				
	<u>Notes for Panel :</u>				
	Necessary cable alleys, internal wiring, and interlocking, earthing for all equipment shall also be included.				
	(Make- Tenco System and Switchgear Pvt. Ltd. Indore/ Pristine/ SPC Electrotech Pvt. Ltd /Solution System Bhopal/ Universal Transformers/ Power Control & Equipment, Indore/ RP Control, Noida./ Adlec Power Pvt. Ltd.)				
9	Supply, laying, testing & commissioning of PVC outer sheath, steel armoured, aluminium / copper conductor, 1100 Volt Grade power cables with gland etc. The cable shall be laid in tray / hume pipe / in trenches / on walls / floors etc as required. Cables laid outdoors shall include the price of earth escavation providing brick and sand protection, refilling and compacting the earth.				
a	3 C x 240 sq.mm 'Al' for main pump (Hydrant / Sprinkler)	60	Mtr		0
b	4C x 16 sq.mm 'Al' for Jockey Pump & Terrace pump	90	Mtr		0
c	12C x 2.5 sq.mm for Diesel Engine	20	Mtr		0
d	2C x 1.5 sq.mm for instrumentation	160	Mtr		0
	(Make-RR Kabel/ polycab / Finolex/Havells/Grandlay)				
10	GI earthing strips of 50mm x 6mm thick, strips shall run on floor / ceiling / walls, from pump to control panel with necessary accessories as required.	200	Mtr		0
	(Make- Reputed)				
11	Supplying, Installation, Testing & Commissioning of Bourdon / Diaphragm type (150 mm) pressure gauges to Indicate the Pressure having range of 0 to 16.0 Kg/ cm ² for Pumps as required. with isolation Ball valve suitable for working pressure of 250 PSI Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required.	12	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
12	Supply, installation & commisioning of Pressure switches (Low & High) with isolation Ball valve, SPDT type, of suitable range for pump sets with ball valves and other accessories.	17	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
13	Supply, installation & commisioning of Level switches, with controller of suitable range for pump sets along with ball valves and other accessories. (UGR Tank + Over Head Tank)	10	Nos		0
	(Make- Veksler / Filpro / Sontay / Siemens/ Aci/ Dwyer/Kele/Honeywell)				
14	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				

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a	300 mm NB x 7.1 mm thk	18	Mtr		0
b	250 mm NB x 6.3 mm thk	24	Mtr		0
c	200 mm NB x 6.3 mm thk	12	Mtr		0
d	150 mm NB	120	Mtr		0
e	100 mm NB	90	Mtr		0
f	80 mm NB	12	Mtr		0
g	65 mm NB	12	Mtr		0
h	50 mm NB	18	Mtr		0
k	25 mm NB	12	Mtr		0
15	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
a	Size 300 mm NB	2	Nos		0
c	Size 200 mm NB	4	Nos		0
d	Size 150 mm NB	9	Nos		0
e	Size 100 mm NB	6	Nos		0
f	Size 80 mm NB	3	Nos		0
g	Size 65 mm NB	5	Nos		0
16	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
b	Size 150 mm NB	9	Nos		0
e	Size 65 mm NB	5	Nos		0
17	Supply,Installation, testing & commissioning of Dual Plate type CI Non return Valve (PN16 rating) of following with rubber gasket, GI bolts, nuts, washers etc.				
a	Size 250 mm NB	2	Nos		0
c	Size 100 mm NB	9	Nos		0
d	Size 80 mm NB		Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
18	Supply, installation, testing & commissioning of CI Butterfly valve (Wafer type) PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required.				
a	Size 250 mm NB	3	Nos		0
c	Size 150 mm NB	4	Nos		0
d	Size 100 mm NB	15	Nos		0
g	Size 50 mm NB	5	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-GuruAdvance)				
19	Supply and installation of Ball Valves in Brass Construction with screwed ends. Forged Brass Forged Brass (EN12165 Gr. CW617N) Nickel Plated				
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
a	Size 25 mm NB	5	Nos		0
20	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 :				
	3 way - 150 mm dia M.S. Pipe	1	Set		0

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	(Make- Newage /Minimax/ Safex/safeguard)				
21	Supply & installation of Fire Brigade Draw out 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 with necessary foot valve for reservoir. (100 NB)	1	Nos		0
	(Make- Newage /Minimax/ Superex/safeguard/Omex)				
22	Supply,Installation, testing & commissioning of CI Y-Strainer (PN 16) with matching flanges complete with nuts & bolts stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel matching flanges complete with nuts & bolts.				
a	Size 200 mm NB	4	Nos		0
b	Size 100 mm NB	1	Nos		0
c	Size 80 mm NB	2	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
23	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia gunmetal wheel valve with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	5	Nos		0
	(Make- FABRICATED)				
24	Supplying, installing, testing and commissioning of rubber expansion bellows with accessories like nuts, bolts, etc complete.(Suction + Delivery)				
	(Make- DUNLOP)				
a	200mm NB	4	Nos.		0
b	150mm NB	7	Nos.		0
c	80mm NB	3	Nos.		0
d	65mm NB	5	Nos.		0
25	Providing, installation, testing and commissioning of Anti-vortex plate. 1.Suction for fire Pumps are to be equiped with Anti-vortex plate. 2. The assembly shal consist of a horizontal steel plate that is at least twice the diameter of the suction pipe, on a long radius elbow fitting, where required, mounted at the outlet a distance above the bottom of the tank equal to one half the diameter of the suction pipe. The minimum distance above the bottom of the tank shall be 6inch/ 150mm. 3. After completion of the tank construction, and before filling the tank with water, he anti-vortex plate shall be inspected.				
a	300nb Pipes, Elbow, Puddle Flange & Anti Vortex Plates for Suction	2	Nos.		0
	(Make- Fabricated)				
TOTAL COST OF (FIRE PUMPING SYSTEM - A) =					0
B.	HYDRANT SYSTEM				
1	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Over Ground)				
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
a	200 mm NB x 6.3 mm thk	42	Mtr		0
b	150 mm NB	882	Mtr		0
c	100 mm NB	120	Mtr		0
d	80 mm NB	78	Mtr		0
i	25 mm NB	96	Mtr		0

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	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
2	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding, excavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required. (Under Ground)				
b	150 mm NB	84	Mtr		0
3	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
a	Size 200 NB	4	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
4	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
a	200NB	4	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
5	Supply, installation, testing & commissioning of CI Butterfly valve (Wafer type) PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required.				
a	150 NB	7	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
6	Supply and installation of Ball Valves in Brass Construction with screwed ends. Forged Brass Forged Brass (EN12165 Gr. CW617N) Nickel Plated				
a	Size 25NB (hose reel + air release valve)	60	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
7	Supply, installation, testing & commissioning of automatic spring loaded 25 NB Air Release Valve	5	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
8	Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required :				
	Single headed Stainless steel	40	Set		0
	(Make- Newage /Minimax/Safex/Safeguard)				
9	Supplying and fixing Single headed external yard hydrant valve with 1 No. 63 mm dia instantaneous FM Gunmetal/Stainless Steel coupling and cast iron wheel, ISI marked, conforming to IS 5290 (type A) with blank Gunmetal/Stainless Steel cap and chain as required :				
	Single headed Stainless steel	9	Set		0
	(Make- Newage /Minimax/Safex/Safeguard)				
10	Supplying & fixing 63 mm dia gun metal short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS 903 suitable for instantaneous connection to interconnect hose pipe coupling as required :				
	Stainless Steel (Grade 304)	49	Nos		0
	(Make- Newage /Minimax/Safex/Safeguard)				

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11	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :				
	Stainless Steel (Grade 304)	98	Set		0
	(Make- Newage /Minimax/Safex/Safeguard)				
12	Supply & installation of MS panel with glass front for shaft (door) coverage fabricated from 16 SWG CRCA sheet with lockable arrangements to accommodate 2 RRL hose of 15 m length and one branch pipe painted white inside and red outside with one key. (Size- 2000 X 1200 mm)	38	Nos		0
	(Make-Astral Windoors Pvt. Ltd/Jindal Udyog Limited/JC Fire Door Corporation.)				
13	Supply & installation of MS hose box of fabricated from 16 SWG CRCA sheet double door with lockable arrangements to accommodate 2 RRL hose of 15 m length and one branch pipe painted white inside and red outside with one key. (750x600x250 mm)	9	Nos		0
	(Make- Newage /Minimax/Safex/Safeguard)				
14	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red,conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle. Drum and brackets for fixing the equipments on wall. Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket.				
	30 m	56	Nos		0
	(Make- Newage /Minimax/Safex/Safeguard)				
15	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 :				
	2 way- 100 mm dia M.S. Pipe	4	Set		0
	4 way - 150 mm dia M.S. Pipe	2	Set		0
	(Make- Newage /Minimax/ Safex/safeguard)				
16	Supplying, Installation, Testing & Commissioning of Bourdon / Diaphragm type (150 mm) pressure gauges to Indicate the Pressure having range of 0 to 16.0 Kg/ cm 2 for Pumps as required. with isolation Ball valve suitable for working pressure of 250 PSI Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required.	4	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
TOTAL COST OF (HYDRANT SYSTEM - B) =					0
C. AUTOMATIC SPRINKLER SYSTEM.					
1	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Over Ground)				
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
a	200 mm NB x 6.3 mm thk	60	Mtr		0
b	150 mm NB	510	Mtr		0
c	100 mm NB	906	Mtr		0

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d	80 mm NB	672	Mtr		0
e	65 mm NB	750	Mtr		0
f	50 mm NB	942	Mtr		0
g	40 mm NB	1206	Mtr		0
h	32 mm NB	378	Mtr		0
i	25 mm NB	4690	Mtr		0
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
3	Supply & installation of SS Sprinkler Head , K-80, chrome finish. Sprinklers- 15mm dia quartzite bulb type sprinklers of rating 68 degree centigrade with required accessories: Pendent Sprinkler, Upright Sprinkler, Horizontal side wall sprinkler, Concealed sprinkler in M.S. pipe line including connection etc. as required.				
a	Pendent type- 68 Deg (Standard Response)	2297	Nos		0
b	Upright type- 68 Deg (Standard Response)	612	Nos		0
c	Sidewall type- 68 Deg (Standard Response)	55	Nos		0
	(Make- HD/TYCO/Viking/safex)				
4	Supply & fixing of Installation Control Valve complete with trims & gong control valve of cast iron body, brass/bronze working parts comprising of watermotor alarm, bronze seat clapper, clapper arm and hydraulically driven mechanical gong bell to soundcontinuous alarm when the wet riser/sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves,MS pipe of required size, flanges, orifice plate, gasket etc of following sizes as required :				
a	200 NB	2	Nos		0
	(Make- HD fire /Newage/padmini/ Safex/Tyco)				
5	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
a	Size 150 mm NB	4	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
6	Providing & fixing flow switch in following sizes M.S.pipe including connection etc as required.				
a	150 NB	14	Nos		0
b	100 NB	24	Nos		0
	(Make- System sensor/plotter/Johnson control/Honeywell/ Siemens)				
7	Supply,Installation, testing & commissioning of Duel Plate type CI Non return Valve (PN16 rating) of following sizes with rubber gasket, GI bolts, nuts, washers etc.				
a	150NB	14	Nos		0
b	100 NB	24	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
8	Supply, installation, testing & commissioning of CI Butterfly valve (Wafer type) PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required.				
a	Size 150 mm NB	14	Nos		0
b	Size 100 mm NB	24	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-GuruAdvance)				

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9	Supply and installation of Ball Valves in Brass Construction with screwed ends. Forged Brass Forged Brass (EN12165 Gr. CW617N) Nickel Plated				
b	40 NB	39	Nos		0
d	25 NB	4	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
10	Supply,installation,testing & commissioning of automatic spring loaded 25 N	4	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
11	Supplying, Installation, Testing & Commissioning of Bourdon / Diaphragm type (150 mm) pressure gauges to Indicate the Pressure having range of 0 to 16.0 Kg/ cm ² for Pumps as required. with isolation Ball valve suitable for working pressure of 250 PSI Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required.	4	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
12	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
a	Size 200 mm NB	4	Nos		0
b	Size 150 mm NB	4	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/Advance)				
13	Supplying, installation, testing & commissioning of sprinkler flexible pipe (UL Listed) of stainless steel complete with 15 NPT on reducer thread with maximum working pressure of 175 PSI test pressure of 875 PSI (Burst) with branch line (Inlet) 25mm NPT male thread to sprinkler head (Outlet) 15mm NPT female thread with reducer, nipple, 2 side brackets, center bracket, stockbar of following sizes complete as required.				
a	700mm Long	197	Nos		0
b	1000mm Long	1500	Nos		0
c	1200mm Long	500	Nos		0
d	1500mm Long	100	Nos		0
	(Make- HD/TYCO/Viking/safex)				
TOTAL COST OF (AUTOMATIC SPRINKLER SYSTEM) =					0
D. AUTOMATIC DETECTION & ALARM SYSTEM					
1.1	Supplying, installation, testing and commissioning of micro processor based intelligent addressable main fire alarm panel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics/ LCD display with touch screen or other keypad and minimum 4000 events history log in the non volatile memory (EPROM), power supply unit (230 ± 5 % V, 50 hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger. The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evacuation system (which is part of the schedule of work under SH: PA System) and shall be complete with all accessories. The panel shall be compatible for IBMS system with open protocol BACnet/ Modbus over IP complete as per specifications.				
a)	10-loop Panel Moduler Type	1	Nos		0
	(Make - Honeywell/ Bosch / Siemens/Edwards/simplex)				

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1.2	Supplying, installation, testing and commissioning of central Graphical fire alarm management system to centrally monitor & operate the fire alarm system complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	8	Nos		0
2	24V, 10 AMP SMPS- INDUSTRIAL STANDERD- DIN MOUNT (Make - GIC, Minwell, VIP, Antec)	1	Nos		0
3	SITC of Active Networkable Repeater Panel for mimic display with controler complete with minimum suitable feather touch/ touch screen/keypad display with 600 character LCD to indicate the status of system and location of incident etc., back box and with control function. The Repeater panel shall be enclosed in a suitable locking type metallic cabinet for protection. Panel shall have Designed to meet EN54 / UL864, 10th Edition. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
4	SITC of intelligent analog addressable photothermal Detector complete with Mounting base Complete as required, inbuilt isolator UI listed, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	606	Nos		0
5	SITC of intelligent addressable thermal Detector with rate of rise cum fixed temprature thermistor complete with base as required, inbuilt isolator UI listed, conforming to IS:2189. (Make -Honeywell/ Bosch / Siemens/Edwards/simplex)	203	Nos		0
6	SITC of intelligent analog addressable Multi Criteria Detector complete with Mounting base Complete as required, inbuilt isolator UI listed, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	70	Nos		0
8	SITC of Analogue addressable Manual Call Point complete with interface module with inbuilt isolator & all accessories, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	70	Nos		0
9	Supply, Installation, Testing & Commissioning of fire alarm sounder with facility to make announcement, Mounted in M.S Box (16 swg) with hinged cover plate & suitable for operation with amplifire i/c line matching transformer etc. Complete as required. (Make - System Sensor, SYS-HSR-FIRE /Edwards/simplex)	70	Nos		0
10	SITC of Analogue addressable Control Module with inbuilt isolator & all accessories, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	26	Nos		0
11	SITC of Analogue addressable Monitor Module with isolator for 3rd party interlocking & all accessories, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	38	Nos		0
13	SITC of Analogue addressable Control Relay Module with inbuilt isolator & all accessories, conforming to IS:2189. for AHU Tripping (Make - Honeywell/ Notifier/ Bosch /Siemens/Edwards/simplex)	21	Nos		0
14	SITC of Autodialer for Remote Alart information Over Phone. (Make - Securico, Ases)	1	Nos		0
15	SITC of FRLS ARMOURED CABLING (RED) complete with lugs, laying and termination of both ends, conforming to IS:2189.				
a	2C x 1.5 sqmm Loop Cable	12500	Mtr		0
b	2C x 1.5 sqmm Power Cable	4400	Mtr		0

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	(Make- RR Kabel /Polycab / Lapp/ Bonton/Avocab)				
TOTAL (AUTOMATIC DETECTION & ALARM SYSTEM)					0
E.	PA SYSTEM & TALK-BACK SYSTEM				
1	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
2	Supply, Installation, Testing & Commissioning of Voice Command Keypad 6 Zone, with microphone assembly complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
3	Supply, Installation, Testing & Commissioning of Digital Audio Amplifier 75 watt, 25V rms operating at 240 volt AC supply complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	4	Nos		0
4	Supply, erection, testing & commissioning of Ceiling/ Wall mounted loud Speakers, 3/1.5 watt in ABS enclosure complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	93	Nos		0
5	Supply, erection, testing & commissioning of 1.5/3/6Watt Metal Box Ceiling/Wall mounted Speakers complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	255	Nos		0
6	Supply, laying & fixing of ARMOURED CABLING complete with lugs, laying and termination of both ends. (Audio Speaker Cable)				
a	2c x 1.5 sqmm Speaker cable (Single pair) (Make- RR Kabel / Lapp /Polycab /Belden /Havells/Plutronl)	6500	Mtr		0
7	Supply, erection, testing & commissioning of Telephone Jack as per the standrd engineering practice & Engineering Incharge Decision. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	42	Nos		0
8	Supply, erection, testing & commissioning of Master Hand-set with all accessories, as per the standrd engineering practice & Engineering Incharge Decision. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
9	Supply, laying & fixing of Telephone cable (FRLS) through M.S conduit.with all accessories, as per the standrd engineering practice & Engineering Incharge Decision.				
a	Two pair 0.5 Sq.mm Copper Twisted cable for Talk-Back System (Make- RR Kabel / Lapp /Polycab /Belden /Havells/Plutronl)	2600	Mtr		0
TOTAL COST (PA SYSTEM & TALK-BACK SYSTEM) =					0
F.	PORTABLE EXTINGUISHERS				
1	Supply & fixing Clean Agent HFC-236 type Fire Extinguisher 6 kg. Capacity with discharge hose and nozzle consisting of welded cylinder, squeeze lever discharge valve fitted with pressure indicating gauge, internal discharge tube, and discharge nozzle suspension bracket. Conforming to IS: 15683: 2018 duly charged and pressurized with Nitrogen Gas, Suitable for operating between +5°C to +60°C. Fire Rating Class- 1A & 55B. (Make-Cease fire/Safex/minimax/safeguard)	5	Nos		0

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2	Supply & fixing CO2 type Fire Extinguisher 4.5 Kg. capacity Conforming to IS: 15683: 2018 made from seamless cylinder conforming to IS: 7285 duly approved by Chief Controller of Explosive, Nagpur, and Fitted with ISI Marked Controlled Valve Conforming to IS: 3224, high pressure 1 mtr. Long discharge hose and horn complete with initial gas charged with carrying handle and wall mounting bracket, suitable for operating between -30°C to +60°C, Fire Rating Class- 34B.	40	Nos	0
	(Make-Cease fire/Safex/minimax/safeguard)			
3	Supply & fixing Foam (AFFF) type Fire Extinguisher 9 ltrs. Capacity fitted with Forged Brass squeeze lever discharge valve, conforming to IS: 15683: 2018, complete with initial refill consisting of ISI Marked Co2 gas cartridge of 60gms capacity conforming to IS: 4947 and ISI marked AFFF conforming to IS: 4989 suitable for operating between +5°C to +60°C, Fire Rating Class- 2A & 89B.	2	Nos	0
	(Make-Cease fire/Safex/minimax/safeguard)			
4	Supply & fixing Modular Automatic Clean Agent HFC-236 type Fire Extinguisher 5 kg. Capacity suitable for covering 13.25 Cu.m. (465 Cu.ft.) volume made of M.S. body treated against corrosion fitted with heat sensitive glass bulb sprinkler heads (68°C/79°C), Pressure indicator, arrangement for fixing to the ceiling pressurized with nitrogengas to 15 Kg/cm2.	18	Nos.	0
	(Make-Cease fire/Safex/minimax/safeguard)			
5	Supply & fixing Modular Automatic ABC Type Fire Extinguisher 5 kg. Capacity suitable for covering 13.25 Cu.m. (465 Cu.ft.) volume made of M.S. body treated against corrosion fitted with heat sensitive glass bulb sprinkler heads (68°C/79°C), Pressure indicator, arrangement for fixing to the ceiling pressurized with nitrogengas to 15 Kg/cm2.	18	Nos.	0
	(Make-Cease fire/Safex/minimax/safeguard)			
6	Supply & fixing ABC Powder type Fire Extinguisher 6 Kg. capacity (Stored Pressure) with discharge hose and nozzle, consisting of welded cylinder, squeeze lever discharge valve fitted with pressure indicating gauge, internal discharge tube, and discharge nozzle suspension bracket, Conforming to IS: 15683: 2018 duly charged with ISI Marked Mono Ammonium Phosphate base ABC Powder conforming to IS: 4308 and pressurized with Nitrogen Gas, suitable for operating between -30°C to +60°C, Fire Rating Class- 3A & 89B.	40	Nos	0
	(Make-Cease fire/Safex/minimax/safeguard)			
7	Supply,Installation,Testing and Commisioning of the Fire Buckets 9 ltrs capacity round the bottom with all necessary fittings as required. (Buckets wirth Stand or Walls Hooks) Location -Every Stair case half landing.	14	Nos	0
8	Buckets wirth Stand (ISA- 50X50X6 mm)	2	Nos	0
TOTAL COST OF (PORTABLE EXTINGUISHERS) =				0
G.	GAS SUPPRESSION SYSTEM			
B	FIRESPOT® Automatic Panel Protection System for Main LT Panel- 1, APFC PANEL-2, HT PANEL (RMU) CLIENT-1, HT PANEL (RMU) SUPPLY AUTHORITY -1, OFFICE BLOCK (INCOMMER MCCB, FLOOR FEEDER, UPS PANEL, UTILITY PANEL, HVAC PANEL, FIRE PANEL ETC.)-22 NOS, RESIDENTIAL BUILDING+ 2 NOS BLOCK (COMMON AREA PANEL- INCOMER MCCB) - 2 NOS. TOTAL NO OF PANEL- 29 NOS PANEL.			

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1	FIRESHOT® Automatic Panel Protection System, Pure Polyester Powder Coated cylinder filled with UL & FM Approved Grenoz® Clean agent (Non HFC) and fitted with UL Listed Fire detecting polyamide tube of length as required.				
1.1	Minimax Grenoz® FIRESHOT® 2 kg with Pressure Switch	29	Nos		0
1.2	Polymer Tube (FIRESHOT®) - per Meter	375	Mtr.		0
1.3	Hooter cum Flasher (FIRESHOT® System)	29	Nos		0
1.4	Fire Suppression Monitoring Panel (FIRESHOT®)	29	Nos		0
	(Make- Honeywell / Minimax/Safex)				
TOTAL (GAS SUPPRESSION SYSTEM - G)					0
H. STRUCTURE					
a	Providing and fixing of structural support for installation of Fire Pipes. (In structure ISMC, ISA considered.)	360	Kg		0
I. SIGNAGES					
1	Supply and installation in position the "FIRE EXIT" Sign with luminicent colour having size 300 x 100 mm.	108	Nos		0
	(Make- PROLITE/BAJAJ/CROMPTON/PHILIPS/WIPRO/HAVELLS/LEGRAND)				
2	Supply and fixing in position the signages " FIRE ORDER" contain the following matter on 3 mm thick "Opaque" PVC foam board of computerised cut, PVC non-reflective self adhesive vinyl painted foam board of size 1200 x 1000 mm.	36	Nos		0
	(Make- PROLITE/BAJAJ/CROMPTON/PHILIPS/WIPRO/HAVELLS/LEGRAND)				
a	ALERT THE SECURITY AT SECURITY ROOM BY ACTUATING MANUAL CALL POINT LOCATED AT STRATEGIC LOCATION.				
b	EVACUATE THE OCCUPANTS BY USING FIRE EXIT AND EMERGENCY EXITS ONLY AND ASSEMBLE AT ASSEMBLY POINTS.				
c	BE CALM AND DO NOT GET PANIC, WALK DO NOT RUN				
d	IF POSSIBLE TRY TO EXTINGUISH FIRE BY USING NEAREST / SUITABLE PORTABLE EXTINGUISHER OR WATER FROM NEAREST WET RISER.				
3	Supply and fixing signage with printed " IN CASE OF FIRE, DO NOT USE LIFT. USE STAIRS ONLY" OF 1.5 cm height letters in red with white background. The size of the board shall be 300 x 250 mm and shall be fixed at the height of 2 mtrs.from finished floor near Manual Call Point.	54	Nos		0
	(Make- PROLITE/BAJAJ/CROMPTON/PHILIPS/WIPRO/HAVELLS/LEGRAND)				
TOTAL COST OF (SIGNAGES) =					0
J. WATER CURTAIN SYSTEM					
1	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Over Ground/ up steam)				
c	100 mm NB	42	Mtr		0

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d	80 mm NB (Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)	12	Mtr		0
2	Providing, laying, testing & commissioning of 'B' class medium duty GI pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Down steam)				
c	80 NB	24	Mtr		0
d	65 NB	42	Mtr		0
e	50 NB	30	Mtr		0
f	40 NB (Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)	24	Mtr		0
3	Supplying, installation, testing & commissioning of deluge valve (to be used for water curtains) UL listed with wet pilot basic trim assembly for DVA with test and alarm, drip and drain valve with water motor gong complete as required.				
	Size 80 NB (Make- HD,Newage, DE'S TECHNICO)	2	Nos		0
4	Providing, installation, testing & commissioning of electric release trim assembly for deluge wall with two way solenoid valve, weather proof operation on 24volts DC supply complete as required. (Make- HD,Newage, DE'S TECHNICO)	2	Nos		0
5	Supply,Installation, testing & commissioning of CI Y-Strainer (PN 16) with matching flanges complete with nuts & bolts stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel matching flanges complete with nuts & bolts.				
	Size 80 mm NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)	2	Nos		0
6	Providing, installation, testing & commissioning of water curtain nozzle 15mm dia nickel chrome plated brass, BSPT, K-factor as per design consideration complete as required. SS Water Curtain Nozzle (K - 23) (Make-HD FIRE, TYCO, VIKING)	36	Nos		0
7	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
b	Size 80 mm NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)	2	Nos		0
8	Supply, installation, testing & commissioning of local DV Conrol Panel complete with all accessories. (Make- Any reputed make)	2	Nos		0
9	Supply, installation, testing & commissioning of CI Butterfly valve (Wafer type) PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required.				
b	Size 80 mm NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-GuruAdvance)	30	Nos		0
	TOTAL COST OF (WATER CURTAIN SYSTEM)=				0
	For Residential Part				
A.	FIRE PUMPING SYSTEM.				

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5	<p>Supply, erection, testing & commissioning of Electrical Motor driven main pump, centrifugal horizontal type, with Mechanical Seal capable of deliver 2850 LPM at 120 MWC (Hydarnt Pump).</p> <p>Electric driven Main Fire Pump suitable for automatic operation and consisting of following, complete in all respects, as required :</p> <p>(a) Horizontal type, centrifugal, Multi- Stage, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal conforming to IS 1520.</p> <p>(b) Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 volts, 3 phase 50 Hz, AC supply with IP 55 protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Suitable cement concrete foundation duly plastered with anti vibration pads.</p>	1	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo/Lubi & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				
6	<p>Supply, erection, testing & commissioning of electric motor driven Jockey Pump, horizontal, centrifugal type capable to deliver 180LPM at 120 MWC. The pump shall coupled to TEFC motor of suitable KW with speed of 2900 RPM with all accessories mounted on common base frame.</p> <p>Electric driven pressurization pump suitable for automatic operation and consisting of following, complete in all respects, as required : (Jockey Pump)</p> <p>Horizontal type, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal conforming to IS : 1520. Suitable HP squirrel cage induction motor TEFC type suitable for operation on 415 volts, 3 phase 50 Hz AC supply with IP 55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS : 325. M.S. fabricated Common base plate, coupling, coupling guard, foundation bolts etc. as required. Suitable cement concrete foundation duly plastered and with anti vibration pads.</p>	1	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo/Lubi & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				
7	TERRACE PUMP (BOOSTER PUMP)				
7.1	<p>Supplying, installation, testing and commissioning of electric driven terrace pump suitable for automatic operation and consisting of following, complete in all respects, as required: (Terrace Pump)- 900 LPM at 35 MWC</p> <p>(a) Horizontal type, multistage, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical confirming to IS : 1520</p> <p>b) Suitable HP squirell cage induction motor TEFC type suitable for operation on 415 volts, 3 phase, 50 Hz, AC supply with IP55 class of protection for enclosure, horizontal foot mounted type with Class-'F' insulation, conforming to IS-325.</p> <p>(c) M.S. fabricated common base plate, coupling, coupling guard, foundation bolts etc. as required.</p> <p>(d) Suitable cement concrete foundation duly plastered and with anti vibration pads.</p>	3	Nos		0
	(Make- Pump - Mather & Platt/ Kirloskar / KSB /Grundfos/Wilo & Motor - ABB/ Siemens/ Crompton Greaves/ Kirloskar)				

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7.2	Supply, erection, testing & commissioning of compartmentalised COMMON CONTROL PANEL FOR ABOVE TERRACE PUMP. All components shall be housed in a common cubical made of 16 swg. M.S. sheet with required stiffeners(if required). The panel shall be powder coated of approved colour both inside and out side. The panel shall have both bottom and top cable entry provisions and panel shall be mounted on pedestal of 300mm height. The panel should have sufficient NO / NC contacts for extending the status of fire pumps to the fire alarm panel. (FOR TERRACE PUMP)	3	Nos		0
	(Make- Tenco System and Switchgear Pvt. Ltd. Indore/ Pristine/ SPC Electrotech Pvt. Ltd /Solution System Bhopal/ Universal Transformers/ Power Control & Equipment, Indore/ RP Control, Noida./ Adlec Power Pvt. Ltd.)				
3.0	3 Nos. 40 Amp FP MCB (C Series) for Deisel Engine Battery Charger, 1 Nos industrial Socket, 1 nos as Spare.				
	The diesel engine driven fire pump shall start automatically in the event of pressure drop beyond present limit on mains failure or failure of electrical driven pumps to start. AMF logic for starting the diesel engine fire pump with trickle / boost battery charger, DC ammeter Voltmeter, Hooter indication etc. to meet the system requirement.				
	Necessary cable alleys, internal wiring, and interlocking, earthing,auxiliary contact,necessary accesories to triping arrangement to other penel in fire mode etc for all equipment shall also be included.				
	All feeders shall have Potential free contacts for BMS connection – Status – ON,OFF, Trip Command – ON,OFF . All outgoing feeders shall have ON/OFF/Trip indication lamps.				
	<u>Notes :</u>				
	All MCCBs shall be of 36 KA breaking capacity and suitable for motor duty application. All internal power & control wiring with Halogen free copper wires				
	<u>Note:</u> This panel shall be kept in plant room.				
	Contactora, Overload relay & MCCB should be same manufacturer .				
	FIRE MCC Panel 01 as described above.				
	<u>Notes for Panel :</u>				
	Necessary cable alleys, internal wiring, and interlocking, earthing for all equipment shall also be included.				
	(Make- Tenco System and Switchgear Pvt. Ltd. Indore/ Pristine/ SPC Electrotech Pvt. Ltd /Solution System Bhopal/ Universal Transformers/ Power Control & Equipment, Indore/ RP Control, Noida./ Adlec Power Pvt. Ltd.)				
9	Supply, laying, testing & commissioning of PVC outer sheath, steel armoured, aluminium / copper conductor, 1100 Volt Grade power cables with gland etc. The cable shall be laid in tray / hume pipe / in trenches / on walls / floors etc as required. Cables laid outdoors shall include the price of earth escavation providing brick and sand protection, refilling and compacting the earth.				
b	4C x 16 sq.mm 'Al' for Jockey Pump & Terrace pump	90	Mtr		0
d	2C x 1.5 sq.mm for instrumentation	30	Mtr		0
	(Make-RR Kabel/ polycab / Finolex/Havells/Grandlay)				
10	GI earthing strips of 50mm x 6mm thick, strips shall run on floor / ceiling / walls, from pump to control panel with necessary accessories as required.	60	Mtr		0

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	(Make- Reputed)				
11	Supplying, Installation, Testing & Commissioning of Bourdon / Diaphragm type (150 mm) pressure gauges to Indicate the Pressure having range of 0 to 16.0 Kg/ cm 2 for Pumps as required. with isolation Ball valve suitable for working pressure of 250 PSI Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required.	9	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
12	Supply, installation & commisioning of Pressure switches (Low & High) with isolation Ball valve, SPDT type, of suitable range for pump sets with ball valves and other accessories.	6	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
13	Supply, installation & commisioning of Level switches, with controller of suitable range for pump sets along with ball valves and other accessories. (UGR Tank + Over Head Tank)	12	Nos		0
	(Make- Veksler / Filpro / Sontay / Siemens/ Aci/ Dwyer/Kele/Honeywell)				
14	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required :				
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
e	100 mm NB	60	Mtr		0
f	80 mm NB	48	Mtr		0
15	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
e	Size 100 mm NB	3	Nos		0
17	Supply,Installation, testing & commissioning of Duel Plate type CI Non return Valve (PN16 rating) of following with rubber gasket, GI bolts, nuts, washers etc.				
d	Size 80 mm NB	6	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
18	Supply, installation, testing & commissioning of CI Butterfly valve (Wafer type) PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required.				
d	Size 100 mm NB	12	Nos		0
e	Size 80 mm NB	3	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-GuruAdvance)				
22	Supply,Installation, testing & commissioning of CI Y-Strainer (PN 16) with matching flanges complete with nuts & bolts stainless steel Y-strainer fabricated out of 1.6 mm thick stainless steel, Grade 304, sheet with 3 mm dia holes with stainless steel matching flanges complete with nuts & bolts.				
b	Size 100 mm NB	3	Nos		0

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	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
	TOTAL COST OF (FIRE PUMPING SYSTEM) =				0
B.	HYDRANT SYSTEM				
1	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Over Ground)				
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
b	150 mm NB	204	Mtr		0
c	100 mm NB	84	Mtr		0
d	80 mm NB	42	Mtr		0
i	25 mm NB	60	Mtr		0
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
2	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding, excavation & providing cement concrete blocks as supports, anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required. (Under Ground)				
b	150 mm NB	60	Mtr		0
3	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
b	Size 150 NB	3	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
4	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
b	150NB	3	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
6	Supply and installation of Ball Valves in Brass Construction with screwed ends. Forged Brass Forged Brass (EN12165 Gr. CW617N) Nickel Plated				
a	Size 25NB (hose reel + air release valve)	42	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
7	Supply, installation, testing & commissioning of automatic spring loaded 25 NB Air Release Valve	3	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)				
8	Supplying and fixing single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank Gunmetal/Stainless Steel cap and chain as required :				
	Single headed Stainless steel	42	Set		0
	(Make- Newage /Minimax/Safex/Safeguard)				
10	Supplying & fixing 63 mm dia gun metal short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS 903 suitable for instantaneous connection to interconnect hose pipe coupling as required :				
	Stainless Steel (Grade 304)	42	Nos		0

	(Make- Newage /Minimax/Safex/Safeguard)				
11	Supplying and fixing 63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A) as required :				
	Stainless Steel (Grade 304)	84	Set		0
	(Make- Newage /Minimax/Safex/Safeguard)				
12	Supply & installation of MS panel with glass front for shaft (door) coverage fabricated from 16 SWG CRCA sheet with lockable arrangements to accommodate 2 RRL hose of 15 m length and one branch pipe painted white inside and red outside with one key. (Size- 2000 X 1200 mm)	42	Nos		0
	(Make-Astral Windoors Pvt. Ltd/Jindal Udyog Limited/JC Fire Door Corporation.)				
14	Supplying and fixing first-aid Hose Reel with MS construction spray painted in post office red,conforming to IS 884 complete with the following as required. 20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle. Drum and brackets for fixing the equipments on wall. Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket.				
	30 m	39	Nos		0
	(Make- Newage /Minimax/Safex/Safeguard)				
15	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 :				
	2 way- 100 mm dia M.S. Pipe	3	Set		0
	(Make- Newage /Minimax/ Safex/safeguard)				
16	Supplying, Installation, Testing & Commissioning of Bourdon / Diaphragm type (150 mm) pressure gauges to Indicate the Pressure having range of 0 to 16.0 Kg/ cm 2 for Pumps as required. with isolation Ball valve suitable for working pressure of 250 PSI Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required.	3	Nos		0
	(Make- Fiebig/ H-Guru / Switzer/Danfoss)				
TOTAL COST OF (HYDRANT SYSTEM) =					0
C.	AUTOMATIC SPRINKLER SYSTEM.				
1	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required : (Over Ground)				
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
d	80 mm NB	18	Mtr		0
e	65 mm NB	12	Mtr		0
f	50 mm NB	54	Mtr		0
g	40 mm NB	60	Mtr		0
h	32 mm NB	66	Mtr		0
i	25 mm NB	582	Mtr		0
	(Make-Tata /Jindal (Hisar)/SAIL/ Praksh surya)				
2	Providing laying, testing & commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 i/c fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. in ground including welding, excavation & providing cement concrete blocks as supports,anticorrosive treatment with coaltar/asphalt tape as per IS 10221, refilling the trench etc. of following sizes complete as required. (Under Ground)				

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c	100 mm NB	60	Mtr		0
3	Supply & installation of SS Sprinkler Head , K-80, chrome finish. Sprinklers- 15mm dia quartzite bulb type sprinklers of rating 68 degree centigrade with required accessories: Pendent Sprinkler, Upright Sprinkler, Horizontal side wall sprinkler, Concealed sprinkler in M.S. pipe line including connection etc. as required.				
a	Pendent type- 68 Deg (Standard Response) (Make- HD/TYCO/Viking/safex)	135	Nos		0
5	Providing, installation, testing and commissioning of non-return valve of following sizes confirming to IS: 5312 complete with rubber gasket, GI bolts, nuts, washers etc.as required :				
a	Size 150 mm NB	1	Nos		0
b	Size 100 mm NB	1	Nos		0
c	Size 80 mm NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)	1	Nos		0
6	Providing & fixing flow switch in following sizes M.S.pipe including connection etc as required.				
a	150 NB		Nos		0
b	100 NB		Nos		0
c	80 NB (Make- System sensor/plotter/Johnson control/Honeywell/ Siemens)	1	Nos		0
7	Supply,Installation, testing & commissioning of Duel Plate type CI Non return Valve (PN16 rating) of following sizes with rubber gasket, GI bolts, nuts, washers etc.				
c	80 NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)	1	Nos		0
8	Supply, installation, testing & commissioning of CI Butterfly valve (Wafer type) PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095 of following sizes as required.				
c	Size 80 mm NB	1	Nos		0
e	Size 50 mm NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-GuruAdvance)	3	Nos		0
9	Supply and installation of Ball Valves in Brass Construction with screwed ends. Forged Brass Forged Brass (EN12165 Gr. CW617N) Nickel Plated				
b	40 NB	4	Nos		0
c	32 NB	5	Nos		0
d	25 NB (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)	72	Nos		0
10	Supply,installation,testing & commissioning of automatic spring loaded 25 NB Air Release Valve (Make- Kirloskar /Sant /castle/ Kartar/Zoloto/ H-Guru/Advance)	3	Nos		0
11	Supplying, Installation, Testing & Commissioning of Bourdon / Diaphragm type (150 mm) pressure gauges to Indicate the Pressure having range of 0 to 16.0 Kg/ cm 2 for Pumps as required. with isolation Ball valve suitable for working pressure of 250 PSI Cost shall be inclusive of providing any short pieces, nipples, elbows etc as required. (Make- Fiebig/ H-Guru / Switzer/Danfoss)	3	Nos		0

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12	Supplying, fixing, testing & commissioning of double flanged sluice valve of rating PN 1.6 with non rising spindle, bronze/gun metal seat, ISI marked complete with nuts, bolts, washers, gaskets and conforming to IS 780 of following sizes as required :				
b	Size 150 mm NB	1	Nos		0
c	Size 100 mm NB	1	Nos		0
d	Size 80 mm NB	1	Nos		0
	(Make- Kirloskar /Sant /castle/ Kartar/Zoloto/Advance)				
	TOTAL COST OF(AUTOMATIC SPRINKLER SYSTEM) =				0

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D. AUTOMATIC DETECTION & ALARM SYSTEM					
1.1	Supplying, installation, testing and commissioning of micro processor based intelligent addressable main fire alarm panel, central processing unit with the following loop modules and capable of supporting not less than 240 devices (including detectors) and minimum 120 detectors per loop and loop length up to 2 km, network communication card, minimum 320 character graphics/ LCD display with touch screen or other keypad and minimum 4000 events history log in the non volatile memory (EPROM), power supply unit (230 ± 5 % V, 50 hz), 48 hrs back-up with 24 volt sealed maintenance free batteries with automatic charger. The panel shall have facility to connect printer to printout log and facility to have seamless integration with analog/digital voice evacuation system (which is part of the schedule of work under SH: PA System) and shall be complete with all accessories. The panel shall be compatible for IBMS system with open protocol BACnet/ Modbus over IP complete as per specifications.				
b)	02-loop Panel Moduler Type (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	2	Nos		0
1.2	Supplying, installation, testing and commissioning of central Graphical fire alarm management system to centrally monitor & operate the fire alarm system complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	2	Nos		0
2	24V, 10 AMP SMPS- INDUSTRIAL STANDERD- DIN MOUNT (Make - GIC, Minwell, VIP, Antec)	2	Nos		0
4	SITC of intelligent analog addressable photothermal Detector complete with Mounting base Complete as required, inbuilt isolator UI listed, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	73	Nos		0
6	SITC of intelligent analog addressable Multi Criteria Detector complete with Mounting base Complete as required, inbuilt isolator UI listed, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	3	Nos		0
8	SITC of Analogue addressable Manual Call Point complete with interface module with inbuilt isolator & all accessories, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	41	Nos		0
9	Supply, Installation, Testing & Commissioning of fire alarm sounder with facility to make announcement, Mounted in M.S Box (16 swg) with hinged cover plate & suitable for operation with amplifire i/c line matching transformer etc. Complete as required. (Make - System Sensor, SYS-HSR-FIRE /Edwards/simplex)	41	Nos		0
10	SITC of Analogue addressable Control Module with inbuilt isolator & all accessories, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	39	Nos		0
11	SITC of Analogue addressable Monitor Module with isolator for 3rd party interlocking & all accessories, conforming to IS:2189. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
15	SITC of FRLS ARMOURED CABLING (RED) complete with lugs, laying and termination of both ends, conforming to IS:2189.				
a	2C x 1.5 sqmm Loop Cable	2500	Mtr		0
b	2C x 1.5 sqmm Power Cable (Make- RR Kabel /Polycab / Lapp/ Bonton/Avocab)	1300	Mtr		0
TOTAL COST (AUTOMATIC DETECTION & ALARM SYSTEM) =					0

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E.	PA SYSTEM & TALK-BACK SYSTEM				
1	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
2	Supply, Installation, Testing & Commissioning of Voice Command Keypad 6 Zone, with microphone assembly complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	1	Nos		0
3	Supply, Installation, Testing & Commissioning of Digital Audio Amplifier 75 watt, 25V rms operating at 240 volt AC supply complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	2	Nos		0
4	Supply, erection, testing & commissioning of Ceiling/ Wall mounted loud Speakers, 3/1.5 watt in ABS enclosure complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	43	Nos		0
5	Supply, erection, testing & commissioning of 1.5/3/6Watt Metal Box Ceiling/Wall mounted Speakers complete as required. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	4	Nos		0
6	Supply, laying & fixing of ARMOURED CABLING complete with lugs, laying and termination of both ends. (Audio Speaker Cable)				
a	2c x 1.5 sqmm Speaker cable (Single pair) (Make- RR Kabel / Lapp /Polycab /Belden /Havells/Plutronl)	1500	Mtr		0
7	Supply, erection, testing & commissioning of Telephone Jack as per the standrd engineering practice & Engineering Incharge Decision. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	41	Nos		0
8	Supply, erection, testing & commissioning of Master Hand-set with all accessories, as per the standrd engineering practice & Engineering Incharge Decision. (Make - Honeywell/ Bosch / Siemens/Edwards/simplex)	2	Nos		0
9	Supply, laying & fixing of Telephone cable (FRLS) through M.S conduit.with all accessories, as per the standrd engineering practice & Engineering Incharge Decision.				
a	Two pair 0.5 Sq.mm Copper Twisted cable for Talk-Back System (Make- RR Kabel / Lapp /Polycab /Belden /Havells/Plutronl)	1000	Mtr		0
TOTAL (PA SYSTEM & TALK-BACK SYSTEM - E)					0
F.	PORTABLE EXTINGUISHERS				
2	Supply & fixing CO2 type Fire Extinguisher 4.5 Kg. capacity Conforming to IS: 15683: 2018 made from seamless cylinder conforming to IS: 7285 duly approved by Chief Controller of Explosive, Nagpur, and Fitted with ISI Marked Controlled Valve Conforming to IS: 3224, high pressure 1 mtr. Long discharge hose and horn complete with initial gas charged with carrying handle and wall mounting bracket, suitable for operating between -30°C to +60°C, Fire Rating Class- 34B. (Make-Cease fire/Safex/minimax/safeguard)	25	Nos		0

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6	Supply & fixing ABC Powder type Fire Extinguisher 6 Kg. capacity (Stored Pressure) with discharge hose and nozzle, consisting of welded cylinder, squeeze lever discharge valve fitted with pressure indicating gauge, internal discharge tube, and discharge nozzle suspension bracket, Conforming to IS: 15683: 2018 duly charged with ISI Marked Mono Ammonium Phosphate base ABC Powder conforming to IS: 4308 and pressurized with Nitrogen Gas, suitable for operating between -30°C to +60°C, Fire Rating Class- 3A & 89B.	25	Nos		0
	(Make-Cease fire/Safex/minimax/safeguard)				
7	Supply,Installation,Testing and Commissioning of the Fire Buckets 9 ltrs capacity round the bottom with all necessary fittings as required. (Buckets with Stand or Walls Hooks) Location -Every Stair case half landing.	8	Nos		0
8	Buckets with Stand (ISA- 50X50X6 mm)	2	Nos		0
TOTAL COST OF (PORTABLE EXTINGUISHERS) =					0
G.	GAS SUPPRESSION SYSTEM				
B	FIRESLOT® Automatic Panel Protection System for Main LT Panel- 1, APFC PANEL-2, HT PANEL (RMU) CLIENT-1, HT PANEL (RMU) SUPPLY AUTHORITY -1, OFFICE BLOCK (INCOMMER MCCB, FLOOR FEEDER, UPS PANEL, UTILITY PANEL, HVAC PANEL, FIRE PANEL ETC.)-22 NOS, RESIDENTIAL BUILDING+ 2 NOS BLOCK (COMMON AREA PANEL- INCOMER MCCB) - 2 NOS. TOTAL NO OF PANEL- 29 NOS PANEL.				
1	FIRESLOT® Automatic Panel Protection System, Pure Polyester Powder Coated cylinder filled with UL & FM Approved Grenoz® Clean agent (Non HFC) and fitted with UL Listed Fire detecting polyamide tube of length as required.				
1.1	Minimax Grenoz® FIRESLOT® 2 kg with Pressure Switch	2	Nos		0
1.2	Polymer Tube (FIRESLOT®) - per Meter	30	Mtr.		0
1.3	Hooter cum Flasher (FIRESLOT® System)	2	Nos		0
1.4	Fire Suppression Monitoring Panel (FIRESLOT®)	2	Nos		0
	(Make- Honeywell / Minimax/Safex)				
TOTAL (GAS SUPPRESSION SYSTEM - G)					0
H.	STRUCTURE				
a	Providing and fixing of structural support for installation of Fire Pipes. (In structure ISMC, ISA considered.)	60	Kg		0
I.	SIGNAGES				
1	Supply and installation in position the "FIRE EXIT" Sign with luminicent colour having size 300 x 100 mm. (Make- PROLITE/BAJAJ/CROMPTON/PHILIPS/WIPRO/HAVELLS/LEGRAND)	50	Nos		0
2	Supply and fixing in position the signages " FIRE ORDER" contain the following matter on 3 mm thick "Opaque" PVC foam board of computerised cut, PVC non-reflective self adhesive vinyle painted foam board of size 1200 x 1000 mm. (Make- PROLITE/BAJAJ/CROMPTON/PHILIPS/WIPRO/HAVELLS/LEGRAND)	25	Nos		0

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a	ALERT THE SECURITY AT SECURITY ROOM BY ACTUATING MANUAL CALL POINT LOCATED AT STRATEGIC LOCATION.				
b	EVACUATE THE OCCUPANTS BY USING FIRE EXIT AND EMERGENCY EXITS ONLY AND ASSEMBLE AT ASSEMBLY POINTS.				
c	BE CALM AND DO NOT GET PANIC, WALK DO NOT RUN				
d	IF POSSIBLE TRY TO EXTINGUISH FIRE BY USING NEAREST / SUITABLE PORTABLE EXTINGUISHER OR WATER FROM NEAREST WET RISER.				
3	Supply and fixing signage with printed " IN CASE OF FIRE, DO NOT USE LIFT. USE STAIRS ONLY" OF 1.5 cm height letters in red with white background. The size of the board shall be 300 x 250 mm and shall be fixed at the height of 2 mtrs.from finished floor near Manual Call Point.	25	Nos		0
	(Make- PROLITE/BAJAJ/CROMPTON/PHILIPS/WIPRO/HAVELLS/LEGRAND)				
TOTAL COST OF (SIGNAGES - I) =					0
GRAND TOTAL COST OF FIRE PROTECTIONS, DETECTION & ALARM, EXTINGUISHER, PUBLIC ADDRESS & TALK-BACK SYSTEM =					0

NOTE: All fittings below 50NB shall be Socket weld end & all fittings of 50NB and above shall be Butt weld end.

PART E : HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

	Chiller :-
1	AHRI Certified Water Cooled Magnetic Centrifugal Chillers with VFD
	<p>Supply, installation, testing & commissioning of AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Certified water cooled magnetic centrifugal type chiller machine complete with hermetic single/ multi compressors with independent circuits, with R-134A or equivalent refrigerant, complete with dual Semi/hermetically sealed refrigerant cooled motor of working on 415 + 10% volts, 3 Phase, 50 Hz AC supply. Shell & tube flooded chiller & condenser with descaling & drain valves, victaulic/Flange coupling on condenser & evaporator, microprocessor panel for multiple start ups, i/c suitable foundation/mounting structure made of RCC/MS Structure with anti-corrosive paint, anti vibration pad, power control cable and connection inter connection etc. as per design approved by engineer-in-charge, electrical termination suitable for aluminum conductors along with thermal insulations anti vibration pads, flow switch and required accessories etc, Movable diffuser, Sight Glass at evaporator, Liquid line Isolation valves, Liquid Crystal Display (LCD) Human Machine Interface (HMI). complete as per specifications and drawings. Complete with first charge of Refrigerant(Preferably at factory charge).</p> <p>Starter shall be Variable Frequency Drive (VFD) type and shall be Unit Mounted/ Floor Mounted ?IP42 (UL Listed / CE Marked). Each Compressor shall be equipped with Suitable capacity Permanent Magnet Motor with class 'F' Insulation suitable for operation on 415 +/- 10% volts, 50 HZ, A.C. Supply. Chillers shall be factory AHRI tested at design conditions at 100%, 75%, 50% and 25% load respectively; test certificates shall be produced for all chillers. The chiller shall be Building Management System (BMS) compatible and shall have RS485/RS232 serial communication protocol; the motor shall be suitable for 3- Phase, 415 V + 10%, 50 Hz AC electric supply. The system shall be in confirmation to IS : 16590 and CPWD Specification as amended upto date.</p> <p>Chilled water Leaving Temp. (6.67deg. C) Chilled water Entering Temp. (12.2 deg. C) Evaporator fouling factor= 0.018 m2. 0C/kW Condenser water Entering Temp. (32.2 deg. C) Condenser water Leaving Temp. (36.4 deg. C)</p>

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	Capacity - 400 TR BEE 4 Star Rated Water Cooled Magnetic Centrifugal Chiller F.O.R Site in Kolkata	3	NOS.		0
2	Factory Inspection Charges for 1 unit @ 4 load points, excluding Flight charges and Hotel stay charges	4	POINTS		0
3.0	Chiller Plant manager				
3.1	Supply of Chiller Plant Manager cum optimiser for complete plant including chillers, pump, cooling towers, Vfd etc. IO summary, equipment summary and detailed specifications to be followed. All necessary hardware like supervisory controller, DDC controllers, necessary IO modules, advance graphics and necessary software must be included in CPM offer for remote monitoring, controlling and report generation. An indicative I/O Summary is attached for reference. Note: necessary field device and computer and cable / conduit work shall be in scope of BMS Package. But final responsibility of the Chiller shall be on the Chiller Manufacturer	1	NOS.		0
TOTAL COST OF CHILLER =					0
PUMP SYSTEM:-					
Supply, Installation, Testing, Commissioning & Handing over of the following pumps of Grundfos / Willo /Armstrong / Xylem / KSB make:					
n	Primary Chilled Water Pump set (Fixed speed)				
1.1	Horizontal End Suction, Centrifugal, Single stage, Foot mounted volute type				
a	Type : End suction, Back pull-out, Short coupled				
b	Casing : Grey cast iron (EN-GJL-250)				
c	Impeller : Lead free cast Bronze (CuSn10)				
d	Flow rate : 980 USGPM	3	NO		0
e	Head : 16M				
f	Efficiency (min) : 79%				
g	Motor rating : 15KW				
h	Total Pumps : 2W+1S				
2	Secondary Chilled Water Pump set (Variable speed)				
2.1	Horizontal End Suction, Centrifugal, Single stage, Foot mounted volute type				
a	Type : End suction, Back pull-out, Short coupled				
b	Casing : Grey cast iron (EN-GJL-250)				
c	Impeller : Lead free cast Bronze (CuSn10)				
d	Flow rate : 980 USGPM	3	NO		0
e	Head : 60m				
f	Efficiency (min) : 82.5%				
g	Motor rating : 55 KW				
h	Total Pumps : 2W+1S				
Variable Speed Pumping System (Secondary chilled water pumps)					

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2.2	Supply, installation, testing and commissioning of VARIABLE SPEED PUMPING SYSTEM consisting of variable speed secondary chilled water pumps as per above with matching VFDs with pulse width modulation (PWM)type, one dedicated microprocessor based pump controller with parallel pumping software duly installed. Multi Pump Controller shall be listed by and bear the label of Underwriter’s Laboratory Inc (UL). Pump logic controller inbuilt with Variable frequency drives are not accepted. Logic controller should be external to the drives used in the system. Multi Pump Controller shall have programs to safeguard the system against the following conditions Pump flow surges, System Hunting, End of curve protection. Multi Pump Controller shall have program function to accept the pump curve data for optimizing the system performance in terms of energy consumption. Multi Pump Controller shall be capable of controlling up to six pumps in parallel. Automatic cascade control of pumps, automatic sequence change, friction loss compensation, pump status shall be there. Display screen shall be graphical type with minimum 320 pixels x 240 pixelsl VGA display with backlight. The entire system along with chilled water pumps as described must be sourced from pump supplier only, to ensure unit responsibility. Feeed shall be of individual type and without bypass starter.Should be compatible with Modbus / Bacnet. Panel shall be supplied by Pump manufacturer only.	1	SET	0
3	Condenser Water Pump set (Fixed speed)			
3.1	Horizontal End Suction, Centrifugal, Single stage, Foot mounted volute type			
a	Type : End suction, Back pull-out, Short coupled	3	NO	0
b	Casing : Grey cast iron (EN-GJL-250)			
c	Impeller : Lead free cast Bronze (CuSn10)			
d	Flow rate : 1200 USGPM			
e	Head : 20 M			
f	Efficiency (min) : 81% & NPSH <3m			
g	Motor rating : 22 KW			
h	Total Pumps : 2W+1S			
	TOTAL COST OF PUMP =			0
	Cooling Tower:-			
	Supply, Installation, testing and commissioning of Induced Draft counter flow cooling Towers(CTI approved). The Cooling Tower shall be of Fiber Reinforced Plastic (FRP) Construction. The casing, basin/sump, fan deck and fan cylinder shall be of FRP, with direct driven fans, Galvanized hardware complete with sump and drain connection with suitable valve, PVC Honey comb fill, louvers, drift eliminator complete with spray nozzle having self rotating sprinklers, steel ladder, Isolating switch and other accessories to make it fully operational and maintaince National Accreditation Board for Testing and Calibration Laboratories (NABL) & positioning of cooling tower at Terrace of Building. Propeller Type Fan, weather proof IP 55 and Direct driven. The fan motor shall be premium efficiency IE3 class , as per IS 12615 The Cooling tower shall be capable to communicate effectively with Building Management System (BMS). Range of CT: 6 deg C. Designed Duty Conditions :-EWT, LWT, D/WBT Complete as per CPWD specification / drawings and as directed by Engineer-in-charge. (Note - Cooling tower size depends on the ambient temperature conditions , contractor must check the required design temperature).			
1	Cooling Tower 1500 USGPM with outlet temp 90 Deg. F Multi cell type range 7.5 DegF. Cooling Tower shall be CTI certified. Low noise cooling tower to be selected.	3	NOS	-
DESIGN DATA				
1	CAPACITY - HEAT REJECTION/TOWER	kcal/hrs	15,00,000	

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2	WATER QUANTITY/CELL OR PER TOWER	usgpm	1,500
3	ENTERING WATER TEMPERATURE	°C	38.9
4	LEAVING WATER TEMPERATURE	°C	33.3
5	AMBIENT WET BULB TEMPERATURE	°C	29.5
6	APPROACH	°C	4.0
7	ELECTRICALS		
	a) Motors per tower		TWO OR MULTIPLES
	b) Maximum Rating	KW	As per OEM
	c) Type		Sq.cage induction
	d) Enclosure		IP 65
	e) Starter Panel		Isolator, VFD with IP65
	f) Motor Efficiency		High (IS 12615 : 2011) / IE 3 min (separate basin in case of multiple cell)
8	TYPE OF AIR SUPPLY & FAN		Induced draft, Aluminium
9	LOCATION		ON TERRACE OF SERVICE BUILDING
10	TOWER CONSTRUCTION & FILL		FRP
11	NOISE LEVEL		NC 45 @ 10m
12	SERVICE DUTY		Water - Chillers

NOTES:

- 1) ALL PERFORMANCE FIGURES ARE FOR ONE TOWER
- 2) PRIMARY CONCRETE STRUCTURE IS PROVIDED GENERALLY AS SHOWN. SECONDARY STRUCTURE SHALL BE EPOXY COATED STEEL WITH **RUBBER PADS VIBRATION MOUNTS** WITH A STATIC DEFLECTION 25MM. VIBRATION MOUNTS SHALL BE MOUNTED ON A PAD OF 2-12 MM NEOPRENE SEPARATORS.
- 3) SECONDARY STEEL STRUCTURE, VIBRATION MOUNTS AND A 1000 WIDE WORKING **PLATFORM AROUND** SHALL BE PROVIDED BY THE VENDOR AND TO BE INCLUDED IN CT COST.

	Low Side:-				
	AIR HANDLING UNITS				
1	Supply, Installation, Testing and Commissioning of factory built, chilled water double skin type Floor mounted TFA AHU , made of 25 mm thick panels consisting of pre plasticized G.I casing of thickness 0.8 outside (pre-painted) and 0.6 inside layer with CFC-FREE P.U. insulation of density 45(+5%) kg/m3 factory injected between them by injection moulding machine, complete with blower suitable for 65 mm WG static pressure, coil section with aluminum finned copper tubes(tube thickness not less than 0.5mm, 10 FPI, Copper header with MS adaptor) of 6 row deep, filter section with 50 mm thick washable synthetic type air pre (MERV 8) & fine (MERV 14 up to 3 micron particle size) filters, belt driven Aerofoil design backward curved centrifugal Blower package with IE3 IP55 rated Motor BEE 5 Star rated and suitable to operate at 415 ± 10% volts, 50Hz 3 phase, A.C supply & should be compatible with VFD, drain connection, stainless steel (18G) drain pan with PUF insulation, limit switch, view glass, marine light, hinged door, Binder test points at the inlet and outlet of coil, Descaling valve, auto air purge valve at the inlet and outlet of coils, necessary spring type vibration isolation arrangement, canvas connection with thermal break profile etc., complete as per specifications and of followings capacities.				
1.1	TFA - 1200CFM- 6.0TR - 6RD - 2 STAGE FILTRE- 65MM SP	1	Nos.		0
1.2	TFA - 4000CFM- 20.0TR - 6RD - 2 STAGE FILTRE- 65MM SP	1	Nos.		0

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2A	Supply, Installation, testing and commissioning of Factory built ceiling suspended chilled water double skin type horizontal/vertical air handling units of following capacity, made of 25mm thick panels consisting of pre plasticized G.I. casing of thickness 0.8mm outside layer and 0.8 mm inside layer with Polyurethane Foam (PUF) insulation factory injected between them by injection moulding machine, complete with blower section with blower suitable for static pressure as required, minimum 2 bend PVC eliminators, cooling coil section with aluminum finned copper tubes (tubes thickness not less than 0.5mm) cooling coil of 4 row deep, filter section with 50mm thick metal viscous/ washable synthetic type air prefilters, belt drive package with Totally Enclosed Fan Cooled (TEFC) drive motor of efficiency class IE3 suitable for 415 + 10% volts, 50Hz, 3 Phase AC supply suitably designed for Variable Frequency Drive (VFD) applications, drain connections, stainless steel (18G) drain pan with PUF insulation, 150 mm dia. dial type pressure gauges (2 nos.) and industrial type thermometers (2 nos.) and industrial type thermometers (2 nos.) at the inlet and outlet of coil, auto purge valve wherever required, necessary vibration Isolation arrangement, noise level shall not exceed 70 dBA. AHU shall be AHRI/Eurovent certified, fan shall be AMCA certified etc. Complete as per CPWD specification / drawings and as directed by Engineer-in-Charge. (Total static pressure considered is max. 50 mm WC).				
2A.1	8000 CFM	1	Nos.		0
2A.2	5000 CFM	1	Nos.		0
2A.3	4000 CFM	1	Nos.		0
2A.4	3000 CFM	1	Nos.		0
2A.5	2500 CFM	3	Nos.		0
2B	Supply, Installation, Testing and commissioning of factory built floor mounted double skin type horizontal/vertical air handling units made of 25mm thick panels consisting of pre plasticized G.I. casing of thickness 0.6 mm outside layer and 0.6 mm plane GI at inside layer with CFC- FREE P.U. insulation of density 45(+5%) kg/m ³ factory injected between them by injection moulding machine, complete with blower section DIDW forward curve VFD driven fan suitable for required static pressure as mentioned, coil section with aluminium finned copper tubes (tubes thickness not less than 0.5mm) cooling coil of 6 row deep (Cu header with MS adaptor) , filter section with 50 mm thick washable synthetic type air pre (MERV 8) & fine (MERV 14 up to 3 micron particle size) filters , belt drive package aerofoil backward curver centrifugal blower (65 mm static pressure) with IE3 IP 55 BEE 5 Star rated motor with VFD starter (suitable to operate at 415 ± 10% volts, 50Hz, 3 Phase AC supply/230+10% volts, 50Hz, single phase AC supply, drain connections, stainless steel (18G) drain pan, auto air purge valve at the inlet and outlet of coils, necessary vibration isolation arrangement, canvas connections & accessories outside piping as per the norms duly insulated with required nitrile rubber for the following capacities.				
2B.1	15000 CFM - 37.5 TR	1	Nos.		0
2B.2	31000 CFM - 77.5 TR	1	Nos.		0
2B.3	21800 CFM - 54.5 TR	1	Nos.		0
2B.4	32000 CFM - 80.0 TR	1	Nos.		0
2B.5	30600 CFM - 76.5 TR	3	Nos.		0
2B.6	31000 CFM - 77.5 TR	1	Nos.		0
2B.7	31800 CFM - 79.5 TR	1	Nos.		0
2B.8	32600 CFM - 81.5 TR	1	Nos.		0
2B.9	33400 CFM - 83.5 TR	1	Nos.		0
2B.10	35400 CFM - 88.5 TR	1	Nos.		0

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3	DUCTABLE FAN COIL UNIT Supply, installation ,testing and commissioning of Ceiling Concealed Fan Coil Unit comprising of 3 rows deep chilled water cooling coil, centrifugal blowers, fractional horse power (FHP) motor, synthetic fibre filters, insulated & extended condensate drain pan along with L-type auxillary tray, casing, coil piping connections, condensate drain piping connections & wiring. Fan coil units shall be suitable for operation on 220 +/- 6% Volts, 50Hz, single phase power supply of following sizes & capacities. Complete as per CPWD specification and as directed by Engineer-in-charge.				
3.1	2.5 TR nominal capacity with 1000 CFM air quantity.	6	Nos.		0
3.2	2.0 TR nominal capacity with 800 CFM air quantity.	18	Nos.		0
3.3	1.5 TR nominal capacity with 600 CFM air quantity.	5	Nos.		0
3A	Supply, Installation, Testing and Commissioning of Chilled water type HI-WALL units for Server Room each complete with 3 row deep cooling coil of copper tubes aluminium fins construction, centrifugal fan, 3 speed motor, filters, coil piping connections, complete with the following capacities:				
3A.1	400 CFM - 1.0 TR	10	Nos.		0
	CHILLED WATER PIPING				
4	Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping inside the building (with necessary clamps, Galvanised MS supports (as required), vibration isolators and factory fabricated fittings (reducers, bends, elbows etc) with blind flanges (at the end of piping) but excluding valves, strainers, gauges etc.) duly insulated with following closed cell elastometric nitrile rubber of minimum 45 Kg / cu m density, thermal conductivity 0.037 W/MK or better at 20 deg mean temperature class 'O' insulation applied by suitable adhesive complete including repairing of damage to building etc. as per specifications and as required complete in all respect. Insulation shall be with factory laminated Glass cloth of min 7 mil.				
	Note:- The Pipes of sizes 150mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above. All counter Flanges of valves & equipments of piping system shall be as per ANSI 150 standard / as per IS-6392 latest version.				
4.1	300 mm dia. (44 mm thick insulation) (RISER& HEADER)	90	RMT		0
4.3	200 mm dia. (38 mm thick insulation)	25	RMT		0
4.6	100 mm dia. (32 mm thick insulation)	186	RMT		0
4.7	80 mm dia. (32 mm thick insulation)	66	RMT		0
4.8	65 mm dia. (32 mm thick insulation)	104	RMT		0
4.9	50 mm dia. (25 mm thick insulation)	29	RMT		0
4.10	40 mm dia. (25 mm thick insulation)	13	RMT		0
4.11	32 mm dia. (25 mm thick insulation)	374	RMT		0
4.12	25 mm dia. (25 mm thick insulation)	1345	RMT		0
	Supplying, fixing, testing and commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications.				
5	BUTTERFLY VALVE WITH ON/OFF TYPE MOTORIZED ACTUATOR Single phase 220V with limit switches, C I body & PN 16 pressure rating SS Disc & shaft of Feedback, BMS Compatible for chilled water circulation as specified duly insulatated of following sizes as per specification and drawings. Cost should include necessary control wire (minimum size 1.5 sq.mm)				
5.1	200mm dia.	6	Nos.		0

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6	BUTTERFLY VALVE (MANUAL) with C I body SS Disc, EPDM Seal & O- Ring PN 16 pressure rating for chilled water/hot water circulation as specified. All counter Flanges of valves & equipments of piping system shall be as per ANSI 150 standard / as per IS-6392 latest version.				
6.1	300 mm dia	3	Nos.		0
6.2	200 mm dia	18	Nos.		0
6.5	100mm dia.	2	Nos.		0
6.6	80mm dia.	22	Nos.		0
6.8	50mm dia.	6	Nos.		0
6.9	40mm dia.	4	Nos.		0
6.10	32mm dia	8	Nos.		0
7A	Supply, Installation, Testing and commissioning of following set of ball valve with Y strainer with bronze body SS Disc, suitable for PN 16 pressure rating for chilled water circulation as specified.				
7A.1	25 mm dia.	39	Nos.		0
7B	Supply, Installation, Testing and commissioning of following set of ball valve without Y strainer with bronze body SS Disc, suitable for PN 16 pressure rating for chilled water circulation as specified.				
7B.1	25 mm dia.	39	Nos.		0
8	BALANCING VALVE WITH BUILT IN MEASURING FACILITY with C I body flanged construction with EPDM coated disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled / hot water circulation as specified.				
8.1	200 mm dia	6	Nos.		0
8.2	25 mm dia.	39	Nos.		0
9	Y - STRAINER of Ductile CI Body flanged ends with stainless steel strainer for chilled / hot water circulation including insulation as specified. All counter Flanges of valves & equipments of piping system shall be as per ANSI 150 standard / as per IS-6392 latest version.				
9.1	200 mm dia	6	Nos.		0
9.4	100 mm dia .	10	Nos.		0
9.5	80 mm dia .	2	Nos.		0
9.7	50 mm dia.	3	Nos.		0
9.8	40 mm dia.	2	Nos.		0
9.9	32 mm dia.	4	Nos.		0
10	NON - RETURN VALVE with duel plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified. All counter Flanges of valves & equipments of piping system shall be as per ANSI 150 standard / as per IS-6392 latest version.				
10.2	200 mm dia .	6	Nos.		0
	CONDENSER WATER PIPE				
11	Supplying, fixing, testing and commissioning of condenser water pipes of following sizes and materials along with necessary clamps, vibration-isolators and fittings such as bends, tees etc but excluding strainer and gauges etc adequately supported on rigid supports/ including painting media vavels including minor holes & works making of good the damage dove welded black steel pipe as IS:3589 walls etc as per specifications and required. (Piping shall be with necessary clamps, Galvanised MS supports (as required), vibration isolators and factory fabricated fittings (reducers, bends, elbows etc) with blind flanges (at the end of piping). Condenser piping shall be with required 2 coats of zinc cromet primer paints & two coats of synthetic enamel final paint of Asian paints / Berger.				
	From minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia & from minimum 7mm thick M.S. sheet for pipes of 400 mm dia & above.				
11.1	350mm dia. (Header)	120	RMT		0
11.2	250mm dia.	62	RMT		0

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	Supplying, fixing, testing and commissioning of following valves, gauges and strainers for condenser water circulation as per specifications.				
12	BUTTERFLY VALVE WITH ON/OFF TYPE MOTORIZED ACTUATOR Single phase 220V with limit switches, C I body & PN 16 pressure rating SS Disc & shaft of Feedback, BMS Compatible for chilled water circulation as specified duly insulated of following sizes as per specification and drawings. Cost should include necessary control wire (minimum size 1.5 sq.mm)				
12.1	250mm dia.	3	Nos.		0
13	BUTTERFLY VALVE (MANUAL) with C I body SS disc nitrile sheet & O - ring & PN 16 pressure rating as specified.				
13.1	350mm dia.	3	Nos.		0
13.2	250mm dia.	22	Nos.		0
14	BALANCING VALVE with built in measuring facility with C I body flanged construction with EPDM Coated disc with long pitch with protted out pipe insulation & PN 16 pressure rating as specified.				
14.1	250mm dia.	3	Nos.		0
15	NON - RETURN VALVE with dual plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating as specified.				
15.1	250mm dia.	3	Nos.		0
16	Y - STRAINER of ductile CI body flanged ends with stainless steel strainer as specified.				
16.1	250mm dia.	3	Nos.		0
	FLEXIBLE CONNECTIONS				
17	Supply ,Installation ,Testing and commissioning of Flexible connector for following Dia. pipe suitable for PN 16 pressure rating to be installed at pump and condenser suction and discharge .				
17.1	250mm dia.	12	Nos.		0
17.2	200mm dia.	18	Nos.		0
18	Pot strainer having MS body, bolted cover, flanged ends, basket of stainless steel screen with 1.5 mm perforations and a permanent magnet for condenser water application complete with flanges, nuts-bolts, gaskets etc. as per specifications. Pot strainer shall be as per SSPL - 106 series, Pot dia - 800 mm, Body - MS 8 mm thick, It shall be with dran valve. Pot height - 955 mm. All counter Flanges of valves & equipments of piping system shall be as per ANSI 150 standard / as per IS-6392 latest version.				
18.1	350 mm dia	1	Nos.		0
19	Providing and fixing in position the industrial type pressure gauges with gun metal / brass valves complete as required	72	Nos.		0
20	Providing & fixing in position the mercury in glass industrial type thermometers.	54	Nos.		0
21	Auto Air - purge valve of 20 mm dia (Air Vent will be fitted with an isolating ball valve)	23	Nos.		0
22	Supply, Installation, testing and commissioning of Flow Switch with accessories as required.	23	Nos.		0
	PRESSURE INDEPENDENT BALANCING CUM CONTROL VALVE WITH THERMOSTAT				

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23	Pressure Independent Balancing cum Control Valve (PIBCV) which shall be 2 way combined valve of PN 16 rating for flow limitation, controlling flow & controlling Delta P. Valve body upto 32mm shall be brass and cast iron above 32mm. Valve should be equipped with electronic modulating actuator for AHU which can accept either "4(0)-20 mA / 2(0)-10 V DC signals. Operating voltage for actuator shall be 24 V AC. The actuator should be connected to proportionate thermostat. Delta p controller should ensure 100% control valve authority always at all load conditions (part load and full load). Stepless balancing adjustments shall be in valve and control adjustments in actuator. The differential pressure function shall be a diaphragm and shall be out of the main flow to avoid valve blockages and other services issue. Valve along with actuator and cold thermostat shall offer logarithmic control characteristics complete as per specification. The flow rates of chilled water are as below :				
23.1	100 mm dia .	10	Nos.		0
23.2	80 mm dia.	2	Nos.		0
23.3	50 mm dia.	3	Nos.		0
23.4	40 mm dia.	2	Nos.		0
23.5	32 mm dia.	2	Nos.		0
	EXPANSION TANK				
24	Supply, Installation, Testing of open type expansion tank of MS Construction made of 6 mm thick mild steel sheet duly insulated with 50mm thick T.F quality expanded polystyrene of 24 kg/cum density covered with a layer of 120 gm/sqm polythene sheet (vapour barrier) and finally cement plastered over chicken wire netting of 24 gauge and complete with vent and outlets for system connection over flow and drain 40 mm dia. Make up connection with float valve drain valve and incoming line valves, vent connections, valves and fittings as required.				
24.1	1000 X 1000 X 1000 (High) - For Cooling	1	Set		0
25	Supply, Installation, Testing and commissioning of Thermostat for each AHU as desired temp.	21	Nos.		0
	DUCTING				
26	Supply, installation, balancing and commissioning of fabricated at site 120GSM zinc coating GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required. Ducting fabrication & construction & installation shall be as done as per IS-655 latest version. Ducting shall be including of related duct supports (galvanised MS angle) & MS angle pair etc as per IS-655.				
26.1	Thickness 24 Gauge (0.61 mm) sheet	11746	SQM.		0
26.2	Thickness 22 Gauge (0.81 mm) sheet	2639	SQM.		0
26.3	Thickness 20 Gauge (1.01 mm) sheet	1044	SQM.		0
26.4	Thickness 18 Gauge (1.42 mm) sheet	615	SQM.		0
27	Supply, Installation, testing and commissioning of UPVC piping complete with fittings, supports accessories in surface/recess as per site requirements WITH COWL COVER AT THE EXIT				
	110 mm dia (FOR TOILET EXHAUST)	10	RM		0
28	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc, as per specifications	75	Sqm.		0
29	Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers as per specifications.	65	Sqm.		0
30	Supplying & fixing of powder coated extruded aluminium Return Air Grills with aluminium volume control dampers as per specifications.	65	Sqm.		0

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31	Supplying, fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core. Measurement shall be given as per actual neck size cross sectional area.	65	Sqm.		0
32	Supplying, fixing testing commissioning of Return air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core.	65	Sqm.		0
33	Supply, Installation, Testing and Commissioning of powder coated extruded aluminium louvers with synthetic removable type filter, bird screen & damper for fresh air intake.	1.2	Sqm.		0
34	Supply, Installation, Testing and Commissioning of powder coated extruded aluminium Exhaust air louvers.	5.5	Sqm.		0
35	Supplying, Fixing,testing and commissioning of fire & smoke dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications. Fire damper shall be as per UL listed.				
35.1	Fire damper	64.9	Sqm.		0
35.2	Actuator with necessary transformer & control wiring	33	Nos.		0
	INSULATION				
	Acoustic Lining of Ducts				
36	Supply and fixing of acoustic lining of supply air duct and plenum with 140-180KG/M ³ opencell class -1 nitrile insulation complete as required and as per specifications	6100	Sqm.		0
	Thermal Insulation				
37	Supplying and fixing of following thickness duly laminated aluminum foil of mat finish closed cell Nitrile rubber (Class "O") insulation on existing duct after applying suitable adhesive for Nitrile rubber. The joints shall be sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.				
37.1	19 mm thick insulation.	16050	Sqm.		0
	VENTILATION				
38	Supply, Installation, Testing and Commissioning of Floor Mounted Axial flow fans of 30 mm WG static pressure complete with GSS casing , aluminium alloy impellers, directly driven by TEFC induction motor suitable for 3 Phase 50 Hz 415 V ± 10 % , 1400 RPM, supporting frame, backdraft damper, louvers, weld mesh inlet guard, TP isolator with MS enclosure box as required etc. as per drawings and specifications.				
	Axial fans for smoke ventilation shall be AMCA and third party certified and fan of Class- H suitable for working at high temperature 250 deg C for 2 hours.				
38.1	35100 CFM for BASEMENT VENTILATION (For exhaust)	2	Nos.		0
38.2	35800 CFM for BASEMENT VENTILATION (For exhaust)	2	Nos.		0
38.3	31600 CFM for BASEMENT VENTILATION (For fresh air)	1	Nos.		0
	PRESSURIZATION FANS				

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39	Supply, Installation, Testing and Commissioning of AMCA certified Axial flow fan suitable for outdoor application of following capacity with powder coated M.S. casing and aluminium alloy impellers with high efficiency (IE-2) aero-foil sections, blades, the impeller directly driven by TEFC induction motor (motor should be of high efficiency, suitable for 3 Phase 50 Hz 415 V ±10 %, 1400 RPM of class 'F' insulation etc. complete as required and as per specifications (20mm Static Pressure WC) (For Pressurization of lift lobby, lift well, stair). Starter panel with NONC contact for BMS compatibility should be Provided. Motor shall be of F class insulation.				
39.1	18000 CFM for pressurization of LIFTWELL	5	Nos.		0
39.2	27200 CFM for pressurization of STAIRCASE	3	Nos.		0
39.3	32800 CFM for pressurization of LIFT LOBBY	2	Nos.		0
40	Jet Fan complete with Dual Speed Smoke Spill Motor, Sound Atenuator, Hanging Arrangement, Fixing Bolt etc. (400 DIA CAPACITY 9300/ 4650 CMH with Rated Motor (2.2Kw / 0.44Kw) with Class H Insulation) for 300 Degrees for 2 Hrs running.	19	Nos.		0
41	Supply of Carbon Monoxide Sensors (Make- Honeywell, Greystone)	19	Nos.		0
	INLINE FANS				
42	Supply, Installation, Testing & Commissioning of ducted Inline Fans with SP 20mm of WC, constructed of GSS duly powder coated with centrifugal blower, motor encased in sheet metal casing, canvas connection etc.The Fan motor shall have electric motor suitable for operation at 230 V+ 10%,50 Hz, 1 phase AC supply. The Fan assembly shall conform to specifications & in accordance with requirements of drawings & Schedule Of Quantities.				
42.1	600 CFM	16	Nos.		0
42.2	650 CFM	16	Nos.		0
42.3	100 CFM (CEILING MOUNTED)	3	Nos.		0
	PROPELLER FANS				
43	Supply, Installation, Testing & Commissioning of Propeller type exhaust air fans suitable for following capacities complete with electric motor suitable for operation at 230 V± 10%,50 Hz, 1 phase AC supply ,graivty louvers of the following capacities.				
43.1	100 mm Dia	22	Nos.		0
43.2	200 mm Dia	8	Nos.		0
43.3	350 mm Dia	16	Nos.		0
	Drain Piping				
44	Supply, Installation, Testing and Commissioning of insulated GI medium class condensate drain water piping with bends reducers tees, supports etc. The insulation shall be with pipe sections of nitrile rubber of 9mm thick as per specifications and drawings.				
44.1	80 mm (HEADER)	129	RM		0
44.2	32 mm	425	RM		0
44.3	25 mm	163	RM		0
	AHU Starter panel for CSU				
45	Supply, erection,testing, commissioning of AHU Control Starter Panels with VFD control & bypass system. Rate includes for necessary control cable with earthing. Apprx average length is 10m for the cable. The panels should be equipped with fire interlock arrangement.				
45.1	STARTER PANEL:2.2 KW	5	Nos		0
45.2	STARTER PANEL: 4 KW	2	Nos		0
45.3	STARTER PANEL: 5.5 KW	2	Nos		0
45.4	STARTER PANEL: 10.5 KW	1	Nos		0
45.5	STARTER PANEL: 15 KW	1	Nos		0
45.6	STARTER PANEL: 22 KW	8	Nos		0

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45.7	STARTER PANEL: 24 KW	2	Nos		0
46	Supply, installation, testing and commissioning of Temperature controller To be installed for Fan coil units	29	Nos		0
47	Supply, Installation, testing & commissioning of 5 star rated Split type air conditioner (R-410 A / R22 refrigerant) & with all accessories for Server Room as Auxillary to Chilled Water Solit mentioned in SI No. 3A.1				
47.1	1 TR Capacity	10	Nos		0
48.1	SITC of BMS compatible CO2 sensor with IP65 enclosure at the mouth of return air pocket of every AHU (Duct Mounting Type) to evaluate the CO2 concentration level in the conditioned air. The sensor shall be operated by 15-30V AC / DC, with a output rating of 0-10 VDC and performance of 0-5000 ppm ± 5% at below 95% RH and les than 1 min response time. Make: Bellimo or equivqlent.	19	Nos		0
48.2	SITC of BMS compatible CO2 sensor with IP65 enclosure at any 1 point outside to evaluate the CO2 concentration level in the atmosphere. The sensor shall be operated by 15-30V AC / DC, with a output rating of 0-10 VDC and performance of 0-5000 ppm ± 5% at below 95% RH and les than 1 min response time. Make: Bellimo or equivqlent.	13	Nos		0
ELECTRICAL CABLE FOR HVAC EQUIPMENT					
49.1	Supply & Laying of following sizes of XLPE insulated PVC sheathed Copper conductor armoured cable of 1.1 KV grade to be laid on cable tray / surface including termination, glanding, saddle, clamps etc. complete as required for the project				
49.1.1	3C x 10 sq mm Copper XLPE Cable	36	Nos		0
49.1.2	3C x 2.5 sq mm Copper XLPE Cable	45	Nos		0
49.1.3	3C x 4 sq mm Copper XLPE Cable	32	Nos		0
49.1.4	3C x 6 sq mm Copper XLPE Cable	160	Nos		0
49.1.5	2C x 1.5 sq mm Copper XLPE Cable	232	Nos		0
49.2	Supply & Laying of following sizes of XLPE insulated PVC sheathed Aluminum conductor armoured cable of 1.1 KV grade to be laid on cable tray / surface including termination, glanding, saddle, clamps etc. complete as required for the project				
49.2.1	3C x 240 sq mm Aluminum XLPE Cable	60	Nos		0
49.2.2	3C x 120 sq mm Aluminum XLPE Cable	60	Nos		0
49.2.3	3C x 50 sq mm Aluminum XLPE Cable	270	Nos		0
MAIN ELECTRICAL PANEL FOR HVAC EQUIPMENT					
50	Supply of sheet steel enclosed, floor mounting, free standing, dust and vermin proof, front operated rear openable, compartmentalised, cubicle type 'MAIN HVAC MCC' suitable for 415V, 3 Ph, 4W 50Hz AC. The panel shall be fabricated out of 2 mm. thick sheet steel (CRCA), suitable for indoor installation and shall be complete with 1000A Al. Bus-bars, switchgears like ACBs/MCCBs, CTs, Meters, Protection, Indication, Control equipments and other accessories as required as per specification and Drawing. The panel shall comprise of following incoming and outgoing feeders as per SLD attached:				
	All motor starter outgoing shall be provided with Stop/Manual/ Auto/selector switch to facilitate operation through BAS. All starters shall be provided with potential free Contact for Connections to Building Automation System.				
INCOMING FEEDERS					

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<p><u>800A 4P ACB I/C Feeder to receive power from Main LT cum DG Svinc. Panel : 2 Sets. (For 2 Incomer , BUS SECTION 1 & BUS SECTION 3)</u> Each set comprising of 1 no. 800A 4P 50 kA EDO ACB with O/L, S/C & E/F, MP Rel & S/T Rel and complete with 1- Digital Voltmeter with Selector Switch, 1- Digital Ammeter with Selector Switch, 1- Digital Multi Function Meter (MFM) EM6400NG /Equivalent with RS485 port compatible to IBMS, 1- Emergency Stop PB (Mushroom head Stay-put type), 1- Pistol Grip, Spring Return, Breaker Control Switch (T-N-C), 3- 800/5A Class 1 CTs for Ammeter & Digital Multi Function Meter, 6- Indicating Lamps for 'ON', 'OFF', 'TRIP' & R,Y,B Phase Indication, 1- Set of Over Voltage tripping Arrangement comprised of 415/110V control transformer, overvoltage relay, timers and other control equipment & accessories as required to proper functioning. 1-Set of Control equipment like Control MCB & other accessories as required as per specification and drawing. Interlock: Electrical interlocking arrangement shall be provided as per SLD</p>				
<p><u>800A 4P ATS- 1 SET & 800A 4P ACB I/C Feeder for Bus Section 2)</u> Set comprising of 1 no. 800A 4P 50 kA EDO ACB with O/L, S/C & E/F, MP Rel & S/T Rel and complete with 1- Digital Voltmeter with Selector Switch, 1- Digital Ammeter with Selector Switch, 1- Digital Multi Function Meter (MFM) EM6400NG /Equivalent with RS485 port compatible to IBMS, 1- Emergency Stop PB (Mushroom head Stay-put type), 1- Pistol Grip, Spring Return, Breaker Control Switch (T-N-C), 3- 800/5A Class 1 CTs for Ammeter & Digital Multi Function Meter, 6- Indicating Lamps for 'ON', 'OFF', 'TRIP' & R,Y,B Phase Indication, 1- Set of Over Voltage tripping Arrangement comprised of 415/110V control transformer, overvoltage relay, timers and other control equipment & accessories as required to proper functioning. 1-Set of Control equipment like Control MCB & other accessories as required as per specification and drawing. Interlock: Electrical interlocking arrangement shall be provided as per SLD</p>				
<p><u>BUS-SECTIONALIZER - 1 Sets(Q2 marked in the SLD)</u></p>				
<p>Each set comprises of 1 no. 800A 4P 50 kA EDO ACB with O/L,S/C,E/F (LSIG) MP REL, S/T & U/V Rel and complete with- 8- Indicating lamps (for 'ON', 'OFF' & 2 sets of R, Y & B Phase indication.) 1- Emergency Stop PB (Mushroom Head Stay-put type), 1- Pistol Grip, Spring Return, Breaker Control Switch (T-N-C), Set of Control MCB & accessories as required.</p>				
<p><u>OUTGOING FEEDERS for each Bus section (for total 3 nos Bus Section - 3 Sets)</u></p>				
<p>1) <u>630A 4P MCCB: 1 Set.</u> Set comprising of 1 no. 630A 4P MCCB, 50kA with O/L & S/C MP Rel, and complete with-</p>				
<p>1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter with RS-485 port, 3- 600/5A Class 1 CTs for KWH Meter & Ammeter, 6- Indicating lamps (for ON, OFF, TRIP & R, Y & B Ph Indication), 1-Set of Control MCB & accessories as required. (For Chillar 1) (For O/G Feeder No.-01 of Bus -1 / 01 of Bus -2 /01 of Bus -3 ;</p>				
<p>2) <u>63A TP MCCB: 1 Set.</u> Set comprising of 1 no. 63A TP MCCB, 50kA with O/L & S/C TM Rel, and complete with-</p>				

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	1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter with RS-485 port, 3- 60/5A Class 1 CTs for KWH Meter & Ammeter, 6- Indicating lamps (for ON, OFF, TRIP & R, Y & B Ph Indication), 1-Set of Control MCB & accessories as required. Star Delta S starter with overload realy, contactor etc.as per type 2 coordination chart. (For Primary chilled water pump) (O/G Feeder No.-02 of Bus -1 & 02 of Bus -2 & 02 of Bus -3 ;				
	3) 125A TP MCCB: 1 Set. Set comprising of 1 no. 125A TP MCCB, 50kA with O/L & S/C TM Rel, and complete with-				
	1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter with RS-485 port, 3- 125/5A Class 1 CTs for KWH Meter & Ammeter, 6- Indicating lamps (for ON, OFF, TRIP & R, Y & B Ph Indication), 1-Set of Control MCB & accessories as required. Star Delta starter with overload realy, contactor etc. as per Type 2 coordination chart . (for Cooling Tower) (O/G Feeder No.-03 of Bus -1 & 03 of Bus -2 & 03 of Bus -3 ;				
	4) 100A TP MCCB: 1 Set. Set comprising of 1 no. 125A TP MCCB, 50kA with O/L & S/C TM Rel, and complete with-				
	1- Digital Ammeter with Selector Switch, 1- Digital KWH Meter with RS-485 port, 3- 100/5A Class 1 CTs for KWH Meter & Ammeter, 6- Indicating lamps (for ON, OFF, TRIP & R, Y & B Ph Indication), 1-Set of Control MCB & accessories as required. VFD starter with overload realy, contactor etc. as per requirement. (for Condensar Pump) (O/G Feeder No.-04 of Bus -1 & 04 of Bus -2 & 04 of Bus -3 ;				
50.1	Main HVAC MCC Panel	1	Nos		0
	TOTAL COST OF LOW SIDE =				0
	GRAND TOTAL COST OF HVAC =				0
<u>PART F : BUILDING MANAGEMENT SYSTEM (BMS)</u>					
1	Workstation: SITC of Intel® Xeon® CPU E5-2640 x64 (or better), compatible with core processors	1	No.		0
2	SITC of 85" color monitor flat screen LCD display as per specifications. Make-LG/Samsung/Sony	1	No.		0
3	SITC of Software (As per the I/O summary) for efficient operation of the functions required. Provide software modular in design for flexibility in expansion or revision of the system algorithms of having unlimited user and the capacity to integrate 5000 points.	1	Lot		0
4	SITC of Third Party Integration (As per the I/O summary) for DDC Integration. The data modeling standard shall provide a documented Representational State Transfer, Application Programming Interface (REST API) to define a simple mechanism to exchange "tagged" data over web services. FCU Thermostat Monitoring (Soft Integration)-25 Points for 5 devices Variable Frequency Drives for AHU (Soft Integration)-95 points for 19 devices Chiller System (Soft Integration)-75 Points for 3 devices Energy Meter - 135 points for 27 devices UPS - 300 points for 30 devices PV System Monitoring (Soft Integration)-100 Points Elevator Management System - 50 Points Fire Alarm System(Soft Integration) - 1000 Points	1	Lot		0
5	SITC of CONTROLLERS (As per the I/O summary):The Controller should have the ability to have true open source standards, using IP Based Ethernet connectivity. These include Modbus Server and Client at TCP and RS485 level, and also the BMS leading protocol BACnet, supporting both Client and Server at the TCP/IP and mstp levels. Model No-PUC SERIES	1	Lot		0

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6	SITC of Enclosure for Webs Controllers Model No-Standard	1	Lot		0
7	CABLES, CONDUITS & CABLE TRAYS				
7.1	4CX1.0 Sqmm FRLS Armoured Cable for Signal/Communication	6000	Mtr		0
7.2	3CX1.0 Sqmm FRLS Armoured Cable	3500	Mtr		0
7.3	Supplying & drawing of UTP 4pair CAT 6 LAN Cable in the existing surface/recessed steel/ PVC conduit as required (1run of cable)	3500	Mtr		0
7.4	Supplying and fixing of "25mm dia" medium class PVC conduit along with accessories in surface /recess including cutting the wall and making good the same in case of recessed conduit as required	2000	Mtr		0
7.5	Supplying and fixing of "25mm dia" steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required	500	Mtr		0
7.6	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
7.6.1	150mm Width X 50mm depth X 1.6mm thickness	1000	Meter		0
8	SENSORS & FIELD DEVICES				
8.2	SITC of Space Temperature Sensor with following specifications: Minimum Operating Ambient Temperature : -40 Degrees Celsius Maximum Operating Ambient Temperature : 50 Degrees Celsius Minimum Measured Temperature : -10 coulomb Maximum Measured Temperature : 40 coulomb Minimum Measured Humidity : 0 Percentage Maximum Measured Humidity : 90 Percentage Supply Voltage : 24 Overall Height : 94 Millimeter-PRD Overall Width : 207 Millimeter-PRD	2	Nos		0
8.3	SITC of CO Sensor:Carbon monoxide detector uses a superior electrochemical sensing element with state-of-the-art digital linearization circuitry in a compact wall mount ABS enclosure to detect CO levels. It provides a linear analog signal output of 4-20 mA (Loop-powered with 24 Vdc) signal or optional Modbus communications.	5	Nos		0
8.4	SITC of Water Level Switch with specification: Automatically Switched OFF the motor as soon as the tank is filled with the water. It eliminates manual efforts and provides a flawless automatic operation. Solves the water tank overflow problem by switching off the motor at the correct time. This will save a great amount of water and minimize wastage and provides a peace of mind. Automatically Switched ON the motor when the water level decreased to a certain level, this will ensure smooth and un-interrupted water supply throughout. Save Water Save Electricity Save Time. Suitable for 3 phase water pump (starter)	40	Nos		0
8.5	SITC of Differential Pressure Switch (Water)	24	Nos		0
8.6	SITC of Differential Pressure Switch (Air)	63	Nos		0
8.7	SITC of Differential Pressure Transmitter (Water)	2	Nos		0
8.8	SITC of Differential Pressure Transmitter (Air)	1	Nos		0
8.9	SITC of Temperature & RH Sensor(Duct Type)	41	Nos		0
8.10	SITC of Temperature & RH Sensor(Outdoor Type)	3	Nos		0
8.11	SITC of Immersion Type Temperature Sensor with thermowell of same make	45	Nos		0
8.14	SITC of Duct Smoke Detector	3	Nos		0
8.15	SITC of Duct Pressure Sensor	3	Nos		0
8.16	SITC of Duct Type CO2 Sensor	19	Nos		0
8.17	SITC of Oil Level Sensor	2	Nos		0
8.18	SITC of Flow Switch	1	Nos		0
8.19	SITC of pH Analyser	2	Nos		0
8.20	SITC of TDS Analyzer	2	Nos		0
8.21	SITC of Chlorine Sensor	2	Nos		0
	GRAND TOTAL COST OF BMS =				0

PART G : EXTRA LOW VOLTAGE (ELV)

A. SURVEILLANCE SYSTEM

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1	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG, dual stream encoding, 25fps@1080P (2560X1920), Max IR LEDs length 30m, Voice Enabled, IP67, IK10 rated, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing) Vandal Resistant, UL, FCC, CE & ULc approved, Dome Camera complete with all accessories required for mounting on wall or ceiling as mentioned in specs Fixed Dome Camera.	340	Nos.		0
2	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG dual stream encoding, Max. IR LEDs length 30m, Voice Enabled, IP67 rated, 25fps@1080P (2560X1920), Support ICR for day time and night time operation, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing), UL, FCC, CE & ULc approved, All accessories required for mounting on wall or ceiling as mentioned in specs Fixed Lens Bullet Camera.	100	Nos.		0
3	Supply, Installation, Testing & Commissioning of 5MP ANPR Camera , STQC Compatible, 1/2.8" - 1/1.8" progressive Scan CMOS, H.2664/H.265/MJPEG compression, IP67 rating for dust & water resistance & IK10 rating for vandal resistance	3	Nos.		0
4	Supply, Installation, Testing & Commissioning of 5MP Fish Eye Network Camera , STQC Compatible, 180deg Fish Eye view, Audio enabled, 1/2.7" Progressive Scan CMOS, with accessories	2	Nos.		0
5	Supply, Installation, Testing & Commissioning of 5MP, Full HD, 1/2.8 type CMOS image sensor, STQC Compatible, H.265 / H.264 & MJPEG triple-stream encoding, 30x optical zoom, 25/30fps@2688x1520/(2650x1440), IR distance up to 150 m, IP66 rated, with audio Indoor PTZ Camera.	4	Nos.		0
6	SITC of NVR (HD, OnVIF), 100 Mbps Port, recording capability of 80Mbps, with capacity of 16TB recording space divided into 8 SATA interfaces or more / as per OEM recommendation (to be supplied with HDD), ANR, H.265/H.265+/H.264+/H.264 Compressing with 445 × 400 × 75 mm (17.5"× 15.7" × 3.0") dimension to be supplied with client software.	17	Nos.		0
7	SITC Hard Disk Drive with 10 TB storage	32	Nos.		0
8	SITC of Workstation with monitor for monitoring	1	Nos.		0
9	Supply, Laying, Testing & Commissioning of 85" LED Display with necessary connectors with HDMI Ports for 24X7 operation, inter linking cords etc. complete as required	10	Nos.		0
B. NETWORKING					0
10	SITC of 27U Network Rack for placing CCTV NVRs & Main Switch	1	Nos.		0
11	SITC of 15U Network Rack for floor CCTVs	19	Nos.		0
12	SITC of 6U Network Rack for floor CCTVs	2	Nos.		0
ENTERPRISE LEVEL L3 SWITCHES					
13	SITC of Layer 3 switches with high performance switching, high density port configuration, advanced security features, optics support : QSFP28 & SFP28,	1	Nos.		0
DISTRIBUTION SWITCHES:					
16	SITC of Semi Managed/Full Managed, Layer2, QoS, 48*1000 Mbps + 2 SFT/T, All port support PoE, full switches PoE rating min. 300W	20	Nos.		0
PASSIVE COMPONENTS:					
17	SITC of LIU and other accessories	1	Nos.		0
18	SITC of LIU and other accessories	19	Nos.		0
19	SITC of Pigtails	150	Nos.		0
20	SITC of LC-LC Connector	500	Nos.		0
21	SITC of 1 mtr Patch Cord	912	Nos.		0
22	SITC of 3 mtr Patch Cord	338	Nos.		0
23	SITC of 24 port Patch Panel	40	Nos.		0
C. SECURITY SYSTEM					
24	Supply, installation, testing and commissioning of Access Control System with Time attendance Software for time management with required Server Software with SQL database engine consisting of Access Control system, Alarm Document, Alarm management, with client License, Graphical layout, Card Enrollment, Badge designing, Web Access, BMS Integration over BACnet. MIS Interface for sharing cardholder information to external ODBC based program, Data movement between access server & controller should be Encrypted for Secure movement. All these along with high end security features (With Minimum 2 client License should be included in the package based) as per specifications etc complete as required	1	Nos.		0
25	Supply, installation, testing and commissioning of Biometric Finger Print reader with IP based controller. The Controllers should be PoE enabled. The system should be complete with all mounting accessories and arrangements etc. as per specifications etc complete as reqd.	10	Nos.		0

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26	Supply, installation, testing and commissioning of Two reader IP based controller. The Controllers should be powered from required SMPS with 30mins batter backup and should be able to power the EM lock in turn. If required the controller should be housed in MS Powder Coated housings, mounting accesories and arrangements etc. as per specifications etc complete as reqd .		Nos.		0
27	Two Reader, one door controller	10	Nos.		0
28	Supply, installation, testing and commissioning of Smart Card Reader with a read range of 2-3 inch as per specifications , complete with mounting box / arranenet as reqd.	10	Nos.		0
29	Supply, installation, testing and commissioning of 13.5 MHz Smart Cards as per specifications .	30	Nos.		0
30	Supply, installation, testing and commissioning of Stainless Steel Push Buttons, complete with mounting box / arranenet as reqd.	10	Nos.		0
31	Supply, installation, testing and commissioning of Single Leaf Electromagnetic Locks with 600 lbs holding force as per specifications with all accessories for mounting on the doors etc complete as reqd.	10	Nos.		0
32	Supply, installation, testing and commissioning of Magnetic Contact as per specifications with all accessories for mounting on the doors etc complete as reqd.	10	Nos.		0
33	Supply, installation, testing and commissioning of Emergency Door Release Switches as per specifications with all accessories for mounting on the doors etc complete as reqd.	10	Nos.		0
34	SITC of Visitor Management System	1	Set		0
35	SITC of Parking Management System	1	Set		0
36	A WLD2400 Main Panel designed to protect facilities from damaging water leaks. It combines superior leak detection technology with a user-friendly interface to establish a reliable leak detection system.	1	Nos.		0
37	WLD Sensor Cable:				0
37.4	WLD Sensor Cable (25m)	1	Nos.		0
37.5	Hooter Cum strobe	1	Nos.		0
BOOM BARRIER					
38	Supply, installation, testing, commissioning of IP54, 4.5 m wide automatic Boom Barrier with 230 V AC OR 24V DC for actuator, for operation with 1 phase 230 V power supply , 100% duty cycle, Open/Close time 2 to 4 second with dome shaped flashing light, LED strip inside the boom on one side, luminous cord cable, single channel loop detector, photo beam sensor for accident prevention, inbuilt anti collision & crushing feature, IP-66 protection, with Straight aluminum boom of minimum size 100 mm x 50 mm & a set of entry exit push buttons for manual opening and closing of barrier for visitor vehicles etc. complete as required as per specifications & at site of work. (NorthWest Side main entry , 2 Entry + 2 Exit)	6	Set		0
39	Supply, installation, testing, commissioning of Recessed/Surface mounted Long Range Weigand (26/32/34 bit) based vehicle tag scanner, IP66, for long distance (up to 12 m). The scanner shall seamlessly integrate with controllers to activate barriers. The scanner shall have an operating frequency in the ISM 865~867 MHz range in FHSS mode, UHF protocol EPC class 1 Gen 2; ISO 18000-6B software adjustable RF transmitter power of 0~1 Watt, with a built-in line polarization Antenna with a gain of 12dbi and entirely software programmable, as complying with En standards for electromagnetic compatibility EN 301 489-1 V1.8.1:2008-04 and EN 301 489-3 V1.4.1:2002-08, Radio and Telecommunication Terminal Equipment Directive EN 302 208-1 V1.2.1:2008-04 and EN 302 208-2 V1.2.1:2008-04, safety EN 60950-1:20006 and human exposure EN 50371:2002 and complete as required.	6	Set		0
40	Supply & fixing of padestal with MS PU coated Pole to mount TAG reader with civil work, as approved by Architect.	6	Set		0
41	Vehicle windshield mounted tamper proof passive long range tags pre-programmed with unique ID in 34 bit format and provided along with the bar-code label identifying the tag ID, shall be EPC Gen2 compliant and operate in 860-960 MHz frequency band, The tag shall be such that on any attempt to remove the tag, this should become permanently non- functional. The tags shall be self-adhesive and shall provide string adhesion on vehicle windshield/asset surface even at high temperature. The tag shall provide the read distance of upto 12 meters in an ideal scenario on surface with the compatible long range reader with minimum operating power of -15dBm.	200	Nos.		0
42	Supply, installation, testing and commissioning of remote control for opening and closing of entry/ exit barriers for visitor only, complete as required.	3	Set		0
43	Supply, installation, testing and commissioning 2 Reader Access controllers for "PEDESTAL" with support upto 200 card holders, for operation of Entry/Exit barriers complete as required as per specifications. The module shall be suitable for communication through TCP/IP Protocol.	3	Set		0

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44	SITC of Oval Falp Barriers with opening & closing of less than one second, suitable for commercial spaces. Mains Supply: 180-270 VAC, 47-63Hz/90-130V, 47-63Hz Power Consumption: StandBy<30W; Operating<80W	4	Set		0
45	SITC of Door Frame Metal Detector	4	Set		0
46	SITC of Baggage Scanner Tunnel Size - 800x650mm,Conveyor Speed-0.18 to 0.3m/s.,Conveyor load capacity - upto 150Kg,Penetration – 30-35mm,Film Saftey- ISO 3200, Image archiveupto 100000 images,Image Display - High resolution of 1920*1080 pixel; Image Grey Level: 65536,Duty Cycle- 100%, Optional accessories- UPS, Drop Chute, Lockable console/table console, CTP bag,Dust proof cover,material tray.	2	Set		0
D. AUDIO VISUAL & VIDEO CONFERENCING					
47	Microphone Capsule - Dynamic Polar Pattern -Omni-directional Sensitivity- High: -53 dB ±3 dB Low: -71 dB ±3 dB	20	Nos.		0
48	Video Conferencing Kit (Board Room,Conference Room) Wide angle lens for meetings with multiple people USB-C ports to connect to all your devices AI-powered meeting features for easy conferencing experience Easy-to-use interface for any meeting participant	2	Nos.		0
49	Accommodates one AC or AC+USB power module, plus six Retractor modules, eight AV cables, or four AAP™ AV Connectivity Modules Optional Retractor cable retraction system supports most AV and data signal type	2	Nos.		0
50	SITC of 55" Display for Monitors 4k	4	Nos.		0
51	AV Switcher Unit (Board Room,Auditorium) Power Supply - AC 100 V to 240 V, 50 Hz/60 Hz Current Consumption - 1.5 A Ambient Operating Temperature- 0°C to 40 °C (32 °F to 104 °F) Ambient Operating Humidity-10 % to 90 % (no condensation) Storage Temperature-0 °C to 40 °C (32 °F to 104 °F) Storage Humidity-10 % to 90 % (no condensation)	4	Nos.		0
52	SITC of 50W Amplifier for AV-VC	4	Nos.		0
53	SITC of 6W Ceiling Mounted Speaker	8	Nos.		0
54	Main Conference Unit(Board Room)	1	Nos.		0
55	Gooseneck Stand mic gooseneck microphone is a microphone element mounted onto a flexible gooseneck stand rather than on a cable. These mics have a flexible shaft that can be adjusted, allowing the microphone to be positioned in the best possible location for sound.	2	Nos.		0
56	COLLAR MIC	30	Nos.		0
57	Wireless Mic Used for connecting the microphone wirelessly with several bands	5	Nos.		0
58	SITC of HDMI Cable, 10 meters	5	Nos.		0
59	SITC of 2C, 1.5 sq mm Cable for PA & accessories	300	Nos.		0
60	SITC of 6U 600x600 rack for storing Amplifier/switcher or other AV equipments in Conference Room/ Auditorium	2	Nos.		0
E. CABLE TRAYS, JUNCTION BOXES, RACEWAYS & CONDUITS					
61	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
61.1	150mm Width X 50mm depth X 1.6mm thickness		Meter		0
61.2	225mm Width X 50mm depth X 1.6mm thickness		Meter		0
61.3	300mm Width X 50mm depth X 1.6mm thickness	100	Meter		0
62	Supply & fixing following size Under floor pregalvanized junction box with knock outs suitable for metal raceway entry in all the four sides. The box is suitable for screed floors with powder coated trap and frame suitable for tile flooring with 10mm recess.				
62.1	150mm x 150mm x 50-70mm height adjustable Junction Box	40	Nos.		0
62.2	225mm x 225mm x 50-70mm height adjustable Junction Box	20	Nos.		0
62.3	300mm x 300mm x 50-70mm height adjustable Junction Box	20	Nos.		0
62.4	400mm x 400mm x 50-70mm height adjustable Junction Box	20	Nos.		0
62.5	500mm x 500mm x 50-70mm height adjustable Junction Box	210	Nos.		0

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63	Supply, laying and installation following GI Raceways with top openable facility which confirms EN 50085-2-2 with minimum protection of IP20 and IK 08. Pre-galvanized should be of min 1.5 mm thickness. GI Raceways should have easy top openable features. Length of each Raceway should be 2.44 Mtr. Installation rates of GI under floor raceway should be inclusive of necessary hardware arrangement required for fixing. This activity also includes Coupler for joining raceways, fixing brackets alongwith associated accessories etc. as required.				
63.1	50 x 25 x 2440mm, 1 compartment	500	Meter		0
63.2	75 x 38 x 2440mm, 1 compartment	100	Meter		0
63.3	150 x 38 x 2440mm, 1 compartment	100	Meter		0
63.4	225 x 38 x 2440mm, 3 compartment	100	Meter		0
63.5	300 x 38 x 2440mm, 3 compartment	1800	Meter		0
64	Supplying and fixing of "25mm dia" medium class PVC conduit along with accessories in surface /recess including cutting the wall and making good the same in case of recessed conduit as required	6800	Meter		0
F. CABLES					
65	Supplying & drawing of UTP 4pair CAT 6 LAN Cable in the existing surface/recessed steel/ PVC conduit as required (1run of cable)	20000	Meter		0
66	SITC of Fiber Optic Cable	300	Meter		0
67	SITC of 2C, 1.5 sq mm Cable for AC & accessories	300	Meter		0
68	SITC of 8 core 1 Sq mm armoured and shielded copper cable with connection and required accessories at both ends	200	Meter		0
69	SITC of 4 core 1 Sq mm armoured and shielded copper cable with connection and required accessories at both ends	200	Meter		0
70	SITC of 3 Core, 1sqmm, 230V, 50Hz, 1 Ph AC	200	Meter		0
71	SITC of 1.1 KV grade FRLS 3C 2.5 Sq. mm YWY cables	200	Meter		0
TOTAL COST OF COMMERCIAL BUILDING =					0
RESIDENTIAL BLOCK-A					
A. SURVEILLANCE SYSTEM					
1	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG, dual stream encoding, 25fps@1080P (2560X1920), Max IR LEDs length 30m, Voice Enabled, IP67, IK10 rated, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing) Vandal Resistant, UL, FCC, CE & ULc approved, Dome Camera complete with all accessories required for mounting on wall or ceiling as mentioned in specs Fixed Dome Camera.	32	Nos.		0
2	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG dual stream encoding, Max. IR LEDs length 30m, Voice Enabled, IP67 rated, 25fps@1080P (2560X1920), Support ICR for day time and night time operation, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing), UL, FCC, CE & ULc approved, All accessories required for mounting on wall or ceiling as mentioned in specs Fixed Lens Bullet Camera.	6	Nos.		0
3	SITC of NVR (HD, OnVIF), 100 Mbps Port, recording capability of 80Mbps, with capacity of 16TB recording space divided into 8 SATA interfaces or more / as per OEM recommendation (to be supplied with HDD), ANR, H.265/H.265+/H.264+/H.264 Compressing with 445 x 400 x 75 mm (17.5" x 15.7" x 3.0") dimension to be supplied with client software.	2	Nos.		0
4	SITC Hard Disk Drive with 10 TB storage	4	Nos.		0
5	Supply , Laying , Testing & Commissioning of 85" LED Display with necessary connectors with HDMI Ports for 24X7 operation, inter linking cords etc. complete as required	1	Nos.		0
B. NETWORKING					
6	SITC of 32U Network Rack with Fans, floor mounted, PDU etc	1	Nos.		0
7	SITC of 15U Network Rack (wall mounted)	1	Nos.		0
DISTRIBUTION SWITCHES:					
10	SITC of Un-Managed, Layer2, QoS, 48*1000 Mbps + 2 SFT/T , All port support PoE, full switches PoE rating min. 300W	2	Nos.		0
PASSIVE COMPONENTS:					
11	SITC of LIU and other accessories	2	Nos.		0
12	SITC of 1 mtr Patch Cord	53	Nos.		0
13	SITC of 3 mtr Patch Cord	96	Nos.		0
14	SITC of 24 port Patch Panel	4	Nos.		0
15	SITC of Pigtaills	96	Nos.		0
16	SITC of LC-LC Connector	192	Nos.		0
ANALOGUE INTERCOM					
17	SITC of EPABX System for Analogue System for 100Ext	1	Nos.		0

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18	SITC of MDF Box with Krone 250 Pair	1	Nos.		0
19	SITC of Krone DB 20 Pair	8	Nos.		0
20	Supplying and fixing following size/modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required. 1 or 2 Module (75mmX75mm)	20	Nos.		0
21	Supplying and fixing following modular switch/socket on the existing modular plate & switch box including connections but excluding modular plate etc as required Telephone socket outlet	20	Nos.		0
SECURITY SYSTEM					
22	Supply, installation, testing and commissioning of Video Door Phone Indoor & Outdoor	12	Nos.		0
WIRELESS NETWORK					
23	SITC of Hi Speed Wi-Fi AP, Wi-Fi 6-ready, Dual-Band PoE Access Point, 4x4 MIMO, 2.5 Gigabit Uplink, Support 12 V / 2.5 A (optional power adapter), IEEE 802.3at PoE Security Protocol WPA/WPA2/WPA3™ Personal/Enterprise, WEP, 64/128-bit, SSID broadcast disable, MAC, address access control, internal RADIUS server	5	Nos.		0
CABLES					
24	SITC of Fiber Optic Cable	200	Rmt.		0
25	Supplying & drawing of UTP 4pair CAT 6 LAN Cable in the existing surface/recessed steel/ PVC conduit as required (1run of cable)	5000	Meter		0
26	SITC of 2C, 1.5 sq mm Cable for AC & accessories	100	Meter		0
29	SITC of 3 Core, 1sqmm, 230V, 50Hz, 1 Ph AC	100	Meter		0
30	SITC of 1.1 KV grade FRLS 3C 2.5 Sq. mm YWY cables	100	Meter		0
31	Supplying and drawing following pair 0.5mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/recessed steel/PVC conduit as required 2Pair	200	Meter		0
CABLE TRAYS, JUNCTION BOXES & CONDUITS					
32	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
32.3	300mm Width X 50mm depth X 1.6mm thickness	100	Meter		0
33	Supply & fixing following size Under floor pregalvanized junction box with knock outs suitable for metal raceway entry in all the four sides. The box is suitable for screed floors with powder coated trap and frame suitable for tile flooring with 10mm recess.				
33.1	225mm x 225mm x 50-70mm height adjustable Junction Box	12	Nos.		0
34	Supplying and fixing of "25mm dia" medium class PVC conduit along with accessories in surface /recess including cutting the wall and making good the same in case of recessed conduit as required	2000	Meter		0
TOTAL COST OF RESIDENTIAL BLOCK-A =					0
RESIDENTIAL BLOCK-B					
A. SURVEILLANCE SYSTEM					
1	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG, dual stream encoding, 25fps@1080P (2560X1920)), Max IR LEDs length 30m, Voice Enabled, IP67, IK10 rated, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing) Vandal Resistant, UL, FCC, CE & ULc approved, Dome Camera complete with all accessories required for mounting on wall or ceiling as mentioned in specs Fixed Dome Camera.	64	Nos.		0
2	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG dual stream encoding, Max. IR LEDs length 30m, Voice Enabled, IP67 rated, 25fps@1080P (2560X1920), Support ICR for day time and night time operation, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing), UL, FCC, CE & ULc approved, All accessories required for mounting on wall or ceiling as mentioned in specs Fixed Lens Bullet Camera.	12	Nos.		0
3	SITC of NVR (HD, OnVIF), 100 Mbps Port, recording capability of 80Mbps, with capacity of 16TB recording sapce divided into 4 SATA interfaces or more / as per OEM recommendation (to be supplied with HDD), ANR, H.265/H.265+/H.264+/H.264 Compressing with 445 × 400 × 75 mm (17.5"× 15.7" × 3.0") dimension to be supplied with client software.	4	Nos.		0
4	SITC Hard Disk Drive with 10 TB storage	8	Nos.		0
5	Supply , Laying , Testing & Commissioning of 85" LED Display with necessary connectors with HDMI Ports for 24X7 operation, inter linking cords etc. complete as required	2	Nos.		0

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B. NETWORKING					
6	SITC of 32U Network Rack with Fans, floor mounted,PDU etc	2	Nos.		0
7	SITC of 15U Network Rack (wall mounted)	2	Nos.		0
DISTRIBUTION SWITCHES:					
11	SITC of Un-Managed, Layer2, QoS, 48*1000 Mbps + 2 SFT/T , All port support PoE, full switches PoE rating min. 300W	4	Nos.		0
PASSIVE COMPONENTS:					
12	SITC of LIU and other accessories	4	Nos.		0
13	SITC of 1 mtr Patch Cord	192	Nos.		0
14	SITC of 3 mtr Patch Cord	100	Nos.		0
15	SITC of 24 port Patch Panel	8	Nos.		0
16	SITC of Pigtails	2	Nos.		0
17	SITC of LC-LC Connector	192	Nos.		0
ANALOGUE INTERCOM					
18	SITC of EPABX System for Analogue System for 100Ext	2	Nos.		0
19	SITC of MDF Box with Krone 250 Pair	2	Nos.		0
20	Supplying and fixing following size/modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required. 1 or 2 Module (75mmX75mm)	60	Nos.		0
21	Supplying and fixing following modular switch/socket on the existing modular plate & switch box including connections but excluding modular plate etc as required Telephone socket outlet	60	Nos.		0
CABLES					
22	SITC of Fiber Optic Cable	400	Rmt.		0
23	Supplying & drawing of UTP 4pair CAT 6 LAN Cable in the existing surface/recessed steel/ PVC conduit as required (1run of cable)	4600	Meter		0
24	SITC of 2C, 1.5 sq mm Cable for AC & accessories	200	Meter		0
25	SITC of 8 core 1 Sq mm armoured and shielded copper cable with connection and required accessories at both ends	100	Meter		0
26	SITC of 4 core 1 Sq mm armoured and shielded copper cable with connection and required accessories at both ends	100	Meter		0
27	SITC of 3 Core, 1sqmm, 230V, 50Hz, 1 Ph AC	100	Meter		0
28	SITC of 1.1 KV grade FRLS 3C 2.5 Sq. mm YWY cables	200	Meter		0
29	Supplying and drawing following pair 0.5mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/recessed steel/PVC conduit as required 2Pair	400	Meter		0
CABLE TRAYS, JUNCTION BOXES & CONDUITS					
30	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
30.3	300mm Width X 50mm depth X 1.6mm thickness	160	Meter		0
31	Supply & fixing following size Under floor pregalvanized junction box with knock outs suitable for metal raceway entry in all the four sides. The box is suitable for screed floors with powder coated trap and frame suitable for tile flooring with 10mm recess.				
31.1	225mm x 225mm x 50-70mm height adjustable Junction Box	60	Nos.		0
32	Supplying and fixing of "25mm dia" medium class PVC conduit along with accessories in surface /recess including cutting the wall and making good the same in case of recessed conduit as required	2000	Meter		0
TOTAL COST OF RESIDENTIAL BLOCK-B =					0
EXTERNAL PART					
A. SURVEILLANCE SYSTEM					
1	Supply, Installation, Testing & Commissioning of 5MP, STQC Compatible, Full HD, 1/2.8 type CMOS image sensor, fixed lens 2.8mm, H.265 / H.264 & MJPEG dual stream encoding, Max. IR LEDs length 30m,Voice Enabled, IP67 rated, 25fps@1080P (2560X1920)), Support ICR for day time and night time operation, Operating Temp (-)30°C ~ 60°C & Humidity 95% (non-condensing),UL, FCC, CE & ULc approved, All accessories required for mounting on wall or ceiling as mentioned in specs Fixed Lens Bullet Camera.	14	Nos.		0
B. CABLING & PASSIVE NETWORKING					
2	SITC of Fiber Optic Cable	400	Rmt.		0

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3	SITC of Semi Managed/Full Managed, Layer2, QoS, 24*1000 Mbps + 2 SFT/T , All port support PoE, full switches PoE rating min. 200W	1	Nos.		0
C. OTHER ITEMS					
4	Supplying and laying of 120 dia DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. in the existing trench	280	Rmt.		0
5	Supplying and laying of 63 dia DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc. in the existing trench	20	Rmt.		0
6	Constructing manhole pit of inside measurement 450X450 with 200 mm thick 1st class brickwork in cement mortar (1:4) on all sides, bottom of the pit consisting of 100 mm thick cement concrete (1:3:6) with stone chips over a layer of jhama brick flat soling, 15 mm thick (1:4) cement plaster to inside walls and outside walls upto G.L. and 20 mm thick (1:4) plaster to bottom of the pit, providing necessary invert with cement concrete (1:3:6) with stone chips as per direction, neat cement finishing to entire internal surfaces, top of the pit covered with 100 mm thick RCC slab (1:1.5:3) with stone chips and necessary reinforcements upto 1% and shuttering including 6 mm thick cement plaster (1:4) in all external surfaces of the slab and one 560 mm dia RCPC grating cover (35 MT) with frame of approved make fitted and fixed in the slab with necessary fittings, necessary earthwork in excavation in all sorts of soil, filling sides of the pit, with earth and removing spoils after work complete in all respects with all costs of labour and materials.	15	Rmt.		0
TOTAL COST OF EXTERNAL ELV =					0
GRAND TOTAL COST OF ELV =					0
<u>LIFT INSTALLATION</u>					
1	Providing and fixing of 15 persons/1020 kgs. Capacity Passenger lifts, SS silver brushed car, 1.75mps speed, MRL, with fire rating 60mins., Central opening door system, with ARD system, with 19 stops (floor ht. 3.6m) including suitable Brake release tools to be designed supplied, inspection as may be necessary before dispatch, delivery at site, installation, testing, commissioning and handing over to CDRI and the defects liability for a period of 1 year after completion of all works & handing over to client. (Commercial Block)	4	NO		0

This BOQ is for information only. Bidder needs to submit BOQ in online mode only in <https://www.tenderwizard.com/SBIETENDER> portal.
Bid containing hardcopy of Price bid shall be rejected.

2	Providing and fixing of 15 persons/1020 kgs. Capacity Passenger lifts, SS silver brushed car, 1.75mps speed, MRL, with fire rating 60mins., Central opening door system, with ARD system, with 19 stops (floor ht. 3.6m) including suitable Brake release tools to be designed supplied, inspection as may be necessary before dispatch, delivery at site, installation, testing, commissioning and handing over to CDRI and the defects liability for a period of 1 year after completion of all works & handing over to client. (Commercial Block)	1	NO	0
3	Providing and fixing of 13 persons/884 kgs. Capacity Passenger lifts, SS silver brushed car, 1.75mps speed, MRL, with fire rating 60mins., Central opening door system, with ARD system, with 17 stops (floor ht. 3.15m) including suitable Brake release tools to be designed supplied, inspection as may be necessary before dispatch, delivery at site, installation, testing, commissioning and handing over to CDRI and the defects liability for a period of 1 year after completion of all works & handing over to client. (Residential Block)	2	NO	0
4	Providing and fixing of 15 persons/1020 kgs. Capacity Passenger lifts, SS silver brushed car, 1.75mPS speed, MRL, with fire rating 60mins., Central opening door system, with ARD system, with 17 stops (floor ht. 3.15m) including suitable Brake release tools to be designed supplied, inspection as may be necessary before dispatch, delivery at site, installation, testing, commissioning and handing over to CDRI and the defects liability for a period of 1 year after completion of all works & handing over to client.	2	NO	0
5	Providing and fixing of 13 persons/844 kgs. Capacity Passenger lifts, SS silver brushed car, 1.75mPS speed, MRL, with fire rating 60mins., Central opening door system, with ARD system, with 11 stops (floor ht. 3.3m) including suitable Brake release tools to be designed supplied, inspection as may be necessary before dispatch, delivery at site, installation, testing, commissioning and handing over to CDRI and the defects liability for a period of 1 year after completion of all works & handing over to client.	1	NO	0
6	Providing and fixing of 15 persons/1020 kgs. Capacity Passenger lifts, SS silver brushed car, 1.75mPS speed, MRL, with fire rating 60mins., Central opening door system, with ARD system, with 11 stops (floor ht. 3.3m) including suitable Brake release tools to be designed supplied, inspection as may be necessary before dispatch, delivery at site, installation, testing, commissioning and handing over to CDRI and the defects liability for a period of 1 year after completion of all works & handing over to client.	1	NO	0
GRAND TOTAL COST OF LIFT INSTALLATION =				0

COST SUMMARY SHEET FOR CIVIL, SERVICES & LIFT

THE PROPOSED 2B+G+15 STORIED OFFICE & 2B+G+13 STORIED & G+10 STORIED RESIDENTIAL BUILDING AT PLOT NO.-CBD-80, BULK PLOT OF ACTION AREA-II, NEW TOWN KOLKATA.

PART	Description of Work	Quantity	Amount Rs
A	CIVIL / STRUCTURAL/ARCHITECTURAL WORKS =		-
B	PUBLIC HEALTH ENGINEERING =		-
C	ELECTRICAL INSTALLATION WORKS =		-
D	FIRE PROTECTIONS, DETECION & ALARM, EXTINGUISHER, PUBLIC ADDRESS & TALK-BACK SYSTEM =		0
E	HEATING, VENTILATION & AIR-CONDITIONING (HVAC) WORKS =		0
F	BUILDING MANAGEMENT SYSTEM (BMS) =		0
G	EXTRA LOW VOLTAGE (ELV) =		0
H	LIFT INSTALLATION (Commercial + Residential) =		0
GRAND TOATL PROJECT COST =			-
Above Project cost is Excluding GST			

Rupees:-