



BHARAT HEAVY ELECTRICALS LIMITED
RAMACHANDRAPURAM::HYDERABAD::32
FACTORY CIVIL ENGINEERING DEPARTMENT

UN - PRICE BID
(TO BE ATTACHED WITH TECHNICAL BID)

Name of work: Construction of Office building (G+2) for PE & SD at southern side of Administration building, including civil, internal electrification, interior works, air conditioning, network and fire alarm system.

PART-A: Office building for PE & SD			
S No	Description of the item	Qty	Unit
Part I-Site Preparation			
1	Felling trees of the girth (measured at a height of 1m above ground level) including cutting of trunks and branches removing the roots and stacking of serviceable materials and disposal of unserviceable materials, carting upto a lead of 2 KM - girth upto 0.6 M	45.00	Each
2	Dismantling brick masonry walls for all heights, removing and clearing the debris and carting away upto to lead of 2 KM including loading, unloading and spreading segregating useful materials as directed by Engineer-in-charge including the cost of all labour scaffolding etc., complete.	515.00	Cu.m
3	Dismantling reinforced cement concrete / plain cement concrete and disposing of debris upto to a lead of 2 KM including loading, unloading and spreading as directed by Engineer-in-charge etc., complete.	20.00	Cu.m
4	Removal Existing roof/side cladding of AC Sheets roofing, louvers side cladding including loading, carting, unloading etc., with in the premises up to a lead of 2 km as directed.	1,571.00	Sqm
5	Dismantling steel work in built up sections in angles tees, flats and channels including all gusset plates, bolts, cutting rivets, welding etc., including dismembering and stacking within 50 metres lead.	21.00	MT
6	Preparation of subgrade by excavation earth to an average of 22.5 cm, dressing to camber and consolidation with road roller including making good the undulations etc. and disposal of surplus earth lead upto 200 m .	2,450.00	Sq.m
7	Removal of MS scrap including MS packing strips etc. and garbage collected in the dust bins inside Factory area and open areas and carting upto a lead of 2 KM as directed by the Engineer In Charge.	50.00	MT

S No	Description of the item	Qty	Unit
	Part II-Civil Works		
1	Earth work in excavation in all soils by mechanical means (Hydraulic Excavators) / manual means in foundations trenches or drains (not exceeding 1.5m in width or 10 Sq.m on plan) including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed , within a lead of 200M. Soil investigation tests shall be carried out by the Agency wherever required and as detected by Engineer-Incharge. Standard penetration test to be carried out with 4 to 5 bore holes.	3,360.00	Cu.m
b	----do---- up to First additional depth of 1.50 M to 3.00 M.	3,000.00	Cu.m
c	----do---- up to First additional depth of 3.00 M to 3.50 M.	1,000.00	Cu.m
2	Earth work in excavation by mechanical means (Hydraulic Excavators) / manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 Sq.m on plan) including disposal of excavated earth, lead upto 200 m and lift upto 1.5 m, disposing earth to be levelled and neatly dressed for Hard Rock (Blasting prohibited).	20.00	Cu.M
3	Filling with available excavated earth (excluding rock) in trenches , plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidation each deposited layer by ramming and watering, lead upto 200 m and lift upto 1.50 m.	5,583.00	Cu.M
4	Supply and stacking of stone dust including transportation and spreading as directed by Engineer-in-charge.	1,770.00	Cu.M
5	Conveyance of excavated spoil up to a lead of 2 Kms, including loading, unloading and spreading etc. complete as directed by Engineer- in- charge.	1,777.00	Cu.M
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering including consolidation by vibrations for all works up to plinth level with 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate of 20 mm nominal size).	377.00	Cu.M
7	Coursed rubble masonry in second sort with hard stone in foundation & plinth with cement mortar 1:6 (1 cement :6 coarse sand)	340.00	Cu.M
8a	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement, including consolidation by vibrations for all works up to plinth level with 1:1½ :3 (1 cement : 1½ coarse sand : 3 graded stone aggregate of 20 mm nominal size).	1,250.00	Cu.M
b	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement, including consolidation by vibrations for all works up to floor five level with 1:1½ :3 (1 cement : 1½ coarse sand : 3 graded stone aggregate of 20 mm nominal size).	526.00	Cu.m

S No	Description of the item	Qty	Unit
c	Providing and laying in position ready mix concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead up to 25 KM having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per ID: 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer-in-charge. M 25 grade Reinforced cement concrete by using 380 kgs of cement per cu.m of concrete. All works upto floor five level. as per IS 456: 2000 for all concrete works upto all levels. (For RMC works, BHEL will not issue cement. The contractor shall bare the cost of required cement)	1,350.00	Cu.m
d	Providing and laying in position ready mix concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead up to 25 KM having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C from transit mixer to site of laying, excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per ID: 9103 to accelerate/retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer-in-charge. M 20 grade Reinforced cement concrete by using 300 kgs of cement per cu.m of concrete. All works upto floor five level. as per IS 456: 2000 for all concrete works upto all levels. (For RMC works, BHEL will not issue cement. The contractor shall bare the cost of required cement)	490.00	Cu.m
9a	Centering and shuttering including strutting, propping etc.; and removal of form work, for foundations, footings, bases of columns etc. for mass concrete- up to plinth level.	3,004.00	Sq.m
b	Centering and shuttering including strutting, propping etc.; and removal of form work, for columns, pillars,peirs,abutments,machine foundations, posts and struts- upto floor Five level. MS Beams/channels and Jack supports need to be provided to the slab centering where ever required and as directed by Engineer In charge.	11,108.00	Sq.m
10	Reinforcement for R.C.C. work including straightening , cutting , bending, placing in position and binding grills with binding wire all complete by cold twisted bars-Upto floor Five level.	252.00	M.T
11	Brick work with FPS bricks of class designation 75 in superstructure upto floor five level in all shapes and sizes in cement mortar 1:6.	1,170.00	Cu.M
12	Plastering in CM 1:6, 20 mm thick to internal and external surfaces of walls including the cost of all materials, labour, curing etc., complete upto floor five level.	11,000.00	Sq.m
13	Cement Plaster to ceiling /walls with 12mm thick cement plaster finished with a floating coat of neat cement of mix 1:3 (1 cement : 3 fine sand) .	5,820.00	Sq.m

S No	Description of the item	Qty	Unit
14	Plastering over roof slab in CM 1:4, 20mm thick mixed with water proofing compound, Make: "Sika" @ 3% by weight of cement as per manufacturer's specification, curing as directed. Rate quoted shall include finishing, cost of all materials and labour etc., complete. (Cement =7.69 kgs/sq.m x3% WP@ Rs 20.00 per kg = Rs 4.61) upto 10 m height.	1,940.00	Sq.m
15	Supply and fixing in position medium teak wood door frame along with single leaf shutters solid core non - decorative type 30 mm thick of approved quality and brand including 3 No.s MS hinges 10 cm long and 1 no. mortise lock (Godrej make), using scantling of size 100 mm X 75 mm (including with MS holdfasts of size 230 X 50 X 4 mm - 6 No.s and painting with coal tar to the faces coming in contact with masonry / concrete . including cost of all materials, labour etc. complete as directed by Engineer in - charge.	125.00	Sq.M
16	Supplying and laying of vitrified tiles of brighter shades and marble design of Premium Quality (1st quality) in required texture, design and colour, for flooring /skirting /cladding using vitrified tiles of size 600 x 600mmx8 mm thick of approved make. It includes cost of cutting, champering of tiles to required size, with base of Conmax C - 500 tile adhesive for fixing tiles on existing mosaic/cement flooring, jointing the tiles with colour tint etc. complete as directed by Engineer-in-charge. The rate quoted shall include cost of all materials, labour, adhesives, colour tint material, leads and lifts etc. complete. Amount will be paid on the basis of measurement of the area of finished work only. It also includes surface preparation of existing ceramic floor giving necessary slopes, cleaning joints and grouting joints with pigmented additives to match shade of the tile, making pockets for electrical, communication, network cables etc. complete as directed by Engineer-in-charge. Amount will be paid on the basis of measurement for finished work only.	5,820.00	Sq.m
17	Supply and erection of false ceiling: Providing and fixing in true horizontal level 600 mm x 600 mm false ceiling system manufactured by M/s. Armstrong World Industries / M/s Daiken using DUNE SUPREME RH 99 MICROLOOK EDGE WITH SILHOUETTE GRID, using hot dipped galvanized steel section, rotary stitched main tee of size 15mm x 42 mm web height, having 0.36 mm gauge at every 600 mm center to center maximum and rotary stitched cross tee of size 15 mm x 42 mm, having 0.33 mm gauge at every 600 mm. c/c. and wall angle of size 19 x 19 mm., having 0.35 mm gauge fixed to the periphery of the wall. The above grid is suspended at every 600mm c/c. in both directions using 2.0 mm. thick pre-straightened GI wire, and laying Dune Supreme Microlook Edge ceiling tiles manufactured by M/s. Armstrong World Industries, of size 600mmx600mmx15mm having NRC 0.50, Light reflectance of >85% (WT), thermal conductivity k = 0.052-0.057 W/m0K, Humidity Resistance of 99% (having LIFETIME GUARANTEE against SAG), having Fire Performance CLASS O / CLASS 1 (BS 476), surface having 3 coats of white paint - crisp finely granulated with micro perforations, back of the tile duly sanded and finished with a coat of protective paint over the formed grid and complete in all respects. Boards, where light fixtures to be fixed shall be handed over to Department etc. complete as directed by Engineer-in-charge. Make: Armstrong	5,820.00	Sq.m

S No	Description of the item	Qty	Unit
18	Providing and fixing stainless steel tubular railings (1.2 mm thick) 0.90 M height as per design and drawings using top rail(2") , vertical pipe(1.5"), Horizontal pipe (0.63") along with 12 mm thick glass with glossy finish etc., as directed by Engineer- in charge.(Drg.to be enclosed)	108.00	RM
19	Supply & fixing of 18 mm thick best quality approved colour and design machine cut mirror polished granite slabs in required sizes for counter wash basins, floorings, vanity counter, claddings, facias etc. including cutting, champering, rounding and mirror polishing etc. complete as directed. Cost of granite slabs shall be Rs. 1600/- per Sq. m and granite slabs of required design and colour will be selected by department.	340.00	sq.m
20	Supply & fixing with new 12 mm thick particle board one side laminated of approved brand (Eco board) and shade for wall paneling on the wooden frame work (treated with termite and moisture resistant chemical) and also for doors, windows, cup board sliding shutters, pelmets, boxes etc. with necessary fixtures like brass hinges, door handles and stoppers etc. as directed by Engineer-In-charge. The rate quoted shall include of cost of all labour, materials such as particle boards, nails, screws, sliding rollers/bearings, fevicol etc. complete. Frame work with second class teak wood scantlings of size 50 x 25 mm as verticals and horizontals, at an interval of 90 mm c/c shall be made for fixing the Ecoboard. Joints shall be covered with inlay teak design beading and corners shall be covered with corner teak design beadings of suitable sizes. Complete in all respects. Make : Eco board	4,200.00	Sq. m
21	Applying exterior emulsion paint 2 coats over one coat of primer to external new plastered surfaces including cost of all labour and other incidentals. (only exterior paint will be issued by BHEL on free of cost at their stores).	5,500.00	Sq.m
22	Applying two coats of oil bound distemper of given shade over a coat of primer including through cleaning of the surfaces, cost of all labour and other incidentals. (Only OBD paint will be issued by BHEL on FREE of cost at their stores)	11,320.00	Sq.m

S No	Description of the item	Qty	Unit
23	<p>Supplying & fixing of flush window frame with sides operable shutters and fixed double glazed window with fixed ventilators fabricated from roll formed sections made of galvanised steel powder colour coated (Base steel as per IS 513 "D" quality, galvanised as per IS 277 with Zinc of 120 grams/Sq. m) with total coated thickness of 0.60 mm. External frame should be 46 mmx52 mm. Section for glass beading should be of 20 mmx20 mm and center mullion should be of 46 mmx70 mm and section for shutter should be of 46 mmx46 mm. Coated sections should be with primer coat of epoxy primer of 5-7 microns thick, finish painted with a polyester paint of 12-16 microns thick and back coated with Alkyd backer of 5-7 microns, powder coated with pure polyester powder upto 50-60 microns thick. The frame and shutter sections should be cut to length and miter joined with corner bracket made of CRCA electroplated. Mullion section should be joined with frame/mullion using Nylon Mullion Cap Ethyl Propylene Diamine Monomer (EPDM) gasket should be used all around glass in shutter between frame and glazed shutter and both sides of fixed glass.</p> <p>Accessories: Handle made of high grade aluminium powder coated and with nylon receiver. Gaskets made of Ethyl Propylene Diamine Monomer (EPDM). Corner brackets made of CRCA with zinc phosphating. Mullion caps made of glass filled nylon.</p> <p>Glass: Glass shutter and fixed glass portions should be provided with a glass of 20 mm (5 mm plain glass + 10 mm Hermitically sealed air gap + 5 mm plain glass).</p> <p>Chipped/chased brick work shall be neatly finished with cement plaster and plastered area shall be applied with water proof paint. Paint will be supplied by BHEL on free of cost. Window frame should be fixed to brick/concrete masonry by using Nylon self-expanding caps and driving MS electroplated 80 mm long screws into the caps through frames.</p> <p>Any minor gaps between frame and brick work shall be sealed with silicon material at both sides to avoid seepage of rain water/loss of air condition system.</p> <p>MAKE: SHAKTI/AJANTHA OF NCLSECCOLOR</p>	480.00	Sq.m
24	<p>Supply and fixing of aluminum window grills along with aluminium frame consisting aluminium 'F' (solid) 0.80kg/12' supply and fixing of design of 4" aperture aluminium grill to the above frame work with necessary fixtures. It includes fixing of total frame to the existing brick work, finishing etc. complete. (The material shall be aluminium alloy :6063, thick 7 mm, ultimate tensile strength more than 19 kgs/sq.mm)</p>	150.00	Sq.m
	<p>Note: Soil penetration test has to be done by the agency at its own cost, through JNTU-ICS, Hyderabad for analysing the safe bearing capacity of the soil.</p>		

S No	Description of the item	Qty	Unit
	Part III Structural work		
1a	<p>Fabrication of structural steel work including all materials going into the process of fabrication and forming an integral part of steel work together with all shop and site rivets and electrodes for site welding as necessary and all site connections comprising sag rods, floor beams, girders, bracings, trusses and frame work for fixed false ceiling and for movable false ceiling, purlins with channel / angles, MS flat supports including all connections as per detailed drawings connected steel works etc., cleats, gusset plates, all bolts, nuts, washers, base plates, anchor bolts as per detailed drawings, cutting, welding and painting 2 coats of red-oxide primer before erection etc., complete. The rate shall include painting 2 coat of Red-oxide as per IS specifications and all charges for handling, leading and loading at the fabrication yard.</p> <p>The raw structural steel sections, electrodes, gasses only will be issued by BHEL on FREE of cost at BHEL stores</p>	11.00	MT
b	Erection of Steel work out lined in above item including the charges for handling, leading and stacking at site at approved locations prior to erection including all site rivetting, bolting, jointing and site welding where ever required.	11.00	MT
2	<p>Painting at site of all structural steel work with 2 coats of aluminium paint / synthetic enamel paint of approved shade to trusses, columns, girders, bracings etc., with aluminium paint or synthetic enamel paint as required etc., complete.</p> <p>The required paint only will be issued free of cost by B.H.E.L at BHEL stores.</p>	11.00	MT

S No	Description of the item	Qty	Unit
	Part - IV Sanitary items		
1	Supply and fixing of new urinary pans, "Parry ware" make, ceramic, Model (Cat 0575)- "New Magnum Urinal" (600 mm x 400 mm) along with all accessories, C.P spreader brackets etc., regular in colour along with partition for Magnum Urinal ceramic, 'Z' type brackets to be screwed to the wall at the bottom, in regular colour etc., complete.	26.00	Each
2	Supply and fixing with "Parry ware" make Cascade series wash hand basin of size 550 mm x 450 mm oval shape with counter top with centre tap hole, regular in colour with all accessories like brackets, screws etc., complete .	24.00	Each
3	Supply and fixing of new "Parry ware" make Elite - European water closet of size 530 mm x 400 mm, with "P/S" trap including PVC Slimline Dual flush tank (Cistern) of size 475 mm x 318 mm (Code No. C8109), EWC standard seat cover (Cat C8071) with all accessories like Parryware flush kit suitable to the above flush tank, brackets, screws, connecting pipe from flush tank to EWC, PVC Connections etc. complete. Colour: Silky Off - White.	16.00	Each
4	Supply and fixing of new "Parry ware" make Indian Water Closet, Orissa pan of size 580 mm x 410 mm - Open rim (Code No. C0109) including PVC Slimline Dual Flush tank (Cistern) of size 475 mm x 318 mm (Code No. C8109) with all accessories like Parryware flush kit suitable for the above flush tank with all required accessories etc., complete. Colour: Silky Off - White.	18.00	Each
5	Supply & fixing of 6 mm thick mirror of approved quality "Modi float/Saintgobin glass", with 6 mm thick hard board back and with best quality teak wood frame (design beading) all round the mirror including necessary clamps, polishing to the beading, cost of all materials etc. complete.	18.00	Sq.m
6	Providing and fixing shutters along with frames for toilets that are 30 mm thick factory made PVC rigid foam paneled, door and shutters manufactured by M/s. Rajashri made from M.S. tube, 19 gauge thick, size 19x19mm for styles and 15x15mm for top and bottom rails, covered with heat moulded PVC "C" channel of 5mm thick sheet and 30x50mm wide for styles and 5mm thick and 75mm wide PVC sheets for top rail and bottom rail either side and 5 mm thick, 20mm wide cross PVC sheet as gap insert for top rail and bottom rail, paneling of 5mm thick PVC sheet fitted with M.S. frame welded / sealed to the styles and rails with 5x30mm PVC sheet beading on either side and joined together with solvent cement adhesive etc. complete in all respects as per direction of engineer in-charge fixed to frames. This includes providing brass hinges, brass aldrops, brass tower bolts, brass handles and brass door stoppers (For W.C. and bathroom doors)	50.00	Sq.m
7	Supply & fixing "Jaquar" make urinal flushing valves for urinal pots in all accessories/Cat: 1077.	26.00	Each

S No	Description of the item	Qty	Unit
8	Supply & fixing "Marc" make oyster series brass bib cocks. With all accessories / Cat: MOY 1030.	34.00	Each
9	Supply & fixing "Marc" make oyster series brass pillar cocks. (Cat: MOY 1010) with all accessories etc.	27.00	Each
10	Supply & fixing "Marc" make oyster series brass stop cocks. (Cat: MOY 1040) with all accessories.	43.00	Each
11	Supply and fixing of "Jaquar (Allied)" make Health Faucet with 8 mm dia, 1 m long flexible tube and wall hook, Cat No. 573	16.00	Each
12	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacture) of approved make in all colours, shades except burgundy, bottle green , black of any size as approved by engineer-in-charge in skirting , risers of steps and dados over 12mm thick bed of cement mortar 1:3 (1cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 Kg per Sq.m including pointing in white cement mixed with pigment of matching shade complete.	880.00	One Sq.m
13	Supply & fixing of 18 mm thick best quality approved colour and design machine cut mirror polished granite slabs in required sizes for counter wash basins, floorings, vanity counter, claddings, facias etc. including cutting, champering, rounding and mirror polishing etc. complete as directed. Cost of granite slabs shall be Rs. 1600/- per Sq. m and granite slabs of required design and colour will be selected by department.	320.00	sq.m
14	Supply & fixing in position PVC Pipes of 3" dia(as per IS 4kg/sq.m) of best quality for drainage lines / urinal / hand wash areas including chasing the brick wall, concrete etc. and making good the same after fixing the same etc. complete.	320.00	RM
15	Supplying and fixing CI Nahany traps 1st quality ISI marked conforming to IS: 1729 - 1979 with C.P Grating fixing with white cement as per site requirements with standard practice - 100mm inlet - 75 mm dia (3") outlet pipe - 4 Kgs.	25.00	Each
16a	Supply & fixing 15 mm dia Nominal Bore GI pipe medium Grade properties and weight as per IS 1239 ISI mark with GI fittings including the cost of GI pipe & its fittings, chasing brick work/concrete and making good the same, cost of labour, all materials etc. complete. Thickness-2.6mm	150.00	RM
(b)	.. Do... 20mm dia (3/4") Thickness-2.6mm	220.00	RM
(c)	.. Do... 25mm dia (1") Thickness-3.2mm	270.00	RM
(d)	.. Do... 40mm dia Thickness-3.2mm	45.00	RM
(e)	.. Do... 50mm dia Thickness-3.6mm	200.00	RM
17a	Supply & fixing of Gunmetal Gate (GM peet) valve as per IS -778 class-I, Indian make heavy type 15 mm (1/2") dia NB size.	3.00	Each
b	.. Do .. 20mm dia (3/4")	20.00	Each
c	.. .do ...25mm dia (1")	20.00	Each

S No	Description of the item	Qty	Unit
d	.. .do ...50mm dia	2.00	Each
18	Construction of brick masonry chamber of dimension 0.914 x 0.457 x 0.914 m (3' x 1'6" x 3') with brick in CM 1:6 including plastering over both sides with CM 1:4, 20 mm thick and fitted with light weight CI frame and cover of size 0.914 x 0.457 m in CM 1:4 including bed concrete of CC 1:4:8 as required, supplying and fixing one CI steps in brick masonry if necessary if necessary including earth work excavation in all soils, refilling around the chamber removing the surplus earth etc. complete as directed.CI frame and cover of 40 kgs.	6.00	Each
19	Construction of brick masonry chamber of size 23 x 30 Cm (9" x 12") in brick work in CM 1:6 and plastering in CM 1:4, 20 mm for gully trap 150 mmx100mm including cost of excavation, PCC 1:4:8, 75 mm thick, all materials, labour etc., complete.	10.00	Each
20	Providing and placing on terrace (at all floor levels) of polyethylene water storage tank of 2000 ltrs capacity with double layer approved brand and manufacture as per ISI with cover and suitable locking arrangement and making necessary holes for inlet and outlet and overflow pipes with fittings (ballcock, inlet and outlet nipples) without base support for tank. (Brick work will be paid separately). Make: Syntex/Aqua	8.00	Each
21	Supplying and fixing plain PVC pipe of 110 mm dia of 4 kg's/cm² of approved quality with specials, accessories and approved sealing /jointing compound on the exterior of the inserted portion of the fitting and fixing in position and joing to MS gutters, including cost of all materials, sealing compound, labour etc., for all heights complete	160.00	RM
22	Supplying ,laying ,jointing and testing 152.4 mm (6") SWG pipes of ISI make conforming to ISI 651 & 4127 with airtight cement joints in Cement mortar 1:5:1 prop. including excavation of trenches and socket pits in any soil(except rock requiring blasting) up to 1524 mm(5'.0") depth and refilling with watering and tamping.	110.00	RM
23	Supplying,laying,jointing and testing 101.60 mm (4") SWG pipes of ISI make conforming to ISI 651 & 4127 with airtight cement joints in Cement mortar 1:5:1 prop. including excavation of trenches and socket pits in any soil (except rock requiring blasting) up to 914.40 mm(3'.0") depth and refilling with watering and tamping.	25.00	RM
24	Providing , laying and jointing glazed stone ware pipes 250 mm dia.class SP-I with stiff mixture of cement mortar in the proportion of 1:1 (1 cement: 1 fine sand) including testing of joints etc. complete.	180.00	RM
25	Supply & fixing PVC Ventilating cowl of 110 mm dia.	10.00	Each
26	Supply & fixing 12.7 mm PVC connection with brass union nut CP coated.	30.00	Each
27	Supply & fixing P Trap 1st quality ISI marked conforming to IS:1729 - 1979 with CP grating fixing with white cement as per site requirements with standard practice - 100 mm dia (4") .	15.00	Each
28	Providing and Fixing PTMT waste coupling for wash basin and sink, of approved quality and colour. - waste Coupling 31 mm of 79 mm length and 62 mm breadth weighing not less than 45 gms.	25.00	Each

S No	Description of the item	Qty	Unit
29	Construction of brick circular Manhole of 1.22 M at bottom and 0.56 m dia in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1;3 (1 cement: 4 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6(1 cement: 3 coarse sand: 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 finished with a floating coat of neat cement all complete as per standard design, complete. 1.68 m deep with SFRC cover and frame, 560 mm internal diameter conforming to IS 12592, total weight of cover and frame to be not less than 182 kg fixed in cement concrete 1:2:4 including centering shuttering all complete. With FPS brick class designation 75.	6.00	Each
30	Making connection of drain or sewer line with existing manhole including breaking into and making good the walls, floors with cement concrete 1:2:4 mix(1 cement : 2 coarse sand: 4 graded stone aggregate 40mm nominal size) cement plastered on both side with cement mortar 1: 3(1 cement: 3 coarse sand) finished with a floating coat of neat cement and making necessary channel for the drain etc. complete. for pipes 250mm to 300 mm diameter.	1.00	each
31	Making connection of G.I distribution branches with G.I. main of 50 to 80 mm nominal bore by providing and fixing tee, including cutting and threading the pipe etc. complete.	1.00	Each
32	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement :2 fine sand) including testing of joints etc. complete - 250mm dia R.C.C pipe.	30.00	RM
	PART-B: Staircase and lift head room (225 sq.m)		
1	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering ,shuttering, finishing and reinforcement ,including consolidation by vibrations for all works up to floor five level with 1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate of 20 mm nominal size).	105.00	Cu.m
2	Centering and shuttering including strutting, propping etc.; and removal of form work, for columns, pillars, piers, abutments, machine foundations, posts and struts upto floor five level. MS Beam/channel and Jack supports need to be provided to the slab centering where ever required and as directed by Engineer In charge.	750.00	Sq.m
3	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding grills with binding wire all complete by cold twisted bars-Upto floor Five level.	8.40	M.T
4	Brick work with FPS bricks of class designation 75 in superstructure upto floor five level in all shapes and sizes in cement mortar 1:6.	195.00	Cu.M
5	Plastering in CM 1:6, 20 mm thick to internal and external surfaces of walls including the cost of all materials, labour, curing etc., complete upto floor five level.	1,700.00	Sq.m

S No	Description of the item	Qty	Unit
6	Cement Plaster to ceiling /walls with 12mm thick cement plaster finished with a floating coat of neat cement of mix 1:3 (1 cement : 3 fine sand) .	270.00	Sq.m
7	Plastering over roof slab in CM 1:4, 20mm thick mixed with water proofing compound, Make: "Sika" @ 3% by weight of cement as per manufacturer's specification, curing as directed. Rate quoted shall include finishing, cost of all materials and labour etc., complete. (Cement =7.69 kgs/sq.m x3% WP@ Rs 20.00 per kg = Rs 4.61) upto 10 m height.	90.00	Sq.m
8	Supply and fixing of top fixed, side hung of NCL Seccolor Ajantha windows & Ventilators fabricated from Roll formed section made of pre painted steel (Base steel as per IS 513 of 0.6 mm thick, 'D' quality, galvanized as per IS 277 with zinc 120 GSM / Sq. Mtr). Section for shutter should be of 46 x 46 mm, external frame should be of 46 x 52 mm, section for glass beading should be of 18 x 25 mm & center mullion should be 46 x 70 mm. The sections to be cut to length, meter joined with corner bracket. Centre mullions are to be fixed using mullion cap. Handle made of high grade aluminium powder coated & with nylon receiver & glazed with 5 mm thick, Modi/Saint Gobain float glass. Gasket made of E.P.D.M. Corner brackets made of C.R.C.A with zinc phosphating. Million caps made of glass filled nylon. The above frames should be fixed to the concrete / masonry walls by means of self expanding screws.	11.00	Sq.m
9	Supply and fixing in position medium teak wood door frame along with single leaf shutters solid core non - decorative type 30 mm thick of approved quality and brand including 3 No.s MS hinges 10 cm long and 1 no. mortise lock (Godrej make) , using scantling of size 100 mm X 75 mm (including with MS holdfasts of size 230 X 50 X 4 mm - 6 No.s and painting with coal tar to the faces coming in contact with masonry / concrete . including cost of all materials , labour etc. complete as directed by Engineer in - charge.	7.00	Sq.M
10	Applying exterior emulsion paint 2 coats over one coat of primer to external new plastered surfaces including cost of all labour and other incidentals. (only exterior paint will be issued by BHEL on free of cost).	1,970.00	Sq.m
11	Supply & fixing of 18 mm thick best quality approved colour and design machine cut mirror polished granite slabs in required sizes for counter wash basins, floorings, vanity counter, claddings, facias etc. including cutting, champering, rounding and mirror polishing etc. complete as directed. Cost of granite slabs shall be Rs. 1600/- per Sq. m and granite slabs of required design and colour will be selected by department.	182.00	sq.m

S No	Description of the item	Qty	Unit
12a	Fabrication of structural steel work including all materials going into the process of fabrication and forming an integral part of steel work together with all shop and site rivets and electrodes for site welding as necessary and all site connections comprising sag rods, floor beams, girders, bracings, trusses and frame work for fixed false ceiling and for movable false ceiling, purlins with channel / angles, MS flat supports including all connections as per detailed drawings connected steel works etc., cleats, gusset plates, all bolts, nuts, washers, base plates, anchor bolts as per detailed drawings, cutting, welding and painting 2 coats of red-oxide primer before erection etc., complete. The rate shall include painting 2 coat of Red-oxide as per IS specifications and all charges for handling, leading and loading at the fabrication yard. The raw structural steel sections, electrodes, gasses will be issued by BHEL on FREE of cost at their stores	0.25	MT
b	Erection of Steel work out lined in above item including the charges for handling, leading and stacking at site at approved locations prior to erection including all site rivetting, bolting, jointing and site welding where ever required.	0.25	MT
13	Painting at site of all structural steel work with 2 coats of aluminium paint / synthetic enamel paint of approved shade to trusses, columns, girders, bracings etc., with aluminium paint or synthetic enamel paint as required etc., complete. The required paint only will be issued free of cost by B.H.E.L at their stores.	0.25	MT
14	Supply and Fixing of colour coated aluminium zinc alloy coated metallic hirib profile sheet of nominal 1015-1020mm effective cover width and 28-30 mm deep ribs with subtle square fluting in the five pan at nominal 202-205mm centre-to-centre. The end rib shall be designed for anti-capillary action, to avoid any seepage of water through the lateral overlap. The feen material is manufactured out of nominal 0.45mm base metal thickness (BMT) or 0.5 mm TCT, Hi-Strength steel with minimum 550 MPa yield strength metallic hot dip coated with aluminium -Zinc alloy (55 % Aluminium ,45 % Zinc)as per AS 1397-Zincalume AZ150 (Min 150 Grams / Sq.Mt) Total on both sides) with colour bond steel quality paint coat as per AS/NZS 2728 type 3-4.The paint shall have a total coating thickness of nominal 35 µm, Comprising of nominal 20µm exterior coat on top surface and nominal 5 µm reverse coat on back surface over nominal 5µm primer coat on both surfaces of approved colour shade by concern authority. The plane sheet width shall be 1220 mm.	70.00	Sq.m
	The steel manufactures test certificate for the certificate for the chemical and mechanical properties of steel must be submitted for approval by the engineer-in-charge. The roof sheet shall be crest fixed to roof purlins with number 12-14 x 55 mm long polymer coated galvanised hex head self drilling screws with integral washers and EPDM seals (4 fastners for support) for sheet etc., complete as directed.		

S No	Description of the item	Qty	Unit
	Part-C: Construction of panel room 12m x 3m for PE & SD Bldg.		
1	Earth work in excavation in all soils by mechanical means (Hydraulic Excavators) / manual means in foundations trenches or drains (not exceeding 1.5m in width or 10 Sq.m on plan) including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 200M.	30.00	Cu.m
2	Filling with available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidation each deposited layer by ramming and watering, lead upto 200 m and lift upto 1.50 m.	18.00	Cu.M
3	Conveyance of excavated spoil up to a lead of 2 Kms, including loading, unloading and spreading etc. complete as directed by Engineer- in- charge.	12.00	Cu.M
4	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering including consolidation by vibrations for all works up to plinth level with 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate of 20 mm nominal size).	9.00	Cu.M
5a	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement, including consolidation by vibrations for all works up to plinth level with 1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate of 20 mm nominal size).	9.00	Cu.M
b	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering ,shuttering, finishing and reinforcement, including consolidation by vibrations for all works up to floor five level with 1:1½:3 (1 cement : 1½ coarse sand : 3 graded stone aggregate of 20 mm nominal size).	13.00	Cu.m
6	Centering and shuttering including strutting, propping etc.; and removal of form work, for columns, pillars, piers, abutments, machine foundations, posts and struts upto floor five level. MS Beam/channel and Jack supports need to be provided to the slab centering where ever required and as directed by Engineer In charge.	45.00	Sq.m
7	Reinforcement for R.C.C. work including straightening , cutting , bending, placing in position and binding grills with binding wire all complete by cold twisted bars.-Upto floor Five level.	1.04	M.T
8	Brick work with FPS bricks of class designation 75 in superstructure upto floor five level in all shapes and sizes in cement mortar 1:6.	19.00	Cu.M
9	Plastering in CM 1:6, 20 mm thick to internal and external surfaces of walls including the cost of all materials, labour, curing etc., complete upto floor five level.	205.00	Sq.m
10	Cement Plaster to ceiling /walls with 12mm thick cement plaster finished with a floating coat of neat cement of mix 1:3 (1 cement : 3 fine sand) .	52.00	Sq.m

S No	Description of the item	Qty	Unit
11	Plastering over roof slab in CM 1:4, 20mm thick mixed with water proofing compound, Make: "Sika" @ 3% by weight of cement as per manufacturer's specification, curing as directed. Rate quoted shall include finishing, cost of all materials and labour etc., complete. (Cement =7.69 kgs/sq.m x3% WP@ Rs 20.00 per kg = Rs 4.61) upto 10 m height.	52.00	Sq.m
12	Flooring in 25mm thick using 1 cement and 3 parts of granite stone chips of 3 to 10mm gauge (no sand) Ellis pattern first sort including neat finishing, curing, cost of materials etc.; complete.	34.00	Sq.m
13	Supplying and laying of vitrified tiles of brighter shades and marble design of Premium Quality (1st quality) in required texture, design and colour, for flooring /skirting /cladding using vitrified tiles of size 600 x 600mmx8 mm thick of approved make. It includes cost of cutting, champering of tiles to required size, with base of Conmax C - 500 tile adhesive for fixing tiles on existing mosaic/cement flooring, jointing the tiles with colour tint etc. complete as directed by Engineer-in-charge. The rate quoted shall include cost of all materials, labour, adhesives, colour tint material, leads and lifts etc. complete. Amount will be paid on the basis of measurement of the area of finished work only. It also includes surface preparation of existing ceramic floor giving necessary slopes, cleaning joints and grouting joints with pigmented additives to match shade of the tile, making pockets for electrical, communication, network cables etc. complete as directed by Engineer-in-charge. Amount will be paid on the basis of measurement for finished work only.	24.00	Sq.m
14	Applying exterior emulsion paint 2 coats over one coat of primer to external new plastered surfaces including cost of all labour and other incidentals. (only exterior paint will be issued by BHEL on free of cost).	260.00	Sq.m
15	Supply & fixing of full height aluminium door with double leaf manual slide opening mechanism at main entrance in required size made out of anodised aluminum box section of size 44.50x47.50x2 mm for verticals, top and middle rails and 101.60x44.50x2 mm for bottom rail inclusive of supply & fixing of all aluminium fixtures and fittings suitable to the door sliding mechanism, handles, suitable locking arrangement etc. complete, wherever members are joined wooden runners are to be inserted in the box section. This includes grouting of rails/aluminum sliding sections to the floor properly etc. complete as directed by Engineer-in-charge. Providing & fixing of 12 mm toughened glass with rubber beading with screwless snap on clips etc. for top portion of the door frame of approximate size 3' x 2.5' on each door leaf and 12 mm thick "Novapan" particle board, exterior grade, laminated on both sides fixed to bottom portion of the door frame of approximate size 3' x 4.5' on each door leaf with rubber beading, screwless snap on clips etc. complete.	6.00	Sq.m

S No	Description of the item	Qty	Unit
16	Supply and fixing of top fixed, side hung of NCL Seccolor Ajantha windows & Ventilators fabricated from Roll formed section made of pre painted steel (Base steel as per IS 513 of 0.6 mm thick, 'D' quality, galvanized as per IS 277 with zinc 120 GSM / Sq. Mtr). Section for shutter should be of 46 x 46 mm, external frame should be of 46 x 52 mm, section for glass beading should be of 18 x 25 mm & center mullion should be 46 x 70 mm. The sections to be cut to length, meter joined with corner bracket. Centre mullions are to be fixed using mullion cap. Handle made of high grade aluminium powder coated & with nylon receiver & glazed with 5 mm thick, Modi/Saint Gobain float glass. Gasket made of E.P.D.M. Corner brackets made of C.R.C.A with zinc phosphating. Million caps made of glass filled nylon. The above frames should be fixed to the concrete / masonry walls by means of self expanding screws. Approximate size of windows 1.30mx0.9m and 3.00mx2.10m - Double shutter without guard bars(grills)... Excise duty/VAT inclusive .Service tax extra as applicable.	9.00	Sq.m
17	Supply & fixing in position PVC Pipes of 3" dia (as per IS 4 kg/sq.m) of best quality for drainage lines / urinal / hand wash areas including chasing the brick wall, concrete etc. and making good the same after fixing the same etc. complete.	7.00	RM
18	Dismantling reinforced cement concrete / plain cement concrete and disposing of debris upto to a lead of 2 KM including loading, unloading and spreading as directed by Engineer-in-charge etc., complete.	6.00	Cu.m
	Part-D (Interiors)		
	PART-I CIVIL WORKS		
1	Full height glass partitions for cabins: Providing & fixing of Aluminum frame work using 50 x 50 x 1.2 mm box sections placed at approximately 600 mm c/c horizontally and vertically and forming a grid size of 600 x 600 mm. The frame work is to be adequately anchored in RCC slab for a firm support. Then fixing of 12 mm MDF board on both sides of Aluminum frame work upto the false ceiling level. Providing and fixing of 12 mm Toughened Glass in required size for partitions. The glass partition shall be provided with "3M' frosted film in required design. The joints of the glass partitions shall be flushed perfectly without any gaps and joints shall be filled with silicon compound. If necessary bottom of the glass shall be fixed in PVC sleeve, subsequently fixed into floor. The door opening shall be deducted for payment.	1,900.00	Sq. m.
2	Supply & fixing of aluminium full/half height partitions with new anodised aluminium box section powder coated in required colour of size 101.60 x 44.45 x 2.00 mm for verticals, top and bottom horizontals at spacing suiting to the site requirements as approved. Wherever doors are coming wooden runners are to be provided in the box section. The rate shall include grouting of frame to the floor properly fixed to at ends to walls, supply & fixing of 12 mm toughened glass in required sizes, aluminium sections, labour, frosted film on glass with specified design and sizes etc. complete. (The door opening shall be deducted for payment).	500.00	Sq. m.

S No	Description of the item	Qty	Unit
3	Full height glass doors for cabins: Providing & fixing of full height glass doors with 12mm toughened glass adequately anchored to the existing Aluminium Frame Work/ Wood Work with door hardwares Dorma/Ozone make, like floor spring, patch fittings, bottom locks, 'D' handles, etc. with specified design and sizes of frosted film complete in all respects as directed by Engineer-Incharge.	200.00	Sq. m.
4	Single / Double leaved fully glazed patch fitting doors: Supply and fixing of Single / Double glazed door to the door frame of size 75 mm x 200 mm thick BT wood door frame and the facias of the wooden frame shall be covered with 6 mm teak veneer in required colour and design. Supply and fixing of 12 mm toughened single / double glass door leaves fixed in wooden frame all around the glass and wooden frame size shall be 150 mm x 40 mm. All teak wood frame surfaces shall be fixed with teak veneer in required colour and design and the teak veneer of door frame and shutter frame shall be finished with malamine polish into a neat finish. The glass doors shall be fixed to the door frame with door hardwares like floor spring, patch fitting / pivot fitting, centre lock and 'D' Handles of make "Dorma / Ozone". Supply and fixing of "3M" frosted film on the glass door in required design complete in all respects, as directed by Engineer-in-charge. Payment will be made for the measurement of finished door along with frame. The price quoted includes the cost of material, labour, accessories etc. complete.	24.00	Sq. m.
5	Supply & fixing of Aluminium Composite Panel (ACP), 3 mm thick in required colours for interiors, consisting of two layers of aluminium skins of 0.15 mm thick sandwiching a thermo plastic core in continuous lamination process with PVDF Resin coating for interior grades ensuring long colour and no fungal attacks. Base framework with aluminium sections of size 50 mm x 25 mm x 2 mm shall be fixed over the brick work and the above composite panels shall be fixed to the framework as cladding. There shall not be any colour variation in panels. It includes cost of labour, materials, accessories, adhesives, scaffolding, wastages, transport, taxes, fixing into a neat finish in aesthetic point of view, without any undulations in facias. Any undulations in walls shall be maintained into one level and the required packing material shall be provided to maintain the neat finish. Payment will be made for finished work only.	450.00	Sq. m.

S No	Description of the item	Qty	Unit
1	PART -II AIR CONDITIONING WORKS Supply, installation, testing & Commissioning of 17.0 TR ceiling suspended Duct able split a/c unit, Three phase with 17.0 TR 1no indoor unit and 8.5 TR 2.nos outdoor Unit with scroll compressor & remote control along with electronic control with remote control pad, necessary cabling, DBs, switches, inclusive of all connected accessories etc. for 3rd floor hall, complete in all respects. MAKE: LG/VOLTAS/BATLIBOI/CARRIER/BLUE STAR/DAIKIN	18.00	Each
2	Supply, installation, testing & Commissioning of following piping / ducting for Air Conditioning units Copper refrigerant piping with insulation foam between indoor and outdoor air cooled condensers of the following sizes. Hard drawn pipe 28mm dia	900.00	R M
3	---do--- Soft drawn pipe 12mm dia	900.00	R M
4	GSS ducting complete with angle iron flanges, high tech supports as per SMACNA specification 20 gauge	180.00	Sq. m.
5	---do--- 22 gauge	360.00	Sq. m.
6	--- do-- 24 gauge	2,000.00	Sq. m.
7	The acoustic lining in the duct using fibre glass with 26 g aluminum perforated sheet using GI nuts and bolts. 12.5mm thick	360.00	Sq. m.
8	Providing Thermal Insulation with 25mm thick fibre glass crown 150mm covered with aluminum foil.	2,160.00	Sq. m.
9	MS black coated Collar Dampers	90.00	Sq. m.
10	Main duct Volume control dampers made out of 18 gauge GI sheet.	9.00	Sq. m.
11	Fire damper made out of 18gauge GI sheet with fusible link.	10.00	Sq. m.
12	Fire retardant flexible canvas connection	15.00	Each
13	Condensate drain pipe of standard make PVC with insulation of 50mm dia	500.00	R M
14	Power and control cabling between the panel, indoor unit and out door unit of the following sizes 3c 1.5 SQ.MM	5,400.00	R M
15	--do-- 3c 2.5 SQ.MM	3,500.00	R M

S No	Description of the item	Qty	Unit
16	Mounting both indoor & outdoor units, pressure testing, vaccumising and commissioning etc. of Duct able a/c unit (including necessary civil works). It also includes fabrication and erection of MS channel / angle frame work for installation of mounting of out door / indoor units into brick wall / concrete / floors etc. complete. Required MS channels / angles shall be supplied by BHEL on free of cost.	18.00	Each
17	Supply & fixing of Aluminium diffusers and dampers powder coated removable core type, 4-way. These diffusers shall be suitable for Armstrong false ceiling of grid size 600 mm x 600 mm and colour of the diffuser shall be matched with the colour of Armstrong boards.	400.00	Each
18	Supply & fixing of Aluminium diffusers with powder coated without dampers, removable core type 4-way return air Neck - 18" x 18", Outer 590 x 590 mm, Reflection - 30. These diffusers shall be suitable for Armstrong false ceiling of grid size 600 mm x 600 mm and colour of the diffuser shall be matched with the colour of Armstrong boards.	400.00	Each
19 a)	Supply, installation, testing and commissioning of 2.0 TR/1.80 TR Cassette AC comprising indoor unit, outdoor unit with electronic control panel and remote control pad, DB's, Switches etc. complete in all respects. If required, brick pedestals / structural stands shall be provided. The rate includes cost of AC's, all accessories, pedestals, testing & commissioning, labour, transportation, leads and lifts, scaffolding etc. complete as directed by Engineer-in-charge. MAKE: LG/VOLTAS/BATLIBOI/CARRIER/BLUE STAR/DAIKIN	85.00	Each
b)	Copper piping with insulation between indoor and outdoor	200.00	R M
c)	Electrical wiring between outdoor and indoor	400.00	R M
d)	Drain Piping 25 mm	400.00	R M
	Note: 1) The layout showing details of the AC ducting, position of the indoor and outdoor units, air diffusers (supply and return), Cassette ACs etc. shall be submitted for approval to the Engineer In Charge. 2) All out door Air conditioner units and compressor units shall be located on the terrace/on chajjas of the building, whichever is feasible. 3a) Air balancing to be carried out to show anywhere in the area 24±2°C in peak summer also. 3b) Energy Meter for total load (lighting, A/C etc.) of the floor shall be provided.		

S No	Description of the item	Qty	Unit
	PART-III ELECTRICAL WORKS Cable Raceways Supply, installation, testing & Commissioning of separate floor Raceways with covers & Cable Trays with suitable covers for all ratings of power supply points, both 230VAC and 415 V AC		
1	Supply & Installation of 300x50x2.0mm GI ladder type Cable Tray with all accessories and supporting arrangement from ceiling or Wall complete in all respects.	250.00	R M
2	Supply & Installation of in-screed floor raceways (to be run separately for power, network and telephone cables) consisting following rectangular Aluminium sections including chasing and refilling the trench as per the route shown in the drawing and approved by Engineer in charge at site including clamping & closing the open pipe ends temporarily by suitable end covers against entry of dust or any other foreign material complete in all respects. 96 x 38 mm	4,000.00	R M
3	-- do -- 56 x 38 mm	1,000.00	R M
4	Supply & Installation of floor junction boxes with top cover for above raceways, of size 300mm x 300mm x 50mm / 150x150x50 fabricated out of MS painted sheets with removable screwed stainless steel cover plates on all junction boxes. The covers shall be neatly fixed to give aesthetic look and corner edges of the cover plates shall be rounded edge profile etc. complete in all respects.	1,000.00	Each
5	Supply, Installation and commissioning of MAIN LT PANEL , floor mounted, front operated, dead back, totally enclosed vermin proof, indoor, non-draw out, cubicle type power dist. panel fabricated out of 2mm thick CRCA sheet having gasketed hinged door on each cubicle, fully powder coated / enamel painted after seven tank treatment, incorporating horizontal and vertical sleeved copper busbars 'complete with all internal wiring, danger board, two earthing lugs, cable chamber etc. as required' housing below mentioned switchgears / meters. Complete in all respects. This panel should consist of following. Digital Energy meter with RS 485 port - 1 No. 250A 50KA TPN MCCB unit as Incomer - 1 No. 160A,50KA TPN MCCB as outgoing - 1 No. 63A, TPN MCB as outgoing - 6 Nos. 40A, TPN MCB as outgoing - 4 Nos. 0-250A, Ammeter with CT & inbuilt S/S - 1 No. 0-415V, Voltmeter with inbuilt S/S - 1 No. TP&N, Aluminum busbars of suitable size thick with PVC sleeving - 1 Set RYB, indicating lamps with resistors and fuses - 1 Set This includes termination of the cables, end terminators, material, labour, commissioning etc. complete. The panel should be from CPRI approved manufacturer	6.00	Set

S No	Description of the item	Qty	Unit
6	<p>Supply, Installation and commissioning of UPS OUTGOING PANEL, floor mounted, front operated, dead back, totally enclosed vermin proof, indoor, non-draw out, cubicle type power dist. panel fabricated out of 2mm thick CRCA sheet having gasketed hinged door on each cubicle, fully powder coated / enamel painted after seven tank treatment, incorporating horizontal and vertical sleeved copper busbars 'complete with all internal wiring, danger board, two earthing lugs, cable chamber etc. as required' housing below mentioned switchgears / meters. Complete in all respects. This should comprise of following.</p> <p>Digital Energy meter with RS 485 port - 1 No. 250A 4P MCCB as Incomer - 1 No. 63A, 4P, MCB as outgoing - 5 Nos. 0-250A, Ammeter with CT & inbuilt S/S - 1 No. 0-415V, Voltmeter with inbuilt S/S - 1 No. TP&N, Aluminum busbars of suitable size thick with PVC sleeving - 1 Set RYB, indicating lamps with LED type and fuses - 1 Set.</p> <p>The panel should be from CPRI approved manufacturer</p>	6.00	Set
7	<p>Supply and installation of 8 way, TPN, MCB type Lighting Distribution Board (LDB) flush mounted on wall, sheet metal fabricated, powder coated, having dust-proof and vermin' proof, and hinged door with all internals such as DIN rails, neutral-link, interconnected wiring complete with earthing lugs housing following switchgears: Complete in all respects. This should comprise the following.</p> <p>40A, FP ELCB as incomer(100mA) - 1 No. 10A, SP, MCB outgoing(10KA) - 24 Nos.</p> <p>Make : Siemens/Legrand/Hager</p>	8.00	Set
8	<p>Supply, Installation and commissioning of 8 way, TPN, MCB type Power Distribution Board (PDB) flush mounted on wall, sheet metal fabricated, powder coated, having dust-proof and vermin' proof, and hinged door with all internals such as DIN rails, neutral-link, interconnected wiring complete with earthing lugs housing following switchgears:</p> <p>63A, FP ELCB as incomer(100mA) - 1 No. 16/20A, SP, MCB outgoing(10KA) - 24 Nos.</p> <p>Make : Siemens/Legrand/Hager</p>	8.00	Set
9	<p>Supply, Installation and commissioning of 8 way, TPN, MCB type Computer Power Distribution Board (CPDB) flush mounted on wall, sheet metal fabricated, powder coated, having dust-proof and vermin' proof, and hinged door with all internals such as DIN rails, neutral-link, inter connected wiring complete with earthing lugs housing following switchgears, complete in all respects.:</p> <p>40A, FP MCB Isolator as incomer(10KA) -1 No. 16A, SP, MCB outgoing(10KA) - 24 Nos.</p> <p>Make : Siemens/Legrand/Hager</p>	8.00	Set
10	<p>Supply, Installation and commissioning of 8way SPNDB similar to above but for emergency lighting distribution (ELDB) having below mentioned switchgears, complete in all respects.</p> <p>32A, DP, MCB as incomer - 1 No. 6A, SP, MCB, outgoing (10KA) - 6 Nos.</p> <p>Supply, Installation and commissioning of 20A, SP, MCB, box with 20A, metal clad plug-socket for termination of cable for room A/C</p> <p>Make : Siemens/Legrand/Hager</p>	8.00	Set

S No	Description of the item	Qty	Unit
11	CABLES / MAINS Supply & Installation of 1100V grade FRLS armoured cable having sector / circular shaped aluminum / copper conductor PVC insulated cores, laid up, PVC tape wrapped inner sheathed, GI strip / wire armoured and overall extruded PVC sheathed conforming to IS:1554 laid on wall/ceiling using GI clamps & spacers as per route shown at site and further as directed by Consultant at site in the following sizes, complete in all respects.: Supply & laying of 4C x 120 SQ.MM Copper armoured cable in suitable size of PVC Conduit. Make: Finolex/L&T	10.00	R M
12	---do -- Supply & laying of 4C x 70 SQ.MM. copper flexible in suitable size of PVC Conduit. Make: Finolex/L&T	150.00	R M
13	---do--- Supply & laying of 4C x 16 SQ.MM Copper flexible cable. Make: Finolex/L&T	150.00	R M
14	--- do --- Supply & laying of 4C x 10 SQ.MM Copper flexible cable. Make: Finolex/L&T	1,000.00	R M
15	---do--- Supply & laying of 4C x 6 SQ.MM copper armoured cable. Make: Finolex/L&T	500.00	R M
16	Supply and installation of end terminations for above mentioned cables, including compressed type brass glands, crimping type copper lugs, insulation tape etc. as required complete with earthing of glands in following sizes, complete in all respects. 4C x 120 SQ.MM copper armoured cable	15.00	Each
17	---do--- 4C x 70 SQ.MM. copper flexible cable	15.00	Each
18	--- do --- 4C x 16 SQ.MM Copper flexible cable	15.00	Each
19	---do--- 4C x 10 SQ.MM copper flexible cable	150.00	Each
20	---do---- 4C x 6 SQ.MM copper flexible cable	15.00	Each
21	WIRING Supply & Installation of surface/concealed point wiring FRLS using 600v grade 1.5 SQ.MM copper conductor PVC insulated wires (with proper R,Y,B color code) pulled through 1.2mm thick PVC conduits laid concealed over false ceiling or in wall chases including 1.0 SQ.MM green color copper earth wire and provision of grid plate type switches as approved by architect, complete in all respects. Primary light points of 5A switch. (Switch shall be of ROMA /Cabtree Type). Wire Make: Finolex/L&T	500.00	Each
22	Supply & installation of above for Secondary light points looped from the above point.	700.00	Each
23	Supply & installation of Hub/Server Room Power Points(3R of 4sqmm copper wire in PVC conduit) with 32A Metal Clad Socket with M.S Enclosure control by a 32 A DP MCB.with Top in enclosure from Hub/Server room DB.	3.00	Each

S No	Description of the item	Qty	Unit
24	Supply and laying of 1100V grade PVC insulated, copper conductor cables in 1.5mm thick P.V.C. conduits, run above the false ceiling, concealed in the wall or partition, saddles at every 600mm c/c. A separate neutral shall be run for each circuit. The rate shall include all fixing accessories like collars, tees, elbows, providing fan hooks, ceiling roses, holders, wooden blocks, switches, sockets, switch mounting MS boxes, MS Junction Boxes etc., of approved make, complete in all respects, for Sl.No. 25, 26 & 27 (Separate rate is not required to be quote for item No.24). Wire Make:Finolex/L&T		
25	Supply and laying of 2 runs of 2.5 SQ.MM. PVC insulated copper conductor FRLS cable along with 1run of 1.5Sq.mm PVC insulated copper conductor cable. Run in a 19mm dia. 1.2mm thick PVC conduit on surface of the ceiling or in wall. Make:Finolex/L&T	20,000.00	R M
26	Supply & fixing of 6/16A Plug Point directly taken from DB for Pantry/geyser / zerox / fridge/ split AC units. Make: Roma of Anchor (or) North West	170.00	Each
27	Supply and laying of 2 runs of 4.0 SQ.MM. PVC insulated copper conductor FRLS cable along with 1 runs of 1.5Sq.mm PVC insulated copper conductor cable. (1-PH AC'S) Run in a 25mm dia., 1.2mm thick PVC conduit, on surface of the ceiling or in wall, complete in all respects. Wire Make:Finolex/L&T	4,000.00	R M
28	Supply and installation of 6A, 5 pin 4 nos. shuttered type sockets controlled by 1no. 16A switch with suitable size of front plate etc. (UPS POWER set); location of the points will be finalised in consultation with engineer in charge, complete in all respects. Make: ROMA OF ANCHOR	500.00	Each
29	Supply and installation of one no 6A/16A 5pin shuttered type sockets controlled by 1no. 16A switch with suitable size of front plate etc. (RAW POWER set) Make: ROMA OF ANCHOR	300.00	Each
30	EARTHING Supply and installation of 2 nos. of separate earth pits each with material for power and network (including excavation) comprising of 600mm x 600mm x 3mm thick copper plate buried at a minimum depth of 2.5 meter including necessary materials like charcoal, salt etc. as required conforming to BIS standards having brick masonry chamber with hinged cover and watering arrangement, complete in all respects.	12.00	Each
31	Supply and installation of copper wire/strips in following sizes 14 SWG copper bare wire	100.00	R M
32	Supply and installation of isolated earthing system for computer etc. using insulated green yellow copper earthing wire laid through 20mm PVC conduits from separately made earth pit to the equipment in following sizes Supply and installation of 16 sqmm, cu., in 20mm PVC flexible conduit.	800.00	R M
33	Supply and installation of 6 sqmm, cu in 20mm PVC flexible conduit.	200.00	R M

S No	Description of the item	Qty	Unit
34	LIGHTING FIXTURES Supply & Installation of lighting fixtures with lamps as per the details below including necessary hardware such as clamps, nuts, bolts, nails, screws and suspension rods as required for fixing the fixtures in position as directed by architect / consultant, complete in all respects. Supply & fixing of energy efficient light fitting of Philips FBS 450/236 D6 HF wing -C- LX recess mounted direct, indirect light efficiency.	600.00	Each
35	Supply & Installation of Recess mounted down lighter luminaries with specular finish reflector 1x18 W CFL Cat No Philips make: FBH145/118.	300.00	Each
36	Supply & Installation of exhaust fans , 12" size, Heavy Duty Make: Crompton Greaves	10.00	Each
37	Supply & Installation of Occupancy sensors with bypass facility for Cabins. This includes wiring from sensor to board and supply of required accessories. Make : Philips/Wipro/Steinel	50.00	Each
	Note:- 1) The layout of light fixtures, power sockets, cable raceways, occupancy sensors and other fittings shall be submitted for approval to the Engineer In charge. 2)All power cables shall be terminated properly including neatly dressing of cables, by using suitable lugs ferrules, hangers etc. complete.		
1	PART-IV SMOKE AND FIRE DETECTION & ALARM SYSTEM Supply, installation and commissioning of microprocessor based, Two Loop Intelligent Addressable Fire Alarm Control Panel with independent battery backup suitable for 72 hours AND WITH the following features, complete in all respects.: a) 159 detectors and 159 modules per SLC loop b) The system display shall provide a 640-Character backlit alphanumeric Liquid Crystal Display (LCD). It shall also provide ten Light-Emitting-Diodes (LEDs), that indicate the status of the following system parameters: AC POWER, FIRE ALARM, PRE-ALARM, SECURITY, SUPERVISORY, SYSTEM TROUBLE, OTHER EVENT, SIGNALS SILENCED, POINT DISABLED, and CPU FAILURE. c) Built in Alarm, trouble and supervisory relays d) Response time of less than 2 seconds. e) UL Listed f) Pre-signal and Positive Alarm Sequence: The system shall provide means to cause alarm signals to only sound in specific areas with a delay of the alarm from 60 to up to 180 seconds after start of alarm processing. g) Print Functions: The system shall provide means to obtain a variety of reports listing all event, alarm, trouble, supervisory, or security history. h) Shall comply with requirements of NFPA Standard 72 & NFPA - 318. The system shall be electrically supervised and monitor the integrity of all conductors.	3.00	Set

S No	Description of the item	Qty	Unit
2	<p>Supply & installation of Intelligent Multicriteria Detector with mounting base and surface mounting kit and with following features:</p> <p>a) Addressable device, designed to monitor a minimum of photoelectric and thermal technologies in a single sensing device</p> <p>b) Utilizing advanced electronics that react to slow smoldering fires and thermal properties all within a single sensing device.</p> <p>c) Microprocessor design & shall be capable of selecting the appropriate sensitivity levels based on the environment type and then have the ability to automatically change the setting as the environment changes</p> <p>d) Twin LEDs for 360 degree viewing.</p> <p>e) UL Listed</p> <p>f) Operating Voltage :15 to 32 Vdc</p> <p>40 Nos. of these Multicriteria Detectors will be located above the false ceiling for detecting any short circuits and balance 52 Multicriteria Detectors will be located in ALL the cabins, electrical control room, server room, conference halls etc.</p>	300.00	Each
3	<p>Supply & installation of Addressable Duct Sensor with housing and accessories and with following features:</p> <p>a) Continuous sensitivity monitoring and alarm verification from the panel</p> <p>b) Simple change of detector heads</p> <p>c) Easily mounting on round and rectangular ducts</p> <p>d) Air Velocity rating from 150 to 1200 metres per minute</p> <p>e) Poly Carbonate cover for the convenient visual inspection of sampling tube filters</p> <p>f) UL Listed</p> <p>g) Duct sampling tube should be of maximum 3.7 metres.</p>	2.00	Each
4	<p>Supply & installation of Addressable Manual Break Glass Point with accessories and with following features:</p> <p>a) Direct decade addressing</p> <p>b) Built in electronics</p> <p>c) LED for Activation</p> <p>d) Designed to the requirement of BS5839 part -2</p> <p>e) Operating voltage: 24 Vdc</p> <p>f) Key reset</p> <p>g) Meets UL-38 rating</p>	6.00	Each
5	<p>Supply & installation of Addressable Isolator Module with accessories and with following features:</p> <p>a) Powered by SLC loop directly</p> <p>b) Plug in connectors</p> <p>c) Address selector switches visible in 2 planes</p> <p>d) Approved to GEA GEI 1-082 and CEA GEI 1-084</p> <p>e) Surface Mounting box</p>	15.00	Each

S No	Description of the item	Qty	Unit
6	Supply & installation of Addressable Control Output Module with accessories and with following features: a) Addressable Relay Module with dry contact output to activate auxiliary devices. b) Built in type identification. c) High noise immunity d) Operating Voltage: 15-32 Vdc e) UL Listed	10.00	Each
7	Supply & installation of Addressable Analogue Horn sounders and with following features: a) Addressable Horn Sounders shall be of general area coverage. b) Designed with dual front and rear sound paths, providing an 'all around' sound output - ideal for open area coverage. c) Powered directly from Panel. d) Rotary address switches e) Operating voltage: 24 Vdc f) UL Listed Cables and accessories: as required- 2 Core 1.5 sq mm armoured FRLS cable with suitable accessories. Make : Notifier	10.00	Each
8	Supply & laying of fire alarm cable 2 core, 1.5 Sq. mm armoured FRLS twisted cable with suitable accessories. Make: Notifier	4,000.00	R M
	Note:- 1) The layout of the sensors and alarms shall be submitted for approval to Engineer In charge. 2) Installation of Fire alarm system includes synchronisation with centralised fire alarm terminal at fire station located in factory area (Approximately 2 Kms lead). The rate shall include necessary equipment, accessories, any material, installation charges etc. for synchronisation with centralised fire alarm system.		
	Part-E (IT Networking)		
1	Supply and installation of 19 inches 42 U/32" depth, Network Rack with Accessories and front glass door. Make: APC /President/Valrack	3.00	Each
2	Supply and installation of 19 inches 24 port rack mounted LIU with fully loaded SM-SC adapters. (For outdoor Fiber cable termination) Make: Molex/Systemax/Legrand/ Panduit	3.00	Each
3	Supply and splicing of Single mode fiber pigtails with SC Adapter Make: Molex/Systemax/Legrand/ Panduit	96.00	Each
4	Supply and fixing of fiber patch cords 3 m length single mode (SC-LC) (SM OS1/OS2) Make: Molex/Systemax/Legrand/ Panduit	10.00	Each
5	Supply and Structured laying of 12 core outdoor armed fiber cable single mode (SM OS1/OS2) and PVC conduit. Laying is Overhead/underground from DATA Centre and redundant line from new machine shop. Make: Molex/Systemax/Legrand/ Panduit	500.00	Mtrs

S No	Description of the item	Qty	Unit
6	Supply and fixing of 2 KVA UPS system with Batteries/accessories and 2 hours backup. Make: APC/Emersion	3.00	Each
7	Supply, installation and dressing of cat 6 Gigaspeed 19 inch Patch Panels 24 ports in 19 inches network rack and shall conform to EIA standard. Panel should have label holders and designation labels as a part of standard device. Shall also come with rear cable management metallic tray with Velcro ties complete as required etc. Make: Molex/Systemax/Legrand/ Panduit	33.00	Each
8	Supply, installation and dressing of Cat 6 Gigaspeed patch cord 3 Mtrs length for Patch Panel end Connectivity, Both end shall be RJ 45 with snag less boots. Make: Molex/Systemax/Legrand/ Panduit	778.00	Each
9	Supply, laying and termination of Cat 6 Giga speed - 4 Pair 23 AWG UTP Cable, with cross member pair separator complete as required. Each box contains 305 mtrs of UTP Cable. Make: Molex/Systemax/Legrand/Panduit	205.00	Boxes
10	Supply, installation and fixing of CAT 6 Giga speed Information outlets with single/dual face plate. Quantity of outlets are : 2 nos. at each work station/ record room/UPS room/Electrical room/Store room/VVIP Room / Near stairs for Bio-metric access points, 3 nos. in each half cabins/ PA to GM Cabins, 4 nos. in each senior executive cabin/SA to EDs cabin/ conference hall/ Printer room/ Discussion room/ Lobby/Tendering room, 5 nos. in GM Cabin / drafting rooms and 6 nos. in EDs Office Make: Molex/Systemax/Legrand/ Panduit	778.00	Each
11	Supply and fixing of metallic race ways with powdered coated junction boxes under floor for laying of Cat 6 UTP Cable from network room to end station.	1,500.00	Mtrs
	Note: The layout of raceways, information outlets, main hub etc. shall be submitted for approval to the Engineer In charge.		
	Note:-		
i	Soil penetration test has to be done by the agency before commencement of foundation works at their own cost, through M/s JNTU-ICS, Hyderabad for analysing the safe bearing capacity of the soil.		
ii	The reinforcement/column/footing/slab bar bending schedule has to be submitted by the agency duly vetted by M/s JNTU BICS.		
iii	Anti-rodent/anti-termite measures like chemical treatment for walls and plinth before commencement of interior works, providing mesh at air conditioning openings shall be done by the agency at their own cost.		