

**BIOTECHNOLOGY INDUSTRY RESEARCH
ASSISTANCE COUNCIL AT MTNL BUILDING,
9, CGO COMPLEX, NEW DELHI**

TENDER DOCUMENT VOL-III

BILL OF QUANTITIES

**Name of work: Interior works for BIRAC at MTNL Building,
9 CGO Complex, New Delhi**

Interior Works for BIRAC at CGO Complex New Delhi

Summary

S. No	Description	Amount
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2	Subhead - II Flooring	
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	Total	

BILL OF QUANTITIES					
Interior Works for BIRAC at CGO Complex New Delhi					
S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - I Partitions and wall lining				
1.1	Providing and fixing frame work for partitions/ wall lining etc. made of 50x50x1.6mm hollow MS tube, placed along the walls, ceiling and floor in a grid pattern with spacing @ 60 cm centre to centre both ways (vertically & horizontally) or at required spacing near opening, with necessary welding at junctions and fixing the frame to wall/ ceiling/ floors with steel dash fasteners of 8 mm dia, 75 mm long bolt, including making provision for opening for doors, windows, electrical conduits, switch boards etc., including providing with two coats of approved steel primer etc. complete, all as per direction of Engineer-in-charge.	3960	kg		
1.2	Providing and fixing 12mm thick Fire retardant plywood conforming to IS: 5509 on partition /wall lining complete as per drawing and direction of engineer in charge	793	sqm		
1.3	Providing & Fixing 1mm thick decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality.	962	sqm		
1.4	Providing and fixing Steam beech wood strips/slats 15mm thick & width 75mm or as required at specified spacing (leaving a gap of 15mm) and fixed to existing wooden frame work with necessary nails and screws and making recess for running cables /boxes etc including lacquer polishing the exposed surfaces of slats and its edges complete as per drawing and direction of Engineer- in -charge	66	sqm		
1.5	Providing and fixing 12 mm thick frameless toughened glass partition / door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).	171	sqm		
1.6	Providing and fixing 12mm thk Tack / Pin up boards of different sizes with 12mm thk commercial ply base fixed to the wall , tack board fixed to the ply base and 50mmx50mm rubber wood moulding complete with cloth approved by the architect, melamine polish and hardware. (basic rate of fabric Rs200/ rm) as per drawing, specifications and directions of engineer incharge.	25	sqm		
1.7	Providing and fixing 32mm dia and 600mm long SS Door handle on frameless toughened glass shutter complete in all respect.	32	each		
1.8	Providing and fixing SS patch fittings , floor springs and locks to frameless toughened glass shutter complete in all respect.	16	each		
1.9	Providing and fixing glass film of approved make (3M or equivalent) on glasses as per pattern and direction of Engineer in charge	10	sqm		
1.10	Providing 3 mm thick translucent acrylic plastic sheets of approved quality& shade and fixing over toughened glass partitions by mean of 25mm dia glossy solid stainless steel (Grade 304) studs keeping 50mm gap in between glass and acrylic sheet complete as per direction of Engineer in charge.	49	sqm		
1.11	Providing and fixing Stainless steel (Grade 304) tower bolts superior quality with necessary SS screws etc. complete:Heavy Duty (Hafele or equivalent)				
a	300 x10 mm	6	each		
b	150 x 10 mm	6	each		
1.12	Providing and fixing Stainless steel (Grade 304) pull bolt lock superior quality with necessary SS screws etc. complete:Heavy Duty (Hafele or equivalent)	6	each		

S.No.	Description	Qty.	unit	Rate	Amount
1.13	Providing and fixing Stainless steel Grade 304 handles Superior quality with necessary SS screws etc complete .Heavy duty (Hafele or equivalent)				
	125 mm	6	each		
1.14	Structural steel work in single section fixed with or without connecting plate including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	400	kg		
1.15	Steel work welded in built up sections/ framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				
	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	200	kg		
1.16	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				
a	For fixed portion				
	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	1208	kg		
b	Openable shutter				
	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	805	kg		
1.17	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/sqm) duly filled with vermiculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumescent fire seal strip of size 10x4 mm (minimum) around the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately).	44	metre		
1.18	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II) tested and certified as per laboratory approved by Engineer-in-charge with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100mm wide, bottom rail 200mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/m2) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).	14	sqm		
1.19	Providing and fixing glazing in fire resistant door shutters, fixed panels, ventilators and partitions etc., with G.I. beading of appropriate size made out of 20 SWG G.I.sheet (zinc coating not less than 120 gm/m2), fire resistant sealant, including applying a coat of approved fire resistant primer on G.I. beading etc. complete all as per direction of Engineer-in-charge.				
	With clear fire resistant glass panes 6mm thick of approved brand, having minimum 60 minutes fire resistance.	43	sqm		
1.20	Providing and fixing 10mm toughened glass panes in windows towards open terrace	39	sqm		

S.No.	Description	Qty.	unit	Rate	Amount
1.21	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters and factory pressed post laminated :35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	12	sgm		
1.22	Providing & Installing Roller Blinds (Eclipse range of Vista. or equivalent make as approved by the Engineer-in-charge) of 0.4mm thick fabric made of 100% polyester fibre with PU coating on both sides and dustguard treated with no light transmission (100% black out) including fixing to window openings with headrail and all accessories like pulley, lifting arrangement and cord lock system etc complete as per manufacturer's specifications & directions of Engineer-in-charge.	100	sgm		
1.23	Providing & fixing Toilet Cubicle Greenlam Sturdo Classique Grandeur or equivalent (of following standard dimension which includes 600mm door size width) made of heat, bacteria, water, chemical, scratch, impact and anti bacterial resistant 18mm thick solid compact laminate panels tested by Shriram Institute for Industrial Research Finish of the compact laminate should be raw silk which includes doors, pilasters & intermediate panels finished with approved texture/shade as per the detail drawings & as per IS 2046 (Indian Standard) and as per fire retardant BS-476/97 standard. The product should have Green Guard Certificate. This also includes providing and fixing in position necessary hardware made out of Stainless steel (Grade 304) as per manufacturer's specifications & Architects instructions like (1) Door Knob, (2) Gravity Hinges, (3) Thumb turn lockset indicators, (4) Coat hooks, (5) U-Channels, (6) SS-Shoe Box Plate (7) MS-Base Plate, (8) Rubber noise deafening tape (9) Screws & wall Plugs.				
	All screws will of 304 Grade in stainless steel with satin finish. All pilasters are supported by stainless steel shoe box of Greenlam Classique Series or equivalent with MS-Base Plate. The base of the stainless steel shoe box will be anchored to the floor with a clearance height upto 110mm. Fixing of intermediate panels to the wall shall be stainless steel 'L' – Bracket or stainless U-Channel section are fixed into wall with screw inserts.	42	sgm		
1.24	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.				
	Cement mortar 1:4 (1 cement :4 coarse sand)	84	sgm		
1.25	15 mm cement plaster on the rough side of single or half brick wall of mix:				
	1 : 6 (1 cement : 6 fine sand)	150	sgm		
1.26	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to floor five level :				
a	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)	2	cum		
b	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	5	cum		
1.27	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
	Two or more coats on new work	450	sgm		
1.28	Providing and fixing over hung / wall hung storage units consisting of non decorative type block boards construction with frame of 1st class hard woodand well matched commercial 3 ply veneering with vertical grains or cross bands and face veneer on both face of borads of required thickness as per drawing complete as per direction of engineer in charge.				

S.No.	Description	Qty.	unit	Rate	Amount
a	25 mm thick (for cupboard) including ISI marked nickel plated bright finished M.S. piano hinges with necessary screws	59	sqm		
b	19mm thick (sides and partitions	110	sqm		
c	6mm ply (on back side)	75	sqm		
1.29	Providing and fixing teak wood marjin for following sizes				
a	25x3 mm .	264	metre		
b	19x3 mm .	231	metre		
1.30	Providing and fixing 50 mm bright finished brass cup board or wardrobe knob of approved quality with necessary screws.	72	each		
1.31	Providing and fixing magnetic catcher of approved quality in cupboard /ward robe shutters, including fixing with necessary screws etc. complete.				
	Triple strip vertical type	72	each		
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - II Flooring				
2.1	Providing and laying at site 10mm thick Laminate Floor Pergo or equivalent (conforming to EN 13329, ASTM C 1028, DIN 52185, DIN 54345, EN 717-2, DIN 4102.) matt finish of required shade- with inbuilt 3mm SoundBloc - Class of use 34/23, wear resistance AC -4, impact resistance -IC 3, (as per EN 13329), having 0.6mm MLC (Multi Layer Composite) high pressure laminate, surface treated with (Aluminium Oxide) surface guard + and SRS2 (Scratch resistance surface second generation) on top of Moisture Resistant High Density Fibre Board substrate specially developed core; of plank size 1196 mm x 196 mm having Pro Loc joints tongue and groove to secure long lasting joint, the tongue and groove having the edges duly pre impregnated with paraffine and laid over underly of 0.2mm thick Alkali Resistant Polyethylene Sheet (Polyethylene sheet-Density 920-935 kg/Cum) complete as per drawing and manufacturers specifications and direction of Engineer-in-Charge.	157	sqm		
2.2	Providing and fixing Pergo or equivalent " skirting profile (minimum 60mm high)" of required shade fixed to wall as per manufacturer's specifications complete as per drawing and direction of Engineer-in-Charge.	50	metre		
2.3	Providing and fixing Pergo or equivalent " Nose Profile" of required shade fixed to wall as per manufacturer's specifications complete as per drawing and direction of Engineer-in-Charge.	50	metre		
2.4	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry and 40mm wide / 4mm thick glass strip, but excluding the cost of nosing of steps etc. complete.				
	40mm thick with 20 mm nominal size stone aggregate	157	sqm		
2.5	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete.				
	Size of Tile 600x600 mm	773	sqm		
2.6	Providing and laying anti skid rectified Glazed Ceramic floor tiles 300x300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.	64	sqm		
2.7	Providing and laying gang saw cut 18mm thick mirror polish premoulded and prepolished machine cut granite stone of required size and shape of approved shade , colour and texture in flooring laid over 20mm thick base of cement mortar 1:4 (1cement:4 coarse sand) including grouting the joints with white cement mixed with matching pigment epoxy touch up etc complete as per direction of engineer in charge.				
	Area of slab less thsn 0.50 sqm	167	sqm		
2.8	Marble stone flooring with 18mm thick marble stone (sample of marble shall be approved by Engineer-in-charge) over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete with				
	Udaipur green marb	78	sqm		

S.No.	Description	Qty.	unit	Rate	Amount
2.9	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	163	sqm		
2.10	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.				
	Granite of any colour and shade				
	Area of slab over 0.50 sqm.	10	sqm		
2.11	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	14	metre		
2.12	Extra for providing opening of required size and shape for wash basin/ kitchen sink in kitchen platform, vanity counters and similar location in marble/granite/stone work including necessary holes for pillar taps etc including rubbing and polishing of cut edges etc complete	18	each		
2.13	Providing and fixing stone slab table rubbed, edges rounded and polished of size 75x50 cm deep and 1.8 cm thick fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth.				
	Granite Stone of approved shade.	2	sqm		
2.14	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C kitchen and the like consisting of :				
	Ist course of appying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645in recommended proportions including rounding off junction of vertical and horizontal surface.				
	II nd course of 20 mm cement plaster 1: 3 (1 cement :3 coarse sand) mixed with water proofing compound in recommended proportion including roudnign off junction of vertical and horizontal surface				
	IIIrd course of applying blown or residual bitument applied hot at 1.7 kg. per sqm of area.				
	IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitument @ 1.7 kg/sqm.)	250	sqm		
2.15	Providing and fixing two layers of 12mm thick marine plywood (conforming to IS : 710) in staggered joint pattern over the hard wood framework fixed 600mm centre to centre both direction with necessary nails & screws. The first layer of 12mm thick marine ply shall be fixed on Hard wood frame work and second layer of 12mm thick marine ply shall be pasted with suitable adhesive to first layer. (Mez. floor)	11	sqm		
2.16	Providing river pabbles of shade of white /off white of nominal size 62mm and laying in depressed floor as per direction of Engineer in charge	1	cum		
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - III False Ceiling				
3.1	Providing and fixing at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick button wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and				
	perimeter channels 0.5mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making trap doors , cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting with :				
	12.5 mm thick tapered edge gypsum fire resistant board conforming to IS: 2095- Part I.	864	sqm		
3.2	Providing and fixing 16mm thick Mineral Fibre False Ceiling Tiles (ML) Armstrong or equivalent of size 600 x 600mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanied steel sections (galvanized @ 90 gsm/sqm) consisting of main "T"runner suitably spaced at joints to get required length and of size 24x38mm made from 0.30mm thick (minimum) sheet spaced at 1200mm centre to centre and cross "T" of size 15x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and laying 16mm thick mineral fibre false ceiling tiles (ML) of approved texture in the grid including, wherever, required, cutting / making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. main "T" runners to be suspended from ceiling using GI slotted cleats fixed to ceiling with 6mm dia and 50mm long dash fasteners,				
	4mm GI adjustable rods with galvanized level clips spaced at 1200mm centre to centre along main T, bottom exposed width of 15mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge				
	i). Only mineral fibre false ceiling area will be measured for the purpose of payment				
	ii). The mineral fibre ceiling shall either be precast (moulded) or wetted product and shall have NRC value of 0.55(minimum) CAC 35-39, light reflection 84% (minimum), fire rating class A as per ASTM E-84, suitable for 99% relative humidity and also having thermal resistance "(R)" = 0.33sqm deg. C/W,	504	sqm		
3.3	Providing and fixing 15mm thick Decosonic glass fibre False Ceiling Tiles (with NRC value of not less than 0.90) or equivalent of size 600 X 600 mm in true horizontal level suspended on intetlocking metal grid of hot dipped galvanized steel sections (galvanized @170 gsm/sqm.)				

S.No.	Description	Qty.	unit	Rate	Amount
	consisting of main " T " runner suitably spaced at joints to get required length and of size 24 X 38mm made from 0.30mm thick (minimum) sheet spaced at 1200mm center to center and cross " T " of size 24 X 25 mm made of 0.30 mm thick (minimum) sheet,1200 mm long spaced between main " T " at 600mm center to center to from a grid of 1200 X 600 mm and secondary cross "T" of length 600mm and size 24 X 25 mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200 X 600 mm panel to form grids of 600 X 600mm and laying 15mm thick Decophone false ceiling tiles of approved texture in the grid including, wherever , required, cutting/making, opening for services like diffusers , grills,light fittings,fixtures, smoke detectors etc.				
	(For the purpose of payment the Area of Decophone false ceiling only shall be measured)	72	sqm		
3.4	Providing and fixing Acoustical wood wool tiles 1200x600x25mm having density of 400kg/cum over existing MS suspension grid.	40	Sqm.		
3.5	Providing and fixing 50mm thick thermal bonded polyster wadding of 1000gsm manufactured by Mikasha International or equivalent in existing wooden frame work and held in position with 24 guage chicken mesh including covering the top surface with julitex cloth (painted black) as backing to Steam beech wood strips /slats / ply complete as per drawing and direction of engineer in charge.	90	sqm		
3.6	Plastic emulsion paint of approved brand and shade on wall / ceiling two or more coat including white cement based putty	2500	sqm		
	TOTAL				

S.No.	Description	Qty.	unit	Rate	Amount
4	Subhead - IV Dismantling Work				
4.1	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	21	cum		
4.2	Extra for cutting reinforcement bars manually/ by mechanical means in R.C.C. or R.B. work (Payment shall be made on the cross sectional area of R.C.C. or R.B. work) as per direction of Engineer - in -charge	7	sqm		
4.3	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
	In cement mortar	30	cum		
4.4	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead.				
a	For thickness of tiles 10 mm to 25 mm	160	sqm		
b	For thickness of tiles above 25 mm and up to 40 mm	1345	sqm		
4.5	Dismantling wooden boardings in lining of walls and partitions, excluding supporting members but including stacking within 50 metres lead :				
	Thickness above 50 mm up to 75mm	756	sqm		
4.6	Dismantling cement asbestos or other hard board ceiling or partition walls including stacking of serviceable materials and disposal of unserviceable materials within 50 metres lead.	1281	sqm		
4.7	Dismantling of wooden work stations approx size 1800 x600mm x 1100mm ,including stacking of serviceable materials and disposal of unserviceable materials within 50 metres lead.	40	each		
4.8	Dismantling of existing Internal electrical Installation comprising of internal wiring, DB's Electrical fixtures and stacking of serviceable material as per direction of engineer in charge.	1	job		
4.9	Dismantling of existing HVAC work (12 units of 2.5TR each) and disposal of unserviceable , servicing the units and re installation of the same at required locations complete as per direction of engineer in charge.	1	job		
4.10	Disposal of building rubbish in dumping yard for all lead and lift.	300	cum		
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - V Plumbing Work				
5.1	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/6 litre (adjustable to 4 litre/8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	15	each		
5.2	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge..	2	each		
5.3	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require :				
	White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps.	14	each		
5.4	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required:				
	Kitchen sink with drain board				
	510x1040 mm bowl depth 250mm.	1	each		
5.5	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	14	each		
5.6	Providing and fixing toilet paper holder :				
	C.P. brass	15	each		
5.7	Providing and fixing soil, waste and vent pipes :				
	100 mm dia.				
5.8	Centrifugally cast (spun) iron socket & spigot (S&S) pipe as per IS: 3989.	64	metre		
5.9	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
	100 mm				
	Sand cast iron S&S as per IS - 3989	16	each		
5.10	Providing and fixing plain bend of required degree.				
	100 mm				
	Sand cast iron S&S as per IS : 3989	45	each		
5.11	Providing and fixing single equal plain junction of required degree :				
	100x100x100 mm				
	Sand cast iron S&S as per IS - 3989	16	each		
5.12	Providing lead caulked joints to sand cast iron/centrifugally cast (spun) iron pipes and fittings of diameter:				
	100 mm	75	each		
5.13	Providing and fixing M.S. stays and clamps for sand cast iron/centrifugally cast (spun) iron pipes of diameter :				
	100 mm	2	each		
5.14	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :				
5.15	100 mm inlet and 100 mm outlet				
	Sand cast iron S&S as per IS: 3989.	16	each		
5.16	Providing and fixing 32mm C.P. cast brass bottle trap for wash basin (Make Jaquar Cat No. ALD -769 or equivalent)	14	each		

S.No.	Description	Qty.	unit	Rate	Amount
5.17	Supply and fixing of approved make stainless steel recessed type Wall mounted liuid Soap Dispenser complete, including cost of materials, labour, HOM of machinery & equipments with all lead and lifts, loading and unloading charges, transportation cost and conveyance, all other incidental charges etc. complete for successful completion of work as per specifications, and as directed by Engineer -in- Charge. (CAT No. ACN 1535N of Jaguar Make, Continental). / Equivalent	6	each		
5.18	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fitting arrangement of approved quality and colour.				
5.19	450MM long towel rail with total length of 495mm, 78mm wide and effective height of 88mm, weighing not less than 170gms.	14	each		
5.20	Supply and fixing of approved make CP brass Double Coat Hook and fixed by using CP brass counter sunk screws etc., complete. (CAT No. 1191 N of Jaguar make Continental Range) / Equivalent.	15	each		
5.21	Providing and fixing 125 mm dia S.S grating (with or without hole) for , floor or Nahani trap.	24	each		
5.22	Providing and fixing G.I floor drain consisting of 100x50mm G.I elbow (grating and G.I pipe to be paid separately), complete as per instructions.	8	each		
5.23	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.				
5.24	Internal work – Exposed on wall.				
a	15 mm dia. nominal bore	10	metre		
b	20 mm dia. nominal bore	10	metre		
c	25 mm dia. nominal bore	20	metre		
d	32 mm dia. nominal bore	25	metre		
5.25	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps i/cmaking good the walls etc. concealed pipe including painting with anticorrosive bitumastic paint, cutting chases and making good the wall				
	15 mm dia nominal bore	100	metre		
	20 mm dia nominal bore	25	metre		
5.26	Providing and fixing Ball valve with hard chrome plated ball inside PTFE (Teflon) seat & ring with chrome plated centre handle with female BSP threads complete in all respects.				
a	20 mm dia.	2	each		
b	25 mm dia	3	each		
c	32 mm dia	2	each		
5.27	Providing and fixing uplasticised PVC connection pipe with brass unions :				
	30cm long -15 mm nominal bore	29	each		
5.28	Painting G.I. pipes and fittings with synthetic enamel white paint withtwo coats over a ready mixed priming coat, both of approved qualityfor new work :				
a	15 mm diameter pipe	10	metre		
b	20 mm diameter pipe	10	metre		
c	25 mm diameter pipe	20	metre		
d	32 mm diameter pipe	25	metre		
	C.P.BRASS FITTINGS.				
5.29	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931				
	15 mm nominal bore.	2	each		
5.30	Providing and fixing C.P. brass stop cock (concealed) of approved quality conforming to IS standards 8931.				
	15 mm nominal bore	2	each		
5.31	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931 a) 15 mm nominal bore				
	15mm nominal bore	29	each		

S.No.	Description	Qty.	unit	Rate	Amount
5.32	Providing and fixing hand held ablution fitting (health faucet) with one meter long flexible tube and wall hook, all complete of following make or equivalent (CAT No. ALD-573 of Jaguar / equivalent) .	15	each		
5.33	Supply and fixing of 15mm CP brass 2 Way Bib Cock with wall flange and suitable length CP brass extension pipe all of approved make (CP fittings CAT No. CON-041 of Jaguar – Continental Range/equivalent) .	15	each		
5.34	Supply and fixing of 15mm CP brass Sink Cock with wall flange and suitable length CP brass extension pipe all of approved make (CP fittings CAT No. CON-347 of Jaquar – Continental Range / equivalent) .	2	each		
5.35	Providing and fixing ball valve (brass) of approved quality, high or low pressure, with plastic floats complete:				
	25 mm nominal bore	1	each		
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - VI Electrical Work				
	WIRING				
6.1	Point wiring in PVC conduit, with modular type switch Wiring for light point / fan point / exhaust fan point / call bell point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 Sq.mm FRLS PVC insulated copper conductor single core cable etc as required.				
	Group C	252	point		
6.2	Wiring for Light / Ceiling fan / Exhaust Fan points in following groups with 2 X1.5 Sq. mm PVC insulated FRLS flexible copper conductor wire of 1100 volts grade drawn in ISI Marked 2mm thick PVC conduit on surface / recess of wall or in ceiling / false ceiling with continuous run of 1.0 Sq.mm PVC insulated FRLS flexible green colour copper earth wire for earthing the fixtures including modular switches, plates, metal box, PVC conduit & wiring etc. complete as required:-				
	Secondary point i.e. points to be looped with primary point.	57	point		
6.3	Wiring for light/power plug with 2x4 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit alongwith 1 No. 4 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	1000	metre		
6.4	Wiring for light/power plug with 4x4 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed PVC conduit along with 2 Nos. 4 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	400	metre		
6.5	Wiring for 30A SPN Industrial Socket outlet with 2x6 Sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed PVC conduit along with 1 Nos. 6 Sq.mm FRLS PVC insulated copper conductor single core cable for loop earthing as	300	metre		
6.6	Supply and fixing 30A, 240V, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top along with 30 amps 'C'series, SP, MCB, in sheet steel enclosure, on surface or inrecess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	12	each		
6.6	Supplying and fixing GI box along with modular base , cover plate ,1 no.16A modular switch & 2 nos. 5/6A 3 pin sockets in recess etc as required.for computer terminal points.	68	each		
6.7	Supplying and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc as required.				
a	2 Module (75mm x 75mm)	10	each		
b	3 Module (100mmX75mm)	160	each		
6.9	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including conections but excluding modular plate etc. as required.				
a	5/6 amps switch and 3 pin 5/6 amp socket outlet	36	each		
b	16 amp switch and 6 pin 6/16 amp socket outlet	124	each		
6.10.	Circuit / submain /Light plug wiring in PVC conduit: Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface / recessed PVC conduit as required.				
a	2 x 2.5 Sq.mm + 1 x 2.5 Sq.mm earth wire(Circuit wiring)	275	metre		
b	4 x 2.5 Sq.mm + 2 x 2.5 Sq.mm earth wire(Circuit wiring)	125	metre		
c	4 X 6 sq. mm + 2 X 6 sq. mm earth wire(Submain wiring)	125	metre		
d	4x 16 Sq.mm + 2 x 16 Sq.mm earth wire (Submain wiring)	175	metre		
6.11	Supplying, installing, testing and commissioning of factory made ,painted powder coated paint DLP Almunium trunking of Size 150x 38 mm on wall/floor complete with fixing screws, interconnections,joints, earthing etc. as required.	15	metre		

S.No.	Description	Qty.	unit	Rate	Amount
6.12	Supplying, and fixing of factory made Aluminium trunking cover of 85 mm width complete with fixing screws etc. as required.	15	metre		
6.13	Supplying and installation of 100x38mm,two compartment PVC raceway with detachable screwed cover made out of 16SWG M.S CRCA sheet complete with primer and powder coated paint as required for installation in the floor	20	metre		
	Main Board, DB's & Cables				
6.14	Supply, installation, testing and commissioning of following LT distribution Panel Boards of 2 mm thick sheet steel cubical design for indoor mounting factory fabricated suitable for operation on 440 V 3 phase, 50 Hz, A.C. supply with ACB/ MCCBs/SFU/MCBs/ contactors and other accessories, all in compartmentalised, cubical construction complete in all respects as per approved drawing and design including internal wiring, labels, ferrules, cable termination gland plates, earth terminals, painting etc. conforming to specifications.				
a	MDB-LP				
	400 A (50KA) 4P MCCB - 1 No				
	Bus Bar:-				
	1 Set of 500 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	Outgoing:-				
	200 A TP MCCB (36 KA) –1 No.				
	63 A TP MCCB (36 KA) –7 Nos.				
	40 A, 10 KA, TP MCB - 4 Nos.				
	Metering and Indications:				
	The incomer MCCB shall be provided with the following:				
	Digital Ammeter range 0-400A- with necessary Ammeter selector switch dual graduated scale shrouded terminal & 144 x 144 mm sq size.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-8 set	1	Set		
b	AC Panel				
	200 A TP MCCB (36 KA) –1 No.				
	Bus Bar:-				
	1 Set of 300 Amps. TPN busbars of aluminium alloy with colour coded heat PVC shrinkable sleeves.				
	Outgoing:-				
	100 A TP MCCB (36 KA) –1 No.				
	63 A TP MCCB (36 KA) –7 Nos.				
	Metering and Indications:				
	The incomer MCCB shall be provided with the following:				
	Digital Ammeter range 0-300A- with necessary Ammeter selector switch dual graduated scale shrouded terminal & 144 x 144 mm sq size.				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-9 sets	1	Set		
c	FDB-U-1				
	Incoming :				
	63A, TP MCCB (36 KA) - 1 No.				
	Bus Bar:-				
	150A TPN AL. Bus Bars with coloured heat shrinkable PVC sleeve - 1Set				
	Outgoing:				
	40 A, 10 KA, TP MCB - 4 Nos.				
	metering and Indications:				
	The incomer MCCB shall be provided with the following:				
	Three (3) Nos. LED type Phase indicating lamps with protection 2A SP MCBs.-1 set	1	Set		

S.No.	Description	Qty.	unit	Rate	Amount
6.15	Supplying and fixing following way prewired vertical type TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, terminal connectors for all incoming and outgoing circuits, duly prewired with adequate size of FR PVC insulated copper conductor upto the terminal connector/ neutral link, earthing etc as required (But without MCB/ RCCB/ Isolator). (Note : Prewired vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
a	8 way Double door	1	each		
6.16	S/F prewired TP MCB DB: Supplying and fixing following way, three pole and neutral, prewired, sheet steel, MCB distribution board, 415 volts, on surface / recess, complete with loose wire box, terminal blocks, duly prewired with suitable size FR PVC insulated copper conductor up to terminal blocks, tinned copper busbar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required. (But without MCB / RCCB / Isolator).				
a	6 way (4 + 18), Double door	3	each		
b	8 way (4 + 24), Double door	3	each		
c	12 way (4 + 36), Double door	5	each		
6.16	Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
	100 Amp, 16 KA	1	each		
6.17	S/F TP MCB Isolator : Supplying and fixing following rating, four pole, 415 volts, MCB Isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	6	each		
b	63 amps	5	each		
6.6	S/F DP RCCB : Supplying and fixing following rating, Double pole, 415 volts, Residual current circuit breaker (RCCB) , having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connection, testing and commissioning etc.as required.				
a	40 amps	18	each		
b	63 amps	15	each		
6.20	Supplying and fixing 5 amps to 32 amps rating, 240 volts, 'B' series, miniature circuit breaker suitable for lighting and other loads of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	Single pole	235	each		
b	Double pole(O/g of AC DB)	12	each		
6.21	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	5	each		
6.22	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides, and with inscription in single red colour on front side as required.	1	each		
6.23	Supply of following sizes of 1.1 KV grade single core/multicore aluminium conductor XLPE insulated and PVC sheathed armoured cable conforming to IS 1554 (Part-I) 1988.				
a	3.5 Core, 185 sq.mm. XLPE Aluminium Cable	40	metre		
b	3.5 Core, 120 sq.mm. XLPE Aluminium Cable	20	metre		
c	4 Core, 25 sq.mm. XLPE Aluminium Cable	30	metre		
d	4 Core, 16 sq.mm. XLPE Aluminium Cable	55	metre		
	Note: Actual length of cable should be verified at the site prior to the installation.				

S.No.	Description	Qty.	unit	Rate	Amount
6.24	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
a	Upto 35 sq. mm (clamped with 1mm thick saddle)	80	metre		
b	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	20	metre		
c	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	40	metre		
6.25	Supply and making cable end termination with brass compression glands and crimped aluminium lugs following sizes of PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade of the following sizes as required.				
a	3½ X 185 sq. mm (57mm)	4	each		
b	3½ X 120 sq. mm (57mm)	2	each		
c	4 X 25 sq. mm (28mm)	4	each		
d	4 X 16 sq. mm (28mm)	4	each		
6.26	Fabricating and installing following sizes of perforated M.S. cable trays including horizontal and vertical bends reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting etc. as required				
a	100 mm width X 50 mm depth X 1.6 mm thickness	10	metre		
b	150 mm . Width x 50 mm . Depth x 2 mm Thickness	20	metre		
	Conduiting / Wiring for Telephone/LAN				
6.26	Supplying and fixing of following sizes of medium class PVC conduit alongwith the accesories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	20 mm	250	metre		
b	25 mm	1350	metre		
c	32 mm	550	metre		
6.27	Supplying and fixing metal box of following sizes (nominal size) on surface or recess with suitable size of phenolic laminated sheet cover in front including painting etc. required.				
a	180 mm X 100 mm X 60 mm deep	4	each		
b	200x250x75	6	each		
	Telephone Wiring				
6.29	Supplying and fixing of RJ-11 telephone socket outlet with GI sheet box and modular cover plate complete as required:-				
a	Single outlet in One Plate.	49	each		
6.30.	Supplying & drawing following pair, 0.5 sq. mm. FR PVC insulated copper conductor, unarmoured telephone cable in the existing surface/ recessed steel / PVC conduit as required:-				
a	2 Pair	1230	metre		
6.31	Supplying, drawing of telephone cable with soldered terminals on both ends of 0.61 mm dia. annealed tinned electrolytic grade copper conductor, PVC insulated, twisted pairs bunched together in concentric layers so as to minimize crosstalk and wrapped with melinex tape & overall PVC sheathed suitable for indoor telephone wiring conforming to ITD-S/WS-113C and S/WS-114 in existing MS conduit on surface/ recessed/ above false and floor race ways/ ceiling etc. complete as required:-				
a	10 Pair	65	metre		
6.32	Supply and installation of KRONE connector type main telephone tag block of following sizes in sheet metal enclosure of suitable dimensions fabricated out of 16 SWG sheet steel with castle key lock, hinged type cover including termination of telephone cables, making connections, painting of box etc. complete as required:-				
a	10 Pairs	5	each		
b	50 Pairs	1	each		
	Computer System Wiring				
6.33	Supply, drawing, testing & commissioning of 4 Pair CAT-6 Non-Plenum UTP cable of 24 AWG solid copper conductors complete as required.	1100	metre		

S.No.	Description	Qty.	unit	Rate	Amount
6.34	Supplying, installation, testing & commissioning of RJ-45 Flush mounted information outlets wired according to T 5688 standard with a surface mount box complete as required:-				
	Single Outlet in one Face plate	68	each		
	Note: Computer and networking system wiring shall include numbering and termination and testing of cables at both the ends.(computer outlet points)				
	Installation of Light fittings, fans and fixtures				
6.35	Installation, testing and commissioning of prewired, fluorescent fittings / compact fluorescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall/ False ceiling, including connections with 1.5 sq.mm. PVC insulated, copper conductor, single core cable etc. as required.	280	each		
6.36	Installation, testing and commissioning of prewired, fluorescent fittings of all types, complete with all accessories and tubes etc., including supplying and fixing ball and socket 2 nos. down rods of 20 mm. dia. x 1.6 mm. thick steel conduit upto 30 cm. length, painting and wiring the down rods and connections with 1.5 sq.mm. PVC insulated, copper conductor, single core cable as required.	12	each		
6.36	Installation of exhaust fan upto 450 mm sweep in the existing opening, including making the hole to suit the size of the above fan, making good the damage, connections, testing, commissioning etc. as required.	11	each		
6.37	Installation, testing and commissioning of ceiling fan including wiring the down rods of standard length (upto 30 cm) with 1.5 sq.mm FR PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	6	each		
6.39	Fixing louvers / shutters for exhaust fan: Extra for fixing the louvers / shutters complete with frame for a exhaust fan of all sizes.	11	each		
	Supply of Light Fitting/Fans /Luminaries and Fixtures				
6.40.	Supplying of following lighting fixtures complete with special electronics low loss ballast/ lumilux tube/ lamp/ condenser/ starter /driver/louvers/ reflector/cover etc. complete as required:-				
a	Integral round shaped surface mounted 6W high powered LED,warmwhite light fitting with opal diffuser . Bajaj BGCML 6W WW or Similar OSRAM/Philips/Wipro	16	each		
b	Integral 15W LED tube light fitting (Mirror Light) with aluminium diecast housing. Philips LED Linea or similar of Bajaj/Osram/Wipro	12	each		
c	Surface/wall Mounted Strip type fluorescent fitting suitable for and with 1 no.28 watt lamps with diffuser Philips TWG 207 HF or Equivalent make of other as approved..	22	each		
d	Surface mounted round shaped 15W LED luminaire with translucent cover fixed to the housing . Philips green LED Surface 15W or Equivalent make of other make as approved..	10	each		
e	Recessed mounted direct/indirect decorative fluorescent fitting suitable for and with 4 nos 14 watt T5 lamps with full opal acrylic diffuser. Philips TBS570 4XTL5-14W HF ODF-WH or Similer make of other as approved.	83	each		
f	Recessed mounted 2 x 18 watt CFL lamp Fitting suitable for and with 2 Nos. 18 Watt lamp with cover. Philips FBH 225 2XPL-C/2P 18W I 240 or Equivalent make of other make as approved..	79	each		
g	Recessed mounted 1 x 18 watt CFL lamp Fitting suitable for and with 1 No. 18 Watt lamp with glass cover. Philips FBH 085 IXPL-C/2P 18W I 240V RG FR or Equivalent make of other make as approved..	50	each		

S.No.	Description	Qty.	unit	Rate	Amount
h	Recessed mounted 3X1 W watt LED down light Fitting with aluminium front ring with proper heat sink and have seivel effect ,LEDs are lens and separate driver suitable for 3W LED Light . Bajaj BGSL 03 01 WH or Equivalent make of other make as approved..	12	each		
i	Recessed mounted wall washer 2x18 watt CFL downlighter Fitting suitable for 36W LED Light . Bajaj BPWW 218W CFL W2EB or Equivalent make of other make as approved..	4	each		
j	Surface/wall Mounted flexible Strip light(IP65) RGB color with driver suitable for indoor and outdoor use. Bajaj BCFL 300 25W WW IP 65 or Equivalent make of other as approved..	30	metre		
k	Surface Mounted 35W CDMT track spot light luminaire suitable for and with 35W CDMT lamp with power coated die cast aluminium body . Philips MRS532 C IXCDMT -TC35W EB 12 or Equivalent make of other as approved..	4	each		
6.41	Supplying of Ceiling fans suitable for 230 Volt, 50 Hz, Single phase, A.C. supply and complete without speed regulator all standard accessories such as blades & capacitor etc. Makes CG/Usha/Havels				
	3 Blade-1200 mm Ceiling fan	2	each		
6.42	Supplying and fixing stepped type elctronic fan regulator on the existing modular plate switch box excluding modular plate as required.	2	each		
6.43	Supplying of following sizes of Exhaust Fans suitable for 230 Volt, 50 Hz, Single phase, A.C. supply and complete with all standard accessories such as motors, blades & louvers, shutters etc. in the existing opening i/c. making the hole to suit the sizes of the above fan & making good the damages and connection with 1.5 Sq.mm PVC insulated FRLS copper conductor wires from the point outlet to the fan as required. Makes GEC/Havels/Usha LX				
	300 mm dia.	11	each		
6.44	Supply, Installation , testing and comissioning of Revoloving Type 400 mm sweep wall mounted deluxe fan with remote control complete as required. Make : USHA -Helix with remote or similar as approved.	4	each		
	Earthing				
6.45	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.				
	For Panel & Lightning Arrester Earthing	2	Set		
6.46	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	15	metre		
6.46	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	25	metre		
6.47	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	2	Set		
6.49	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	10	metre		
6.50	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	20	metre		
6.51	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing along with existing surface/ recessed conduit/ submain wiring/ cable as required.	350	metre		
	Fire Alarm System				

S.No.	Description	Qty.	unit	Rate	Amount
6.52	Supply fixing testing and commissioning of Analogue addressable multicriteria heat and smoke detectors with short circuit isolator,base and LED and connection etc. as required.(UL LISTED).				
	Multicriteria Smoke detector	37	each		
6.53	Supplying fixing testing and commissioning of Addressable fault isolating shorted ,dewired and loose circuits between to successive fault isolators with automatic resetting arrangement (base model) modules (UL LISTED)	3	each		
6.54	Supplying fixing testing and commissioning of Addressable Manual call box with short circuit isolator ,break glass /push button with built in LED for alarm indication suitable for recessed installation in wall connetion etc. as required .(UL LISTED)	3	each		
6.55	Supplying fixing testing and commissioning of Addressable sounders/electronics hooters cum speakers as required for the fire detection and alarm system to be fixed at appropriate height on wall on surface or in recess as required.	3	each		
6.56	Supplying, drawing, connecting , testing of following single core PVC insulated FRLS copper wires in existing conduit for Fire alarm System.				
a)	2 x 1.5 sq. mm	485	metre		
b)	4 x 1.5 sq. mm	220	metre		
6.56	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required.				
a)	20 mm	225	metre		
b)	25 mm	450	metre		
	Note:- The Fire detectors should be compatible to FA system existing in the MTNL building .The loop for Birac office is to be connected to the existing control panel of Fire alarm .				
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - VII Providing HRV & HVAC System				
7.1	Supply, installation, testing & commissioning of Variable refrigerant volume / Variable refrigerant flow modular type air conditioning system suitable for cooling and heating by inverter driven capacity control compressor complete with indoor and outdoor units with individual controller and with fittings etc., as per quantity given below i/c full charging of R-410A refrigerant gas complete with duly powder coated and outdoor unit having COP at 100% and 50% load to be 3.2 and 4.1 respectively.				
a)	Outdoor Units				
i)	18 HP	4	No.		
ii)	10 HP (for TFA)	1	No.		
b)	Indoor Units (Nominal capacity)				
	Hi-Static Ductable Indoor Unit				
i)	4.75TR	6	Nos.		
ii)	4.125 TR	2	Nos.		
c)	4-way cassette (Round Feed)type indoor unit				
i)	4.125 TR	1	Nos.		
ii)	3.3 TR	4	Nos.		
iii)	2.08 TR	2	Nos.		
iv)	2.64TR	1	Nos.		
d)	Wall mounted type indoor unit				
i)	1.65TR	13	Nos.		
ii)	2.075 TR	4	Nos.		
e)	Corded Remote (For Hi-Static Ductable and Cassette Unit)	33	Nos.		
f)	Supply, installation, testing & commissioning of TFA Units for fresh air				
i)	8.27TR	1	Nos.		
g)	Corded Remote for TFA Units	1	Nos.		
h)	Centralised Controller capable of controlling iTouch Unit.	1	No.		
7.2	Supply, installation, testing & commissioning of refrigerant 'Y' joint required for distribution of refrigerant in copper piping etc. complete as per specifications.	29	Jobs		
7.3	Supplying & installation of interconnecting following size of refrigerant copper pipe work with fitting duly insulated with 19/13 mm thick closed cell elastometric nitrile rubber tubular insulation between each set of indoor & outdoor units as per specification all piping inside the room shall be properly supported with M.S. hanger.				
i)	6.35 mm dia with 13 mm thick nitrile rubber insulation	40	Rmt.		
ii)	9.53 mm dia with 13 mm thick nitrile rubber insulation	110	Rmt.		
iii)	12.7 mm dia with 13 mm thick nitrile rubber insulation	50	Rmt.		
iv)	15.9 mm dia with 13 mm thick nitrile rubber insulation	70	Rmt.		
v)	19.1 mm dia with 13 mm thick nitrile rubber insulation	60	Rmt.		
vi)	22.2 mm dia with 19 mm thick nitrile rubber insulation	55	Rmt.		
vii)	28.6 mm dia with 19 mm thick nitrile rubber insulation	40	Rmt.		
viii)	34.9 mm dia with 19 mm thick nitrile rubber insulation	20	Rmt.		
ix)	41.3 mm dia with 19 mm thick nitrile rubber insulation		Rmt.		
x)	GI Race Tray with hangers & supports for copper piping (300 mm wide)	15	Rmt.		
7.4	Drain Piping				
	Rigid PVC piping complete with fittings, supports as per specifications and duly insulated with 6mm thick closed cell nitrile rubber insulation.				
i)	25 mmφ	50	Rmt.		
ii)	32 mmφ	30	Rmt.		
iii)	40 mmφ	20	Rmt.		

S.No.	Description	Qty.	unit	Rate	Amount
7.5	SITC PUR (Polyurethane foam panel or board) factory fabricated ducts / PIR (Polyisocynurate foam panel or board) factory fabricated ducts made up of CNC machine cut for internal use. The thickness of board shall be 20mm, density of foam shall be 45 kg/m ³ , thermal conductivity 0.021W/m.K. The aluminium foil shall be 80μ thick and provided on both sides and the foil shall be embossed. The fire and smoke classification shall comply to Class "O" of BS 476 part 6.7 - Class A ASTM E 84 All accessories, adhesive, sealent and AL.tape used in fabrication of duct will be of panel manufacturer.	300	Sqm		
7.6	Grills / Diffusers				
	Supplying, installation, testing & commissioning supply and return air grills / diffusers as per specifications and drawings including fixing frame of G.I. / Wooden in false ceiling / walls.				
i)	Aluminium supply air grill with damper	15	Sqm		
ii)	Aluminium return air grill without damper	12	Sqm		
iii)	Aluminium supply air diffuser with damper	3	Sqm		
iv)	Aluminium return air diffuser without damper	3	Sqm		
7.7	Control & Transmission Wiring				
	Providing and fixing control cum transmission wiring of 2 core x 1.5 sq.mm. copper in suitable conduits between indoor and outdoor unit.	250	Rmt.		
7.8	Isolators				
	Wheatherproof box with MCCBs of suitable ratings near the outdoor	7	Nos.		
7.9	300 mm cable tray for external piping on roof / wall / ceiling etc.	30	Rmt.		
7.10	Loop earthing for system with 6 sqmm dia GI wire	120	Rmt.		
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - VIII Fire Fighting / sprinkler System				
8.1	Providing laying, testing & commissioning of class 'c' heavy duty MS pipe confirming to IS 3589/1239 including fittings like elbows, tees, flanges, tapers, nuts bolts, gasket etc. fixing the pipe on the wall/ceiling with suitable clamps and painting with two or more coats of synthetic enamel paint of required shade complete as required.				
a	100mm dia	45	metre		
b	80mm dia	35	metre		
c	65mm dia	110	metre		
d	32mm dia	115	metre		
e	25mm dia	192	metre		
8.2	Supplying and fixing single headed internal hydrant valve with instantaneous Gun metal couplings of 63mm dia with cast iron wheel ISI marked conforming to IS 5290 (Type -A) with blank gunmetal cap and chain as required.	2	each		
8.3	Supplying and fixing orifice plate made of 6mm thick stainless steel with orifice of required size in between flanged & landing valve of external and internal hydrant to reduce pressure to working pressure of 3.5 kg/cm complete as per specification as required.	2	each		
8.4	Providing, installation, testing and commissioning of gun metal valves of following sizes as required.				
a	50 mm dia	2	each		
b	25 mm dia	2	each		
8.5	Supplying and fixing 63mm dia, 15 mtr long RRL hose pipe with 63mm dia male and female gun metal couplings duly binded with GI wire, rivets etc. confirming to IS 636 (type-A) as required.	4	each		
8.6	Supplying and fixing first -Aid hose reel with MS construction spray painted in post office red, confirming to IS 884 with upto date amendments, complete with the following as required.				
a	20/30/40m long 20mm (nominal internal) dia water hose thermoplastic (textile reinforced) type -2 as per IS 12585				
b	20mm (nominal internal) dia gun metal globe valve & nozzle.				
c	Drum and brackets for fixing the equipments on wall.				
d	Connections from riser with 40 mm dia stop valve (gun metal) & M.S. pipe	2	each		
8.7	Supplying and fixing 63mm gun metal branch pipe with 20 mm (nominal internal diameter) size gun metal nozzle conforming to IS 903, suitable for instantaneous connection to interconnect hose pipe coupling as required.	2	each		
8.8	Providing fixing testing & commissioning of 15 mm size quartzoid bulb type sprinklers, of rating 68 degree C. pendent with required accessories.	132	each		
8.9	Providing & fixing Pressure switch in the MS pipe Line including connection etc. as required.	2	each		
8.10	Providing & fixing flow switches in 100/150mm dia MS pipe.	2	each		
8.11	Providing & fixing angle iron (40mmx40mm x5mm) door frame and MS sheet (2mm thick) cum glass shutter of size 2.1 mtr. X 1.2mtr. (N.S.) with 25mmx25mmx3mm angle frame all around & stiffened in between i/c hinges, handle, locking arrangement, painting with approved synthetic enamel paint i/c sign writing on glass at internal hydrant including providing & fixing MS sheet 2mm thick on remaining portion above door to close opening i/c painting etc. as required.	2	each		
8.12	Providing and fixing of carbon-di-oxide type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:2878 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.				
	Capacity 4.5 Kg.	4	each		

S.No.	Description	Qty.	unit	Rate	Amount
8.13	Providing and fixing of ABC Powder type fire extinguishers consisting of welded M.S. cylindrical body, squeeze lever discharge valve fitted with pressure indicating guage internal discharge tube 30 cms long high pressure discharge hose, discharge nozzle, suspension bracket conforming to IS:13849 finished externally with red enamel paint and fixed to wall with brackets complete with internal charge.				
	Capacity 5.0 Kg.	4	each		
	Total				

S.No.	Description	Qty.	unit	Rate	Amount
	Subhead - IX Sound reinforcement & Audio Visual System				
9.1	SITC of Wireless microphone system UHF Wireless System with 8 (fixed) Selectable frequencies, ships with ATW-7702 unidirectional dynamic hand held transmitter with body pack and rack mount receiver unit complete as required available in following frequency brands and included AC adapters. Model No. AUDIO TECHNICA – ATW Series / AKG / Shure.	1	each		
9.2	Cordiod Microphone with flexible stem minimum 16.5” gooseneck cordiod microphone, polar pattern, frequency range 70-16000HZ sensitivity 14.1m/Pa impedance 100ohm long lectern/Podium speech gooseneck module, XLR connector - Model No.AKG/SHURE/AUDIO TECHNICA PRO 49 QL	1	each		
9.3	SITC of– 8 channel ultra compact mixer with 4 mic and 3 stereo , 8 inputs complete as required. Model No. MACKIE FX 8 PRO / YAHAMA/ALLEN HEATH	1	each		
9.4	Dual Channel Power Amplifier SITC of Profession Dual Channel Power amplifier300W per channel at 8ohms, 450W per channel at 4 ohms. In built x-over-by pass/high pass/low pass. Make: VAL Audio GL 1200 / CROWN/QSC	1	each		
9.5	SITC of– 8” Two-way multi purpose Speaker System; 150 watt LF RMS (AES) HF-1” exit, Max. Spl: 121dB 11m, Nominal Impedence: 8ohm, Nominal dispersion 90 x 60degree, 7 integrated flying points. Model: VAL AUDIO ICOM 8 / Martin Audio/EAW	2	each		
9.6	SITC of Control equipment Rack for audio and video equipment complete	1	each		
9.7	SITC of Microphone connector - XLR complete as required. Model:Neutrik	4	each		
9.8	SITC of Wall / floor mount junction boxes two way, 200mm x 150mm x 150mm complete as required.	1	each		
9.9	SITC of Wall / floor mount junction boxes single way, 75mm x 150mm x 150mm complete as required.	1	each		
9.10	SITC of Microphone cable - 23/0.2 mm twin twisted shielded, ATC complete as required.	50	metre		
9.11	SITC of Loudspeaker cable for speaker - twin twisted, two core, 80/0.2mm as required and as per technical specifications enclosed	50	metre		
9.12	SITC of Cable tray with accessories as required.	50	metre		
9.13	Audio earthing	1	job		
9.14	Video / Data Projector – 1 chip , DLP panel, Native Resolution 1920x1080, Brightness minimum 4000 ANSI Lumens, single /dual lamp mode, Horizontal scan frequency Horizontal 15-110 Khz, Vertical 43-15. Contrast Ratio Minimum 2000:1, Inputs-Component video, S-Video, DVI, Brightness uniformity, With Zoom Lens [Approved Make : Barco – PGWU – 61b / Christie / Delta-Vivitek]	1	each		
9.15	SITC of wall/ceiling mounted Matte White motorized screen with tubular (Non lubricant motor, 3 steps control position, LVC interface for control including required suspenders, brackets complete as required at site matt white finish view area Fabric shall be flame retardant and mildew resistant, remote controlled operation of the screen, parallel touch panel control. A straight rigid tubular metal header more than 75mm in dia meter. with suitable black masking border. SIZE 2,000x1150(H) Approved Make: Draper- Paragon/Dallite /Harkness	1	each		

S.No.	Description	Qty.	unit	Rate	Amount
9.16	Architectural/Video Interface Panel Table top Architectural panel with pneumatic mechanism. Compatible to current computer video sources of varying resolution. RGBS, RGsB, HDTV, component video, S-video, and composite video signals.Video and Audio input-Female 15Pin HD & 3.5 mm mini connector. Video and Audio output-5 Female BNC fir RGBHV/15Pin HD & 3.5 mm mini connector. 300 MHz video bandwidth RS 232 control Horizontal Shift control Floor mount/wall mount as required at site. Accessories like floor junction box included in the scope of work. Approved Make Extorn HAS 400+Extender AAP or approved equivalent.	1	each		
9.17	SITC of Data / video switcher cum scaler with 8 data- video inputs, PIP Display on screen (upto 4) , 1 scaled output on 1920 X 1080 , RS 232 Multiple aspect ratio selections 19" rack mounted. Approved Make: Crestron / MX / Extron IN 1508	1	each		
9.18	Crestron Touch control system with wireless Touch control panel of 8.4", Emitter probes (as per requirement), controller with Ethernet , complete with all accessories to control audio, video equipment including screen movement. Approved make: CRESTRON – TPMC 8X / AMX	1	each		
9.19	Ceiling Mount Hardware for the projector complete including extruded Aluminum, adjustable steel ceiling mountable plates with slotted screw holes for adjustment, reeds for cable management, 360degree with mounting kit. lens [Approved Make : Barco / Christie / Delta-Vivitek]	1	each		
9.20	Installation & Cables				
a	Video Cable	1	job		
b	S-Video Cable	1	job		
c	RGBHV Cable	1	job		
9.21	Connectors, Interconnecting moulded cable, Interface and Programming Commission of the system.	1	set		
	Total				