



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

SCHEDULE- A

Tender Notice No:

HY/FCD/OT- 09 /2010-11 , Dt:- 20.07.2010

**PRICE BID**

Item no : 01

**Name of work : Modernisation of control room at 02 New super Bay interiors-  
Civil, Electrical communication, IT Networking, Air Conditioning,  
Fire Alarm Systems.**

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
	<b>PART 'A' CIVIL WORKS</b>				
1	Brick work using 2nd class ground moulded British standard bricks in CM 1:6, in super structure including the cost of all materials, labour, curing etc. complete.	4.00 Cu. m.	1 Cu. m.	2357.40	9429.60
2	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.	10.00 Sq. m.	1 Sq. m.	95.10	951.00
3	Plain cement concrete 1:4:8 using 20mm and down graded granite stone metal including the cost of labour, all materials, curing etc., but excluding the cost of all form work, M.S. reinforcement and binding wire etc., complete (60% -20 mm size metal and 40% of 10 mm metal).	1.00 Cu. m.	1 Cu. m.	2449.00	2449.00
4	Supply and fixing of toilet doors along with teak wood door frame of required size consisting 100 mm x 75 mm teak scantlings and flush door shutter and laminating both door frame and shutter with premium quality teak veneer in required colour and design and malamine polish. The bottom of the door shall be provided Loowers jolly. Flush door shutter shall be chemically treated and water/insect/borer proof and 30 mm thick. This includes providing brass hinges, brass aldrops, brass tower bolts, brass handles and brass door stoppers.	2.00 Sq. m.	1 Sq. m.	3000.00	6000.00
5	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 thickness, 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).	4.00 Sq. m.	1 Sq. m.	1830.00	7320.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
6	<p>Supplying &amp; fixing of flush window frame with sides openable 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 centre 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 mitre joined with corner bracket made of CRCA electroplated. Mullion section 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><b>MAKE: SHAKTI/AJANTHA OF NCLSECCOLOR</b></p>	100.00	1 Sq. m.	4000.00	400000.00
7	<p><b>Wall paneling:</b> Supply &amp; 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 Eco board. 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. <b>Make : Eco board</b></p>	350.00 Sq. m	One Sq. m	1600.00	560000.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
8	<p><b>Vitrified flooring:</b> Supply and laying of vitrified tiles of brighter shades and required design of Premium Quality (1st Quality), in required texture and colour for floors/skirting/cladding using vitrified tiles of size 600x600 mm (<math>\pm</math> 5 mm), inclusive of cost of cutting, champering of tiles to required size, with base of Conmax C-500/equivalent tile adhesive for fixing tiles on existing mosaic/cement flooring, laying of tiles in required design with spacers or without spacers jointing the tiles with colour tint if required etc. complete as directed by Engineer-in-charge. The cost of the tile shall be Rs. 100/- per SFt. and tiles of required make will be selected by department within the above specified cost. 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. This includes</p> <p>making pockets for electrical, communication, network cables, junction boxes etc. complete in all respects.</p>	450.00 Sq. m	1 Sq. m.	1500.00	675000.00
9	<p><b>Supply and erection of false ceiling:</b> Providing and fixing in true horizontal level 600 mm x 600 mm false ceiling system manufactured by M/s. Armstrong World Industries 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 centre to centre 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 &gt;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</p> <p>granulated with microperforations, 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. <b>Make: Armstrong</b></p>	550.00 Sq. m.	1 Sq. m.	1130.00	621500.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
10	<b>Glass Doors for cabins:</b> Supply & fixing of 12 mm Toughened Glass doors to the existing aluminium frame work partitions with door hardwares DORMA make like floor spring, patch fittings, bottom locks, 'D' handles, pivot fittings with specified design and sizes of frosted film on glass doors complete in all respects.	50.00 Sq. m.	1 Sq. m.	4000.00	200000.00
11	Providing and fixing 10 mm thick acid and alkalai resistant tiles of approved make and colour using acid and alkalai resistant mortar bedding and joints filled with acid and alkalai resisting cement as per IS:4457 complete as per the direction of Engineer-in-charge. a) In flooring, skirting and dado on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand) b) Acid and alkali resistant tile	40.00 Sq. m.	1 Sq. m.	873.00	34920.00
12	Supply & fixing of Aluminium door frame with new anodised aluminium box section, powder coated in required colour and size of Box section 101.60 x 44.45 m x 2 mm for verticals and top horizontals fixing to the existing frame work / wood work / walls etc. The rate shall include labour, materials, nails, screws, clamps etc complete.	50.00 Sq. m.	1 Sq. m.	2000.00	100000.00
13	<b>Glass Partitions:</b> Supply & fixing of aluminium full height/half height partitions with new anodised aluminium box section powder coated in required colour, design and size of box section 101.60 x 44.45 x 2 mm for verticals, top and bottom horizontals and 63.50 x 38.10 x 2 mm for intermediate 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 and colour. Supply & fixing of frosted film with specified design, size and Make of "Birla 3M" etc. complete. (The door opening shall be deducted for payment). The rate shall include labour, materials, nails, screws, clamps etc. complete.	450.00 Sq. m	One Sq. m	4000.00	1800000.00
14	<b>Supply &amp; fixing of false flooring:</b> The access raised floor in required colour with point load of 3.6 KN/over 25 Sq. mm and UDL of 12 KN/Sq. m; panels manufactured from steel with lightweight cementitious core in the size 600 x 600 x 35 mm. The bottom of the panel shall be embossed in hemispherical shape to give strength and flexural rigidity. The entire panel shall be finished with electro deposition of cathodic epoxy paint on the exposed surface for lifetime protection. The panel has to be placed on the pedestal made from all steel zinc plated construction. Pedestal assembly shall provide for easy adjustment of leveling and accurately align panels to ensure lateral restrain. Pedestal head shall be designed to avoid rattle or squeaks. The steel base plate of the pedestal shall be fixed on to the sub-floor with epoxy pedestal adhesive and/or mechanical fixing. An all-steel rectangular stringer system having prepunched holes at both ends to ensure correct alignment with pedestal heads should be applied.	270.00 Sq. m.	1 Sq. m.	4650.00	1255500.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
15	Supply & fixing of 18 mm thick best quality Jet Black colour 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.	2.00 Sq. m	One Sq. m	3071.00	6142.00
16	Supply & fixing 10 mm thick best quality approved colour and design machine cut granite tiles of size 600 mm x 300 mm with mirror polished granite stone for flooring, platforms, cladding, vanity counter Facia etc and for any other locations including cutting, champering, rounding and mirror polishing etc. complete as directed. Cost of the granite shall be Rs. 650/- per sq. m and tiles will be selected by department within the above specified cost.	5.00 Sq. m	One Sq. m	810.00	4050.00
17	Supply & fixing of 6 mm thick mirror of approved quality "Modi float glass", with 6 mm thick hard board back and with best quality Steam beige frame all round the mirror including necessary clamps, malamine polishing to the beading, including cost of all materials etc. complete.	2.00 Sq. m	One Sq. m	1445.00	2890.00
18	Thorough cleaning of existing oil bound distemper paint/white washing with water, by scrapers for old walls and stone rubbing for new plastered walls with suitable tools and applying one coat of oil based cement primer and applying 3 coats altek lappam one coat after drying the previous coat and sand papering and applying two coats of acrylic washable distemper etc., complete as directed by the Engineer-in-charge. Rate shall include all materials like lappum, primer, tools and tackles, scaffolding etc. Only acrylic washable distemper will be issued by BHEL at free of cost.	20.00 Sq. m	One Sq. m	84.10	1682.00
19	Supply and fixing of "Parryware" make ceramic oval shape below counter wash basin size 550 mm x 450 mm, Code No.: 0418, regular in colour (light Ivory) with all accessories like brackets, screws, waste coupling half thread/full thread (Code No. T9910A), connecting hose 2' (Cat No. T991999) etc. complete.	2.00 Nos.	Each	2024.00	4048.00
20	Supply & fixing of new "Parryware" make ceramic cascade water closet (EWC) suite with "P/S" trap including Polypropolene seat cover with all accessories regular in colour along with ceramic matching colour low level cistern 10 liters capacity with wonder flush fittings.	1.00 No.	Each	6985.00	6985.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
21	Supply & fixing of new "Parryware" make, Orissa Pan size 580 mm (Cat 0109/17) with P/S trap box rim with internal foot treads including ceramic low level flushing cistern 10 liters capacity with Parryware wonder flush kit, regular in colour with all required accessories etc. complete.	1.00 No.	Each	4261.00	4261.00
22	Supply & fixing of new urinary pans "Parryware" make, Ceramic, Model (Cat 0575) "New Magnum Urinal" (600 x 400 mm) along with all accessories, CP 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 size 810 x 390 mm in regular colour etc. complete.	4.00 Nos.	Each	3933.00	15732.00
23	Supply and fixing of "Jaquar" make Pressmatic pillar cock auto closing system, Cat No. 031	4.00 Nos.	Each	1400.00	5600.00
24	Supply and fixing of "Jaquar (Continental)" make sink cock with raised 'J' shaped swinging spout, Cat No. 359	1.00 No.	Each	1060.00	1060.00
25	Supply and fixing of "Jaquar" make angular stop cock, Cat No. 053	4.00 Nos.	Each	495.00	1980.00
26	Supply and fixing of "Jaquar (Florentine)" make 2-way bib cock with wall flange, Cat No. 5041	3.00 Nos.	Each	1230.00	3690.00
27	Supply and fixing of "Jaquar (Allied)" make Health Faucet with 8 mm dia, 1 m long flexible tube and wall hook, Cat No.	3.00 Nos.	Each	1325.00	3975.00
28	Supply and fixing of "Base" make Paper Holder (EX - 5406).	1.00 No.	Each	500.00	500.00
29	Supply and fixing of "Base" make towel ring (EX - 5402).	2.00 Nos.	Each	500.00	1000.00
30	Supply and fixing of "Base" make Soap dish (EX - 5403).	2.00 Nos.	Each	500.00	1000.00
31	Supply and fixing of "Base" make Odonil Holder (EX - 5407).	2.00 Nos.	Each	500.00	1000.00
32	Supply & fixing coloured glazed tiles of required make ceramic tiles of Premium (First) quality of required size and of approved shade and design, for walls/flooring over a base of CM 1:4, including neat finishing and jointing etc. complete. (Corners are to be joined by mitering the tiles). The cost of the tile shall be Rs. 70/- per S Ft. The make, design and colour of tile will be selected by department within the above specified cost. The rate quoted shall also include the cost of all materials, labour etc. complete. Payment will be made for finished item of work only.	50.00 Sq. m.	One Sq. m	764.00	38200.00
33 a)	Supply & fixing of GI pipes of Class-B including cutting, threading and jointing of with all necessary fittings including chasing brick work/concrete and making good the same including the cost of all materials etc. (TATA/JINDAL make pipes)complete. a) 15 mm (1/2") dia.	20.00 R M	One R M	131.00	2620.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
33 b)	20 mm (3/4") dia.	20.00 R M	One R M	146.00	2920.00
33 c)	25 mm (1") dia.	20.00 R M	One R M	191.00	3820.00
34	Supplying & fixing in position with suitable with PVC pipe of approved quality including chasing brick work / concrete and making good the same after replacing wherever necessary etc. complete including all accessories like bends, tees, elbows etc. - 75 mm (3") dia.	20.00 R M	One R M	80.78	1615.60
35	Supplying and fixing of 50mm (2") dia stainless steel tubular railings for the top runner (horizontal pipe) and verticals, 25 mm (1") dia stainless steel tubular pipes for intermediate horizontals (pipe of A304 grade 1.2 mm thick) as per design and drawing of BHEL. The cost will include bending, welding/brazing, buffing , polishing, fixing to the plumb, wastage, etc., complete.The above pipe will be used for hand railing, vertical pipe, horizontal pipe as per requirement. (The vertical pipe will be embedded in concrete in required depth from finished floor level along with necessary hold fasts.The verticals will be at intervals of 1.2 to 1.5 M.).The payment will be made for finished quantity measured for the length of railing). The stainless steel grade/quality shall be A304.	65.00 R M	One R M	1435.00	93275.00
36 a)	Supply & fixing of GM peet valves, heavy quality of Leader/Zoloto make of the following nominal bore.ISI marked. a) 15 mm (1/2") dia	4.00 Nos.	Each	242.00	968.00
b)	20 mm (3/4") dia.	2.00 Nos.	Each	327.00	654.00
c)	25 mm (1") dia.	2.00 Nos.	Each	482.00	964.00
<b>PART 'A' TOTAL</b>			<b>Rs.</b>	<b>5883701.20</b>	

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
	<b>PART 'B'</b> <b>AIR CONDITIONING WORKS</b>				
1 a)	Supply, installation, testing & commissioning of 2.0 TR Cassette AC comprising indoor unit, outdoor unit with electronic control panel and remote control pad, DB's, switches etc for conference halls etc complete. <b>MAKE: LG/VOLTAS/BATLIBOI/CARRIER/BLUE STAR</b>	6.00 Nos.	Each	57000.00	342000.00
1 b)	Copper piping with insulation between indoor and outdoor	20.00 R M	One R M	690.00	13800.00
1 c)	Electrical wiring between outdoor and indoor	50.00 R M	One R M	126.00	6300.00
1 d)	Drain Piping 25 mm	50.00 R M	One R M	103.00	5150.00
1 e)	Machine installation and commissioning (indoor & outdoor) including necessary civil works.	5.00 Nos.	Each	3450.00	17250.00
2 a)	Supply, installation, testing & Commissioning of 1.5 TR Split room air conditioner along with electronic control with remote control pad, necessary cabling, DBs, switches, inclusive of all connected accessories etc for conference halls etc complete. <b>MAKE: LG/VOLTAS/BATLIBOI/CARRIER/BLUE STAR</b>	8.00 Nos.	Each	25000.00	200000.00
2 b)	Copper piping with insulation between indoor and outdoor	80.00 R M	One R M	690.00	55200.00
2 c)	Electrical wiring between outdoor and indoor	80.00 R M	One R M	126.00	10080.00
2 d)	Drain Piping 25 mm	80.00 R M	One R M	103.00	8240.00
2 e)	Machine installation and commissioning (indoor & outdoor) including necessary civil works.	8.00 Nos.	Each	3450.00	27600.00
	<b>Note: All out door Air conditioner units and compressor units shall be located on the terrace/on chajjas of the building, whichever is feasible.</b>				
3	<b>Supply, installation, testing &amp; Commissioning of following piping / ducting for Air Conditioning units</b> Copper refrigerant piping with insulation foam between indoor and outdoor air cooled condensers of the following sizes. <b>Hard drawn pipe</b> 28mm dia	10.00 R M	One R M	989.00	9890.00
4	12mm dia	10.00 R M	One R M	661.00	6610.00
5	<b>Soft drawn pipe</b> 12.5mm dia	10.00 R M	One R M	402.00	4020.00
6	6.5mm dia	10.00 R M	One R M	276.00	2760.00
7	Fabrication and erection of MS channel/angle frame work for installation of mounting of out door units including grouting with concrete/anchor bolts into brick wall/concrete/floors etc complete. Required MS channels/angles shall be supplied by BHEL on free of cost.	4.00 Nos.	Each	7305.00	29220.00
	<b>Note: i. Air balancing to be carried out to show anywhere in the area 24±2°C in peak summer also.</b> <b>Note: ii. Energy Meter for total load (lighting, A/C etc.) of the floor shall be provided.</b>				
<b>PART 'B' TOTAL</b>				<b>Rs. 738120.00</b>	

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
1	<p><b>PART 'C'</b></p> <p><b>ELECTRICAL WORKS</b></p> <p><b>Cable Raceways</b> Supply, installation, testing &amp; Commissioning of separate floor Raceways with covers &amp; Cable Trays with suitable covers for all ratings of power supply points, both 230VAC and 415 V AC Supply &amp; Installation of 300x50x2.0mm GI ladder type Cable Tray with all accessories and supporting arrangement from ceiling or Wall complete in all respects.</p>	50.00 R M	One R M	661.00	33050.00
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	800.00 R M	One R M	431.00	344800.00
3	56 x 38 mm	200.00 R M	One R M	375.00	75000.00
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 cover plates on all four sides for blocking the entry complete in all respects. <b>Make : Locally fabricated</b>	200.00 Nos.	Each	546.00	109200.00
5	Supply, Installation and commissioning of <b>LEFT WING MAIN LT PANEL</b> , 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.	1.00 Set	One Set	74750.00	74750.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
6	<p>Supply, Installation and commissioning of <b>RIGHT WING MAIN LT PANEL</b>, 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.</p> <p>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 &amp; inbuilt S/S - 1 No.  0-415V, Voltmeter with inbuilt S/S - 1 No.  TP&amp;N, Aluminum busbars of suitable size thick with PVC sleeving - 1 Set  RYB, indicating lamps with resistors and fuses - 1 Set</p> <p>This includes termination of the cables, end terminators, material, labour, commissioning etc. complete.</p>	1.00 Set	One Set	74750.00	74750.00
7	<p>Supply, Installation and commissioning of <b>UPS OUTGOING PANEL</b>, floor mounted, front operated, dead back, totally enclosed vermin proof, indoor, non-drawout, 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 &amp; inbuilt S/S - 1 No.  0-415V, Voltmeter with inbuilt S/S - 1 No.  TP&amp;N, Aluminum busbars of suitable size thick with PVC sleeving - 1 Set  RYB, indicating lamps with resistors and fuses - 1 Set</p>	2.00 Sets	One Set	66890.00	133780.00
8	<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.  <b>Make: Siemens/Legrand/Hager</b></p>	2.00 Sets	One Set	12334.00	24668.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
9	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: 63A, FP ELCB as incomer(100mA) - 1 No. 16/20A, SP, MCB outgoing(10KA) - 24 Nos. <b>Make: Siemens/Legrand/Hager</b>	2.00 Sets	One Set	9344.00	18688.00
10	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.: 40A, FP MCB Isolator as incomer(10KA) - 1 No. 16A, SP, MCB outgoing(10KA) - 24 Nos. <b>Make: Siemens/Legrand/Hager</b>	2.00 Sets	One Set	10988.00	21976.00
11	Supply, Installation and commissioning of 8way SPNDB similar to above but for emergency lighting distribution (ELDB) having below mentioned switchgears, complete in all respects. 32A, DP, MCB as incomer - 1 No. 6A, SP, MCB, outgoing (10KA) - 6 Nos. Supply, Installation and commissioning of 20A, SP, MCB, box with 20A, metal clad plug-socket for termination of cable for room A/C <b>Make: Siemens/Legrand/Hager</b>	2.00 Sets	One Set	3910.00	7820.00
12	<b>CABLES / MAINS</b> 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 confirming 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.	100.00 R M	One R M	3450.00	345000.00
13	Supply & laying of 4C x 70 SQ.MM. copper flexible in suitable size of PVC Conduit.	40.00 R M	One R M	2300.00	92000.00
14	Supply & laying of 4C x 16 SQ.MM Copper armoured cable.	40.00 R M	One R M	1035.00	41400.00
15	Supply & laying of 4C x 10 SQ.MM copper armoured cable.	250.00 R M	One R M	690.00	172500.00
16	Supply & laying of 4C x 6 SQ.MM copper armoured cable.	125.00 R M	One R M	517.00	64625.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
17	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.	4.00 Nos.	Each	1380.00	5520.00
18	4C x 70 SQ.MM. copper flexible cable	4.00 Nos.	Each	920.00	3680.00
19	4C x 16 SQ.MM Copper flexible cable	4.00 Nos.	Each	747.00	2988.00
20	4C x 10 SQ.MM copper flexible cable	20.00 Nos.	Each	747.00	14940.00
21	4C x 6 SQ.MM copper flexible cable	4.00 Nos.	Each	575.00	2300.00
22	<b>WIRING</b> 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 <b>ROMA Type</b> )	100.00 Nos.	Each	1087.00	108700.00
23	Supply & installation of above for Secondary light points looped from the above point.	150.00 Nos.	Each	385.00	57750.00
24	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.	2.00 Nos.	Each	2760.00	5520.00
25	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. 26, 27 & 28 (Separate rate is not required to be quote for item No.25)				
26	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.	4000.00 R M	One R M	144.00	576000.00
27	Supply & fixing of 6A/16A Plug Point directly taken from DB for Pantry/geyser / zerox / fridge/ split AC units. <b>Make: Roma of Anchor or North West</b>	20.00 Nos.	Each	862.00	17240.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
28	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.	800.00 R M	One R M	172.00	137600.00
29	Supply and laying of Raceways with PVC sleeves in the partition.	500.00 R M	One R M	25.00	12500.00
30	Supply and installation of 6A, 5 pin 4 nos. shuttered type sockets controlled by 1no. 16A switch with suitable size of front plate etc. ( <b>UPS POWER set</b> ); Quantity of outlets are: 4nos. At each work stations, cubicles, 6 nos. each in rooms of PAs, in all cabins of GM, AGMs, conference rooms, ; location of the points will be finalised in consultation with engineer in charge, complete in all respects. <b>Make: Roma of Anchor</b>	80.00 Nos.	Each	1552.00	124160.00
31	Supply and installation of one no 6A 5pin shuttered type sockets controlled by 1no. 6A switch with suitable size of front plate etc. ( <b>RAW POWER set</b> ) <b>Make: Roma of Anchor</b>	80.00 Nos.	Each	920.00	73600.00
32	<b>EARTHING</b> 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.	2.00 Nos.	Each	24150.00	48300.00
33	Supply and installation of copper wires/strips in following sizes 14 SWG copper bare wire	200.00 R M	One R M	57.00	11400.00
34	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.	200.00 R M	One R M	172.00	34400.00
35	Supply and installation of 6 sqmm, cu in 20mm PVC flexible conduit.	400.00 R M	One R M	86.00	34400.00
36	<b>LIGHTING FIXTURES</b> 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.	100.00 Nos.	Each	5175.00	517500.00
37	Supply & Installation of Zoom type Recessed diachronic halogen down lighter 1 x 50W Halogen Cat No Philips make:DN 652 / ETK 50 Halolite with lamp	10.00 Nos.	Each	1437.00	14370.00
38	Supply & Installation of Occupancy sensors with bypass facility for cabins. This includes wiring from sensor to board and supply of required accessories. <b>Make: Philips/Wipro/Steinel</b>	5.00 Nos.	Each	6325.00	31625.00
<b>PART 'C' TOTAL</b>		<b>Rs. 3468500.00</b>			

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
1	<p><b>PART 'D'</b></p> <p><b>SMOKE AND FIRE DETECTION &amp; ALARM SYSTEM</b></p> <p>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.:</p> <p>a) 159 detectors and 159 modules per SLC loop</p> <p>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.</p> <p>c) Built in Alarm, trouble and supervisory relays</p> <p>d) Response time of less then 2 seconds.</p> <p>e) UL Listed</p> <p>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.</p> <p>g) Print Functions: The system shall provide means to obtain a variety of reports listing all event, alarm, trouble, supervisory, or security history.</p> <p>h) Shall comply with requirements of NFPA Standard 72 &amp; NFPA - 318. The system shall be electrically supervised and monitor the integrity of all conductors.</p>	2.00 Sets	One Set	198145.00	396290.00
2	<p>Supply &amp; 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 &amp; 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>	50.00 Nos.	Each	5405.00	270250.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
3	Supply & installation of Addressable Duct Sensor with housing and accessories and with following features: a) Continuous sensitivity monitoring and alarm verification from the panel b) Simple change of detector heads c) Easily mounting on round and rectangular ducts d) Air Velocity rating from 150 to 1200 metres per minute e) Poly Carbonate cover for the convenient visual inspection of sampling tube filters f) UL Listed g) Duct sampling tube should be of maximum 3.7 metres.	1.00 No.	Each	13800.00	13800.00
4	Supply & installation of Addressable Manual Break Glass Point with accessories and with following features: a) Direct decade addressing b) Built in electronics c) LED for Activation d) Designed to the requirement of BS5839 part -2 e) Operating voltage: 24 Vdc f) Key reset g) Meets UL-38 rating	1.00 No.	Each	5060.00	5060.00
5	Supply & installation of Addressable Isolator Module with accessories and with following features: a) Powered by SLC loop directly b) Plug in connectors c) Address selector switches visible in 2 planes d) Approved to GEA GEI 1-082 and CEA GEI 1-084 e) Surface Mounting box	1.00 No.	Each	5060.00	5060.00
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	1.00 No.	Each	5405.00	5405.00
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. <b>Make : Notifier</b>	1.00 No.	Each	43700.00	43700.00
8	Supply & laying of fire alarm cable 2 core, 1.5 Sq. mm armoured FRLS twisted cable with suitable accessories. <b>Make: Notifier</b>	400.00 R M	One R M	103.00	41200.00
<b>PART 'D' TOTAL</b>		<b>Rs. 780765.00</b>			

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
1	<b>PART 'E'</b> <b>IT NETWORKING</b> Supply and installation of CAT 6 Gig speed information outlets with dual face plates. Quantity of outlets are: 2nos. At each work stations, cubicles, rooms of PAs; 4 nos. in all cabins of GM, AGMs, conference rooms, ; location of the outlets to be finalised in consultation with engineer in charge. <b>Make: Tyco/D-Link/Molex</b>	25.00 Nos.	Each	434.00	10850.00
2	Supply, installation and termination of approved make telephone outlets RJ 11jack with dual face plate. Quantity of telephone jacks are: 2nos. at each work stations, cubicles; 4 nos. each in all cabins of GM, AGMs, conference rooms, rooms of PAs; location of the outlets to be finalised in consultation with engineer in charge.	25.00 Nos.	Each	434.00	10850.00
3	Supply, laying and termination of Cat 6 Gig speed - 4 Pair 24 AWG UTP Cable, 305m with cross member pair separator complete as required. Each box contain 305 mtrs. of cable.	30.00 Boxes	Each Box	8050.00	241500.00
4	Supply, laying and termination of 2pair 0.5mm dia shielded PVC insulated Copper conductor Telephone wire conforming to latest Standards.	2000.00 R M	One R M	3.00	6000.00
5	Supply, installation and dressing of Cat 6Gigaspeed Patch Panels for accommodating 24 port termination and shall facilitate cross-connection and inter-connection using modular patch cords and shall conform to EIA standard, 19-inch relay rack mounting requirements. Patch Panel shall come with preloaded information outlets. Panel shall have label holders and designation labels as part of the standard device. Shall also come with rear cable management metallic tray with Velcro ties complete as required.	10.00 Nos.	Each	11500.00	115000.00
6	Supply, installation and dressing of Cat 6Gigaspeed Mounting Cords 3'-0" length for the Patch Panel End Connectivity, Both end shall be RJ 45 with snag less boots complete as required. Make :D-Link or TYCO for all items covered at 1 to 6	50.00 Nos.	Each	230.00	11500.00
7	End terminations for telephone cables into junction boxes.	2.00 Nos.	Each	1495.00	2990.00
8	Providing and fixing of Pigtails for Server.	6.00 Nos.	Each	2415.00	14490.00
9	Providing and fixing of slicing of cores.	6.00 Nos.	Each	1092.00	6552.00

Sl. No.	Description	Quantity	Unit	Rate Rs.	Amount Rs.
10	Supply and fixing of fibre patch cards.	2.00 Nos.	Each	5750.00	11500.00
11	Supply and fixing of Powder coated metallic race ways for tables in cabins and conference halls.	40.00 Nos.	Each	575.00	23000.00
<b>PART 'E' TOTAL</b>				<b>Rs. 454232.00</b>	
				Total Rs.	<b>1,13,25,318.20</b>
<b>Total : Rs. One crore thirteen lakhs twenty five thousand three hundred eighteen only.</b>					

**Service Tax:-** The Service tax as applicable is extra which will be paid by BHEL to the agency after submission of necessary valid documents by the agency.

**Note :** The Tenders are required to quote the tender value on percentage (%) basis at excess or less or on as per estimate value

Tender %	In figure	In words
Excess		
Less		
Estimated value		

**Name of the Contractor :**

**Signature of the Contractor**

**Accounts Representative**

**Opening officer**

**MAKE OF BOUGHT OUT ITEMS**

Sl. No.	Description of Materials	Name of Make
1	Wires	Finolex / L&T
2	Telephone Wire	Finolex / L&T
3	Telephone Socket	Roma / Cabtree
4	Cable	Finolex / L&T
5	Modular Switch & Socket	Roma / Cabtree
6	Distribution board	AGER / GE / SIEMENS
7	MCB/ELCB	AGER / GE / SIEMENS
8	MCCB	AGER / GE / SIEMENS
9	Measuring Instrument	Conzerve
10	CT (Tape wounded)	Kappa
11	Indicating lamp	L&T / SIEMENS
12	Selector Switch	Kaycee
13	Light fixtures	Philips
14	Exhaust Fan	Crompton
15	Flourescent Tubes	Philips
16	Crimping/Soldering	Dowels/Braco
17	Terminal Connectors	Wago
18	PVC Pipe	Sudhakar
19	Insulation Tapes	Steelgrip
20	Data Cable	D-Link/Krone
21	Data Socket	D-Link/Krone
22	Panel	CPRI Approved Panel Manufactur
23	Raceways	Locally fabricated