

(BILL OF QUANTITY)

Name Of Work:- Interior Designing Work of Auditorium including balance Civil Work, Acoustical, Internal electrical and Fire fighting Works at IUAC Campus, New DELHI

S.NO	Description	Rate (In figures)		Rate (In words)	Amount
		Qty.	Unit		
2	Flooring work				
2.1	Providing & Fixing Carpet underlay with 10mm thick DURAFill or approved equivalent of approved Color, manufactured by The Supreme Industries Limited, or approved equivalent thickness built up using minimum 10 MM specifically extruded high performance sheet, minimum density 30 kg / Cu. Mt & compression strength of 0.21 Kg / Cm. Sq., when tested as per ASTM D-3575. DURAFIL or approved equivalent will work as a moisture barrier & provide cushioning to carpet.	441.17	sqm		
2.2	Textile floor carpet over seating area : Providing of Forbo Flotex Flocked floor covering of 4.3mm thickness rolls having a density of 70 million fibres of nylon 6.6 per M2 , Fire Test EN-13501, Appearance Retention Hexapod ISO 140-8,Friction Slip Resistance Test EN 14041 Class DS, sanitized anti-microbial treatment with resilient waterproof backing ,anti allergic cetrified by British allergy foundation, anti static, acoustical impact sound should be 20dB and approximate weight of 1.8 k.g./sqm of roll form. The reaction to fire should be as per EN13501-1: Bfl-s1. carpet should be installed after self leveling compound done properly as per company specifications.	441.17	sqm		
2.3	Antistatic Flooring for Projector Room: Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50 mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings, as specified and as directed by Engineer-in-charge consisting of :				
	a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25 mm outer diameter, fully welded on to the G.I. Base plate of size 100mm x 100mm x 3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5 mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug.				

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	b) S stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for ensuring maximum lateral stability in all directions, the grid formed by the pedestal and stringer assembly shall receive the floor panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the architectural drawings, as specified and as directed by the Engineer-in-charge. Securing the stringers on to the pedestal head using fully threaded screws				
	c) Providing and fixing Access Floor panel of 600x600x32 mm medium grade Filled Steel anti static high pressure Lamination of 800H grade (FS800H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and 20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is filled with Pyrogrip noncombustible Portland cementitious core mixed with lightweight foaming compound.				
	The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for superior adhesion and Surface flatness within 0.75mm. The panel is to withstand a Concentrated Load of 363 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 1250 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-in-charge. All specification must be printed on the side of the panel to ensure the quality of the product.				
	300 mm Finished Floor Height (FFH)	24.00	Sqm		

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2.4	External Interlocking Paver :Providing and laying factory made chamfered edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method, to attain superior smooth finish using PU or equivalent moulds, laid in approved colour & pattern over 50mm thick compacted bed of coarse sand, compacting and proper embedding / laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. all complete as per manufacturer's specifications & direction of Engineer -in-Charge: (a) 80 mm thick c.c. paver block of M-30 grade with approved color design and pattern.	350.00	Sqm		
2.5	Supply and installation of vinyl sheet flooring, 2 metre wide and overall thickness of 2mm. The thickness of wear layer would be 2mm. The product should be homogeneous and single layered. The wear surface shall consist of impregnated polyurethane homogeneous mixture of PVC with TRUESHIELD technology, Plasticizers without DOP, Urethane, color pigments and filler calendered to form a sheet. Color and pattern details shall be dispersed throughout the thickness of the wear layer. It shall conform to group "T" wear resistance as per EN 649, Clean Room certified with class 'A' as per ASTM F5100, Flammability resistance of class Bfl-s1 as per GB8624-2006, Dynamic coefficient of friction of class DS as per EN 13893, Thermal Resistance of 0.072m2K/W as per EN 12667, Thermal conductivity of 0.071W/mK as per EN12524, impact sound reduction of 3dB as per ISO 10140, Slip Resistance of class R9 as per DIN 51130, Residual indentation of 0.03mm as per GB/T 4085-2005, Color fastness rating of ≥6 as per ISO 105-B02, total weight being 2.8kg/m2 as per EN430. The product shall be suitable for applications in class 23/34/43 areas as per EN685. Product shall exhibit antistatic behaviour, resistance to bacteria, resistance to chemical, resistance to staining, suitability to castor chair. Installation- It is important to ensure the subfloor on which the sheet is being laid is smooth, flat, hard and free from moisture, grease etc. In case of uneven subfloor the same should be levelled using self leveling compound. IPS/Vitrified/ceramic/mosaic tiles do not provide zero leveled sub floor. The moisture present in the subfloor should be less than 8% before installation of the floor. The sheet should be installed as per recommended adhesive. The installation shall be undertaken as per manufacturers installation instructions.	153.00	Sqm		

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3	CEILING WORK				
3.1	Acoustic Grid Ceiling Tile :Providing & Fixing of Soft Fibre Acoustical Suspended Ceiling System with Optra (Bevelled Tegular) Edge Tiles With 15mm Exposed Grid. The tiles should have Humidity Resistance (RH) of 95%, NRC 0.9 - 1.0, Light Reflectance ≥85%, Colour White, Fire Performance UK Class 0 / Class 1 (BS 476 pt - 6 &7) in module size of 600 x 600 x 20mm . The tile shall be laid on grid with 15/20 mm wide T - section flanges colour white having rotary stitching on all T sections i.e. the Main Runner, 1200 mm & 600 mm Cross Tees with a web height of 38mm and a load carrying capacity of 14 Kgs/M2 with a minimum pull out strength of 100 kgs. The T Sections have a Galvanizing of 90 grams per M2 and need to be installed with Suspension system of approved make.				
	soffit using approved make suspension system at 1200mm maximum centre. The First/Last suspension system at the end of each main runner should not be greater than 450mm from the adjacent wall. Flush fitting 1200mm long cross tees to be interlocked between main runners at 600mm centre to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long flush fitting cross tees centrally between the 1200 mm cross tees. Perimeter trim to be Armstrong wall angles of size 3000x19x19mm, secured to walls at 450 mm maximum centres.				
	SUSPENSION SYSTEM accessories manufactured and supplied by approved make consisting of M6 Anchor Fasteners with Vertical Hangers made of Galvanised steel of size 26 x 26 x 25 x 1.2mm with a Galvanised Thickness of 80gsm, A pre Straightened Hanger wire of dia – 2.5 mm of 1.8 m length., thickness of 80gsm and a tensile strength of 344-413 MPa, along with Adjustable hook clips of 0.8mm thick, galvanised spring steel for 2.68 mm with a minimum pull strength of 110 kg. The adjustable clip also consists of a 3.5 mm aquiline wire to be used with the main runner.	388.58	Sqm		

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3.2	Corridor ceiling system: Providing and fixing GI Clip in Metal Ceiling System of 600x600 mm module which includes providing and fixing 'C' wall angle of size 20x30x20 mm made of 0.5 mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300 mm center to centre, suspending the main C carrier of size 10x38x10 mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000 mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34 mm made of GI steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600 mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive), fixing with clip in tiles into spring 'T' with :				
	GI Metal Ceiling Clip in plain Beveled edge global white color tiles of size 600x600 and 0.5 mm thick with 25 mm height, made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and 20% perforation area with 1.8 mm dia holes and having NRC of 0.5, electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending and perforation.	531.41	Sqm		
3.3	Board Ceiling for Band/Border Providing & fixing false ceiling at all height including providing & fixing offramework made of special section, power pressed from M.S. sheets and galvanised with zinc coating of 120 gms/ sqm (both side inclusive) as per IS : 277 and consisting of angle cleat of size 25mm wide x 1.6mm thick with flanges of 27mm and 37mm, at 1200mm c/c, one flange fixed to the ceiling with dash fastener 12.5mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25 x10 x0.50mm of				

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	required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I chanel 45 x15 x 0.90mm running at the spacing of 1200 mm c/c, to which the ceiling section 0.5mm thick bottom wedge of 80mm with tapered flanges of 26 mm each having lips of 10.5mm, at 450mm c/c, shall be fixed in a direction perpendicular to G.I intermediate channel with connecting clip made out of 2.64mm dia x 230mm long G.I wire at every junction, including fixing perimeter channels 0.50mm thick 27mm high having flanges of 20mm and 30mm long, the perimeter of ceiling fixed to wall/ partitions with the help of Rawl plugs at 450mm centre, with 25mm long dry wall screws @ 230mm interval, including fixing of Calcium Silicate Board to ceiling section and perimeter channels with the help of				
	dry wall screws of size 3.5 x25mm at 230mm c/c, including jointing & finishing to a flush finish of tapered and square edges of the board with recommended jointing compounds, jointing tapes,finishing with jointing compounds in three layers covering up to 150mm on both sides of joints and two coats of primer suitable for boards, all as per manufacture's specification and also including the cost of making opening for light fittings,grills, diffusers, cut outs made with frame of perimeter channels suitablyfixed, all complete as per drawings, specificaton and direction of the Engineer in charge but excluding the cost of painting with:				
	a. 8 mm thick Calcium Silicate Board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process.	258.80	sqm		

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3.4	Board Grid Ceiling Tile :Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level, suspended on interlocking metal grid of hot dipped galvanized steel sections (galvanized @ 120 grams/ sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38 mm made from 0.30 mm thick (minimum) sheet, spaced at 1200 mm center to center and cross "T" of size 24x25 mm made of 0.30 mm thick (minimum) sheet, 1200 mm long spaced between main "T" at 600 mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600 mm and size 24x25 mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600 mm panel to form grids of 600x600 mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, 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 of size 27 x 37 x 25 x1.6 mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4 mm GI adjustable rods with galvanized butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200 mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete for all heights as per specifications, drawings and as directed by Engineer-in-charge.				
	8 mm thick fully perforated calcium silicate board made with Calcareous & Siliceous materials reinforced with cellulose fiber manufactured through autoclaving process to give stable crystalline structure with minimum compressive strength 225 kg/ sq. cm, bending strength 100 kg/sq. cm , of size 595x595 mm, having perforation of dia. 10 mm with minimum perforated area 18 % with non woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.85, with 50 mm thick rockwool of 48 kg /cum backing.	299.13	sqm		
5	MISCELLANEOUS WORK				
5.1	Providing & fixing 6mm thick Wood polymer Composite Board(WPC) (minimum 625 grams per square metre) of Alstone Oligo make or approved equivalent and shade on existing pre-prepared wall surface suitable for direct installation with Alstone stixall adhesive or approved equivalent as per manufacturer's specifications as per approved drawing complete in all respects and to the entire satisfaction of the Engineer-in-charge/ consultant / architect.	122.00	sqm		

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5.2	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	250.00	sqm		
5.3	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.	2453.89	sqm		
5.4	Painting with synthetic enamel paint, having VOC (Volatile Organic Compound) content less than 150 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.				
	Two coats	500.00	sqm		
5.5	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.				
	With ready mixed red oxide zinc chromatic on steel / iron works having VOC content less than 250 grams/ litre	500.00	sqm		
5.6	Providing & Fixing 18 mm thick WPC panels(Wood Polymer Composite composed of rice husk & thermoplastic) which is termite proof, waterproof & screwable of Alstone or approved equivalent of Hybrid grade including labour , hardware, aluminum support etc. complete in all respect as per the complete satisfaction of Engineer-in- charge.	100.50	Sqm		
5.7	ROLLER BLINDS				
	Supply of manually operated roller blinds as per approved shade L1-S1 Linen of MAC or approved equivalent make				
	HARDWARE TOP TUBE : Made of extruded aluminium 38 mm Dia. With wall thickness of 1.2 mm with spline adoptable to accommodate clutch.				
	CLUTCH MECHANISM : Moulded plastic having antifriction additive with Glass fibre reinforcement. Should have a minimum lifting capacity of 8 lbs				
	OPERATING CHAIN : #PVC ball chain adoptable to the clutch pitch for smooth lifting & lowering of blind.				

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	LOAD TUBE : 38 mm Extruded aluminium wall thickness :1.2 mm + / - 5%				
	Bonding (Fabric > Tube) : 15 mm wide double sided adhesive tape of 3M				
	Bottom Bar : aluminium extruded box section with powder coated finish matching the roller fabric -Min weight to be 365 gms / Lmr for a perfect fall of fabric to avoid warpage / floating.Installation to be insert type with end caps.				
	Screens to be with 5% Openness Composition 22% Polyester + 78% PVC Weight 475 grams per sq.mtr. Thickness 0.68mm	48.06	Sqm		
5.8	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	158.00	Each		
5.9	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :				
	Cement mortar 1:4 (1 cement : 4 coarse sand)	3.99	cum		
5.10	15 mm cement plaster on the rough side of single or half brick wall of mix:				
	1:4 (1 cement : 4 fine sand)	17.36	sqm		
5.11	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor, etc. up to floor five level, excluding the cost of centering, shuttering and finishing :				
	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	61.00	cum		

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5.12	Providing & fixing 8mm thick Lacquered glass of approved colour (flamed red) , fixed with Silicon sealant approved by manufacturer of glass or with necessary hardware(like screws, studs etc.)if required.The glass must be properly finished from edges & machine grinded & polished . The groove between glass to glass joint to be as per drgs issued by Architect. as per approved drawing complete in all respects and to the entire satisfaction of the Engineer-in-charge/ consultant / architect.	78.12	sqm		
5.13	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.	2000.00	kg		
5.14	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.				
a)	In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	5000.00	Kg		
b)	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	3000.00	Kg		
	Note:- Shop drawing for working platform in Auditorium to be submitted by contractor and work shall be strated only after the approval of Engineer in charge/IUAC.				
5.15	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				
	For fixed portion				

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	Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)	100.00	Kg		
6.0	ART WORK				
6.1	Design, Manufacture, Supply and installation of Copper Repousse work as per organization concept inside IUAC open lobby wall complete as per the satisfaction of Engineer-in-charge/IUAC.	7.50	Sqm		
6.2	Design, Manufacture, Supply and Installation of Mural Work on IUAC reception interior top wall medium Fibre Glass complete as per the satisfaction of Engineer-in-charge/IUAC.	30.00	Sqm		
6.3	Supply of Artwork Painting in canvas and fixing on wall in Acrylic/Oil complete as per the satisfaction of Engineer-in-charge/IUAC.	12.00	Sqm		
6.4	Design, Manufacture, Supply and insatllation of Sculpture Fibre Glass as per Organization concept 5ft-6ft height and width 1ft complete as per the satisfaction of Engineer-in-charge/IUAC.	4.00	Each		
6.5	Artwork in interior wall of IUAC auditorium building with Acrylic Paints complete as per the satisfaction of Engineer-in-charge/IUAC.	25.00	Sqm		
	Note: For subhead 8 (Art work) Concept of Art work shall be fnalised by IUAC in writing before executing the work as per the concept shown by Agency as per the direction of IUAC/RITES.				
7.0	Furniture work				
7.1	Auditorium Seating chair : Providing and fixing Push Back Chair with cup holders.				
	General: Fabricate theater seating with padding and Fire Resistance fabric covering. Equip each seat with a gravity selfrising mechanism so that unoccupied seats return to an upright position perpendicular to the base line of floor of auditorium. Spring compensating mechanism will not be acceptable. Chair profile with the seat in the upright position and without a tablet arm, cannot exceed 18". The chair profile with the seat in the upright position and with a tablet arm, cannot exceed 24" with Armrests of the chairs are made out of moulded PPCP with cup holders.				

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	Seat Construction: The seat panel shall be 5/8" thick, electronically glued curved with CRC sheet panel. The padding material shall be 4" thick polyurethane foam, shall be glued to the inner surface of the seat panel. The outside surface of the seat panel shall be encapsulated in 1/2" thick slab polyurethane foam. The complete seat assembly shall be supported by two 7 gauge formed steel mounting brackets which will attach the seat assembly to the hinges on the standards. The seat shall have a built-in counterweight to insure automatic self-rising without the aid of springs. Arch-spring seat construction will not be acceptable				
	Back Construction: Solid back construction comprised of a curved flat iron strip 5 mm thick outer panel fastened solidly and without voids to an inner structural panel. The outer panel shall be faced one side with PPCP Grade centered across the width of the panel. The inner panel shall be 3/8" thick. Both shall be electronically glued CRC sheet and shall be fastened together with bayonet hanging brackets at the top and two #8 x 3/4" trim head screws at the bottom, resulting in a rigid connection with no visible fasteners on the outer panel. The face and edges of the outer panel shall be stained to match As per the specification and direction of the Engineer -in- charge. engineer-architect's sample. The padding material shall be 1-3/4" thick polyurethane foam, 2-3/4" thick in the lumbar region, shall be glued to the inner panel. The complete back assembly shall be supported by two 14 gauge formed steel brackets and two 3/8-16 hex head bolts which will attach the back assembly to the frame.				
	Armrests: Shall be PU, nominally 1" thick x 2-1/2" wide x 12" long, stained to match the outer seat and back panels. The armrest will be fastened to the steel frame arm support with one 10-24 x 7/8" flat head machine screw and one 10-24 x 2-1/4" flat head machine screw into threaded inserts on the underside of the armrest. Chairs equipped with tablet arms shall have armrests nominally 1" thick x 2- 1/2" wide x 18" long and shall be attached to the steel frame arm support with four #8 x 3/4" sheet metal screws.				

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	Hinge: The seat hinge shall be a weldment consisting of a 7 gauge hot-rolled pickled-in-oil steel component and shall be formed and punched to receive a 0.56" id x 0.75" od x 0.5" long steel bushing. A selflubricating nylon sleeve shall be fitted between the seat hinge and the standard seat hinge pin. The hinge shall be machined to provide a positive stop location for the seat in both occupied and unoccupied positions. The hinge shall be fitted with a plastic cover to eliminate all pinch points and shall include a 3/16" thick urethane rubber pad to dampen noise upon the seat return to the vertical position.				
	Note – All exposed steel parts to be paint finished in Epoxy.	290.00	Each		
7.2	Providing and placing 2 seater sofa Indo make Model: Ceylon or approved equivalent make. Sofa frame shall be made up of hard wood and i/c stainless steel spring of 200 mm high in seat jointed with plastic nivar covered with high quality leatherite The foam shall be made of polyurethane having density of 40- 45 kg/cubic meter. The rate of high quality Leatherite used shall be approx Rs. 300/ sq mt. A SPECIAL TYPE OF UPHOLSTERY IS USED IN THIS SOFA is Microfibre with Polyester Laminate. IT IS A FABRIC WHICH GIVES A LEATHER FEEL AND SMOOTH SURFACE. THE FABRIC IS MICROFIBRE WITH POLYESTER LAMINATED BASE. Slab stock and bonded foam at seat with recron padding at seat. Backrest is made of slab stock with recron fillers. Double webbing : Spring and nylon. FRAME MATERIAL: Klin dried Wood Frame. Seat Foam : Slab stock foam with recron layer. Also bonded foam used as a supporting material beneath slab stock. Foam Density : 34 kg/ cubic m. Back Foam : Slab stock foam with recron fill at back and arms Foam Density : 34 kg/cubic m. Webbing Material : S-spring along with nylon strips. same expect spring in back covered with 2mm thick PU foam on back side and MS chrome legs . etc the product should be from BIFMA and FSC Certified Company, complete as per image/drawing specification under the guidance of Engineer-in-Charge.	6.00	Each		
7.3	Providing and placing Seating Benches Understructure made up of 16 gauge MS section duly powder coated, frame size 3x1.5inch with seat in fabric using 2inch foam of 40 micron density on 12mm ply. Back & tablet in PolyPropylene(PP). The product should be from BIFMA and FSC Certified Company, complete as per image specification under the guidance of Engineer-in-Charge.				
a	3 seater (Size: 1950mm)	16.00	Each		
b	2 seater (Size: 1350mm)	20.00	Each		

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		Qty.	Unit		
c	1 seater (Size: 750mm)	1.00	Each		
7.4	Supplying and placing in position 21 Seater conference table of Indo Model Z-Line Flexi or approved equivalent make manufacturing as per design, modular conference table of size of height 750mm, the top of the table shall be made up of 36mm thick MDF PVC foiled top with decorative anodized sections with curved shapde pvc foiled leg with 100mm thickness at centre. The modesty panel of the table shall be 600mm height made of 18mm thick pre-laminated particle board. The top, legs and modesty panel shall be joined to each other and with wire managers shall be provided on table top with 62mm dia to hold wires the product should be from BIFMA and FSC Certified Company, complete as per image specification under the guidance of Engineer-in-Charge.	21.00	Per seat		
7.5	Providing and placing in position Medium back revolving Chair of Indo make Model: IML 1018 or approved equivalent make. Chair seat & back made up of hi-quality leatherite made up of 1.2+/-0.1cm thick hot press plywood measured. Chair upholstered with leatherite and moulded foam. The foam is desinged with contoured lumber support for extra confort. The seat and back are arrested together. The P.U. armrest is made of Nylone Chrome and armrest top upholstered with leatherite. The front pivot synchro tilt mechanism is designed with features like 360 degree Revolving type, Chair has gas lift mechanism for height adjustment resting on MS chrome base dia 60-61 cm with superior quality five castor wheel pronged with steel strip twin castor wheels and Centre tilt mechanism etc. the product should be from BIFMA and FSC Certified Company, complete as per image specification under the guidance of Engineer-in-Charge.	21	Each		
7.6	Providing & Placing Reception Counter in 'U' Shape as per drawing with Main Desk of size - 6600(L) x 750(D) x 1100(ht) with Side Desk on both sides of size - 2400(L) x 750(D) x 1100(ht). 19mm thick commercial block board with 1mm thick decorative Laminate as per approved shade on all exposed surfaces of board. The unit will be having 3 Pedestal of size 400(W) x 450(D) x 700(Ht) having 2Drawers + 1Filling Drawer in each pedestal, the product should be from BIFMA and FSC Certified Company, complete as per image specification under the guidance of Engineer-in-Charge.	1	Each		

(BILL OF QUANTITY)

FIRE-FIGHTING WORK

Item NO.	Description of work	Qty.	Unit	Rate	Rate	Amount
				in words	In figures	
	Sub Head- FIRE FIGHTING SYSTEM					
	WET RISER SYSTEM					
1	Supplying, Installation, Testing and commissioning of electric driven pump set suitable for automatic operation as per specification as required & comprising of following:- a) 1 No horizontal foot mounted type Single stage centrifugal split casing pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal and capable of delivering 900 LPM at 56 m head complete with TEFC type squirrel cage induction motor with class - F insulation , synchronous speed 3000 RPM continuous duty, designed for operation on 415 +/- 10%, 50 HZ, 3 phase, AC supply with IP 55 class of protection confirming to IS:325 and duly coupled with the pumping set as per specification. b) M S fabricated common base plate fabricated from M S Channel of suitable size, coupling, coupling guard, foundation bolt etc. as required. c) Suitable cement concrete foundation including vibration isolation by providing cushy foot mountings duly plastered complete as required.	2	set			
2	Providing, laying,testing and Commissioning of following sizes of flanzed jointed/ screwed/ welded,"C" class heavy duty MS Pipe as per IS 1239 part I including fittings like elbow, tees, flanges, tapers, nut bolts, gaskets etc., fixing the pipe on the wall/ceiling/ on terrace with suitable claimps and painting with two or more coats of synthetic enamel paint of required shade including chases in brick or RCC Wall/slab and making good the same..					
a)	150mm dia	100	Mtrs			
b)	80mm dia	20	Mtrs			
c)	25 mm dia	30	Mtrs			
3	Providing, laying,testing and Commissioning of following sizes of flanzed jointed/ screwed/ welded,"C" class heavy duty MS Pipe as per IS 1239 part I including fittings like elbow, tees, flanges, tapers, nut bolts, gaskets etc., including excavation in all kinds of soils , rock , back filling with excavated earth , removal of surplus soil and providing anit corrosive treatment as per IS-10221 complete as required					
a)	150mm dia	375	Mtrs			

(BILL OF QUANTITY)

FIRE-FIGHTING WORK

Item NO.	Description of work	Qty.	Unit	Rate	Rate	Amount
				in words	In figures	
4	Supply and fixing of G.M. air release valve of 25mm dia in existing pipe line of wet riser system complete with all respect as per Specification for fire fighting system.	2	Each			
5	Providing, Fixing including testing and commissioning of 100 mm dia pressure gauge of range 0-15 Kg / Sq.cm. having burdon tube of stainless steel 310 in cast aluminium, stove enameled, black weather proof case with outer, screwed aluminium nozzle complete with necessary u-type stainless steel siphon tube and cock including providing suitable painted angle iron support of the tube etc as required.	4	Each			
6	Providing, Fixing, Testing and commissioning single headed stainless steel ISI marked oblique pattern hydrant landing valve with 80mm dia flanged inlet and 63mm dia instantaneous type female outlet complete with gum metal cap and chain and all accessories as per IS-5290-1983.	12	Each			
7	Providing Fixing, Testing and commissioning of 2 way fire service inlet with cabinet & connection with 63 mm dia built in spring type non return coupling fitted on existing 100 mm dia G.I. pipe inlet header etc. as per specification complete as reqd.	1	Each			
8	Providing and Fixing of 63 mm dia 15 mtr long (polyester fiber type) RRL hose pipe Confirming to IS:636-1992 Part-II with male and female Gun metal couplings duly binded with GI wire, rivets etc. as required.	12	set			
9	Providing and Fixing of 63 mm dia 15 mtr long controlled percolating Hosepipe Confirming to IS:8423 male and female Gun metal couplings duly binded with GI wire, rivets etc. as required.	12	set			
10	Providing and fixing fire man axe as required complete in all respects.	6	Each			
11	Providing and fixing 63 mm dia stainless steel branch pipe with 20 mm (nominal internal diameter) as per IS:903 size stainless steel nozzle, suitable for instantaneous connection to interconnect hose pipe coupling as required.	12	Each			

(BILL OF QUANTITY)

FIRE-FIGHTING WORK

Item NO.	Description of work	Qty.	Unit	Rate	Rate	Amount
				in words	In figures	
12	Providing and fixing first aid hose reel with MS construction spray painted in post office Red, with up-to-date amendments complete with the following as required :(a) 30m long 20mm (nominal internal) dia water hose Thermoplastic (Textile reinforced) Type-2 as epr IS:444 with stainlees steel /gunmetal sgut off Nozzle having 5mm dia orifice. (b) 20mm (nominal internal) dia stainless-steel globe valve & nozzle. (c) Drum and brackets for fixing the equipment on wall. (d) Connections from riser with 25 mm dia ball valve .	6	Each			
13	Providing and fixing the following sizes flanged type ISI marked non-return valves of C.I. body and bronze/gun metal seat, complete with bolts, nuts, rubber insertions etc. as required. 150 mm dia (horizontal)	4	Each			
14	Providing and fixing following sizes ISI marked butterfly valves of cast iron body and bronze/Stainless steel seat PN 1.6 complete with accessories such as nut, bolt, rubber insertions complete with testing, commissioning etc. as required. a) 150nn dia b) 80 mm dia	8 4	Each Each			
15	Providing & Fixing Pump ON -OFF push button type remote switches at ground floors i/c connection with multi core control wiring from starter panel as reqd.	2	Each			
16	Supplying, Laying & Fixing on wall / surface one no. XLPE insulated, & PVC sheathed armoured copper conductor cable of 1.1 KV grade on surface / cable tray as required. a) 4 x 2.5 Sq.mm+2x2.5 Sqmm earth wire b) 2 x 6 Sq.mm+1x6 Sqmm earth wire	50 30	Mtrs Mtrs			

(BILL OF QUANTITY)

FIRE-FIGHTING WORK

Item NO.	Description of work	Qty.	Unit	Rate	Rate	Amount
				in words	In figures	
17	Fabrication, Supply, Installation, Testing and commissioning of floor/wall mounted compartmentalized with hinged lockable doors cubical electrical control panel of suitable size fabricated from CRCA sheet of 2 mm thick, dust and vermin proof, powder coated of approved shade after chemically treated with seven tank process, cable alley, suitable for operation on 3 phase 415 volt 50 Hz AC supply i/c providing and fixing following switch gear to be mounted on complete with gaskets, interconnections and earthing etc. as required. The enclosure protection class shall be of IP 54. (For wet riser system) (General arrangement and schematic Drawings to be approved by the department before start of fabrication) Incomer a) 100 ATPMCCB 35 KA, (ICS= ICU)-1 No b) 100 A rating 4 strip tinned copper sleeved bus bar - 1 set c) 1 set - multifunction digital meter to read V, Amp, KW, KWH with 3 nos. Suitably rated CT's class 1.0 accuracy and 15 VA burden. d) 3 Nos. Phase indication LED lamps with back up SPMCB. Outgoing a) 63 Amp TP MCCB, 10KA , (ICS= ICU) -2 nos. b) Suitable DOL starter with over load protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation of terrace pumps - 2 Sets c) Selector switch for local/remote, auto/ manual/off operation, push buttons for ON,OFF, in manual mode, LED type ON/ OFF 3 phase indication lamps with Toggle switch- 2 Sets d) Digital ammeter with selector switch and suitable CT's - 2 Sets	1	set			
18	Pdg. and fixing of following sizes stop/drain valve of Stainless Steel for testing the drain system as required. a) 40 mm dia (in Delivery pumps.)	1	Each			
19	Providing and fixing of cast iron Double flanged y type strainer of following size: a 150mm	2	Each			

(BILL OF QUANTITY)

FIRE-FIGHTING WORK

Item NO.	Description of work	Qty.	Unit	Rate	Rate	Amount
				in words	In figures	
20	Indoor type hose cabinet frames fabricated from 40x40x5 mm angle iron sections and full front glass door and locking arrangement. Suitable to accommodate 2-nos landing valve, 2-nos15mtr hoses1-no first aid hose reel and 1-no branch pipe. The cabinet frame shall be painted with one coat of primer and two or more coat of synthetic enamel paint of approved make and shade as required size 2x1.2mtr.	6	Each			
21	Weather proof Hose Box fabricated out of 1.8 mm thick M.S. sheet complete with glass in front having locking arrangement, suitable to accommodate all the necessary fittings etc.	6	Each			
	Total					

BILL OF QUANTITY							
ELECTRICAL WORKS							
S. No.	Item DSR 2014	Description of work	Unit	Qty.	Rate	Rate	AMOUNT
					In words	In Figures	
		SUB-HEAD-I-INTERNAL ELECTRICAL WORK					
		WIRING IN STEEL CONDUIT					
1.1)	1.3	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 steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.					
a)	1.3.3	Group C	Point	605			
1.2)	N.S	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 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 in existing Conduit.	Point	190.00			
1.3)	1.11	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.	Point	15			
1.4)	1.31	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	Each	223			
1.5)	1.32	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	99			

1.6)	2.18	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	12		
1.7)	NS	SITC of following size of Isolator/ MCB/ MCCB breakers MS box (indoor/outdoor) type including MCB/ MCCB with suitable space for both end terminations fixing arrangement on surface / in recessed manner as per site requirement etc. Complete as required.				
		63Amps 4 Pole MCB isolator	Each	10		
1.8)	1.7	Wiring for circuit wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required				
a)	1.7.1	2 x 1.5 sq. mm + 1 x 1.5 sq. mm earth wire	Metre	4560		
b)	1.7.2	2 x 2.5 sq. mm + 1 x 2.5 sq. mm earth wire	Metre	8500		
c)	1.7.3	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Metre	6500		
d)	1.7.4	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	4500		
e)	1.7.10	4 X 10 sq. mm + 2 X 10 sq. mm earth wire	Mtrs	1000		
f)	1.7.11	4 X 16 sq. mm + 2 X 16 sq. mm earth wire	Mtrs	1200		
g)	NS	4 X 25 sq. mm + 2 X 25 sq. mm earth wire	Mtrs	1200		
1.9)	1.17	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel / PVC conduit as required				
a)	1.17.12	3 x 2.5 sq. mm	Metre	700		
b)	1.17.21	3 x 4 sq. mm	Metre	650		
c)	1.17.30	3 x 6 sq. mm	Metre	400		
1.1)	1.25	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	9		
1.11)	1.26	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	150		
		TOTAL SUB-HEAD-I				

		SUB-HEAD-II-WIRING FOR T.V, TELEPHONE & DATA.					
2.1)	1.24	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.					
a)	1.24.6	Telephone socket outlet	Each	35			
b)	1.24.7	TV antenna socket outlet	Each	2			
b)	NS	RJ - 45 Jack computer socket outlet	Each	42			
2.2)	1.27	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.					
a)	1.27.1	1 or 2 Module (75mmX75mm)	Each	77			
2.3)	1.28	Supplying and fixing following Modular base & cover plate on existing modular metal boxes etc. as required.					
a)	1.28.1	1 or 2 Module	Each	77			
2.4)	1.18	Supplying and drawing following pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.					
a)	1.18.2	2 Pair	Mtrs	1350			
b)	1.18.3	4 Pair	Mtrs	450			
2.5)	1.18	Supplying and drawing Co-axial TV cable RG-6 grade, 0.7mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Mtrs	300			
2.6)	1.53	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed steel/ PVC conduit as required.	Mtrs	1750			
2.7)	1.20	Supplying and fixing of following sizes of steel conduit along with accessories in surface/recess including painting in case of surfaceconduit, or cutting the wall and making good the same in case of recessed conduit as required.					
a)	1.20.1	20 mm	Mtrs	4500			
b)	1.20.2	25 mm	Mtrs	8500			
c)	1.20.3	32 mm	Mtrs	1200			

2.8)	1.21	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.					
a)	1.21.1	20 mm	Mtrs	1250			
b)	1.21.2	25 mm	Mtrs	1850			
c)	1.21.3	32 mm	Mtrs	400			
2.9)	MR	Supply Installation testing commissioning in position the following sizes of powder coated MS housing for telephone tag block with hinged & lockable door including supply & fixing of tag block made out from self extinguishing polystyrene material, corrosion resistant, highly resistant to shock, sturdy and maintenance free KRONE type telephone tag block complete as required.					
a)	MR	10 Pair	Each	3			
b)	MR	20 Pair	Each	1			
c)	MR	100 Pair	Each	1			
3.0)	MR	Supply, laying, testing and commissioning of the following multi core 0.61 mm annealed tinned copper conductor PVC insulated and PVC sheathed and overall PVC sheathed armoured/ unarmoured telephone cables generally conforming to ITD s/WS-11-B and IS 1554 Part I as required and including making terminal joints, complete as required.					
a)	MR	10 Pair	Meter	350			
b)	MR	20 Pair	Meter	155			
		TOTAL SUB-HEAD-II					
		SUB-HEAD-III- INSTALLATION OF LIGHT FITTINGS					
3.1)	1.45	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	Each	9			

3.2)	1.47	Supplying and fixing extra down rod of 10 cm length G.I. pipe ,15 mm dia, heavy gauge including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	9			
3.3)	1.50	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.					
(a)	1.50.1	Upto 450 mm sweep	Each	15			
3.4)	1.51	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	Each	15			
		TOTAL SUB-HEAD-III					
		SUB-HEAD-IV- SUPPLY OF LIGHT & FAN FIXTURES					
4.1)	NS	Supply ,fixing , testing and commissioning of 15W LED Resses mounted luminaire Down Light fixture all accessories as required. Model: Bajaj Cat No. BZSLO 15W WH PRO or equivalent.	Each	43			
4.2)	NS	Supply ,fixing , testing and commissioning of 12W LED Resses mounted luminaire Down Light fixture all accessories as required. Model: Bajaj Cat No. BZSLH 12W WH or equivalent.	Each	35			
4.3)	NS	Supply ,fixing , testing and commissioning of 32W LED Resses mounted luminaire Down Light fixture all accessories as required. (Model: Wipro LM26-361-XXX-57-XX) or equivalent.	Each	77			
4.4)	NS	Supply ,fixing , testing and commissioning of 13W LED 2 feet tube light/mirror Light fixture all accessories as required. Model: Havells Cat No. LHDT15113631 or equivalent.	Each	14			
4.5)	NS	Supply ,fixing , testing and commissioning of 10W LED Bulk Head Light fixture all accessories as required. Model: Bajaj Cat No. BIBWP 10W LED or equivalent.	Each	9			

4.6)	NS	Supply ,fixing , testing and commissioning of 20W LED Surface/Wall Mounted tube light fixture all accessories as required. Model: Bajaj Cat No. BN150W LED20S-6500 PSE OD GR or equivalent.	Each	50			
4.7)	NS	Supply ,fixing , testing and commissioning of 15W LED Surface Mounted square downlight fixture all accessories as required. Model: Bajaj Cat No. BGSLO Sleek Surface 15 WH SQ or equivalent.	Each	42			
4.8)	NS	Supply ,fixing , testing and commissioning of 36W LED Resses square 600mm x 600mm Light fixture all accessories as required. Model: Bajaj Cat No.BPRF 36W WH SL LED or equivalent.	Each	148			
4.9A	NS	Supply ,fixing , testing and commissioning of 15W LED Step light fixture all accessories as required. Model: Philips Cat No.BWG150 LED50/WW PSU 220-240V IP67 7043 or equivalent.	Each	24			
4.9B	NS	Supply ,fixing , testing and commissioning of less then 4 W LED Step light fixture all accessories as required. Model: Philips Cat No.BWG150 C14 IP67 7043 or equivalent.C14	Each	64			
4.10	NS	Supply ,fixing , testing and commissioning of 35W LED Resses/Surface mounted luminaire Down Light fixture all accessories as required. Model: Wipro Cat No. LM71-441-XXX-57-XX or equivalent.	Each	20			
4.11)	NS	Supply ,fixing , testing and commissioning of 36W LED Suspanded & Surface mounted luminaire Down Light fixture all accessories as required. Model: Philips Cat No. SP525PLED 36S-6500 PSU WH or equivalent.	Each	20			
4.12)	NS	SIT and commissioning Indoor emergency exit sign wall / pendent mounting luminair with ihour backup complete with all accessories . Viewing earter from one side for wall mounting type or viewing from two sides suspended type all accessories as required. Model: Bajaj Cat No.BESL 03 LED DSD WBB Red or equivalent.	Each	11			

4.13)	NS	Supply, installation, testing and commissioning of LED Flexible Strip light 4-5 Watt/mtr of approved color for indoor mounting with transformer/Driver unit at every 5 mtrs complete in all respects. Model: Bajaj Cat No. BCFL 300 25W IP20 or equivalent.	mtrs.	25			
4.14)	NS	Supply , fixing of Ventilation, fans up to 300mm sweep in the existing opening including making good the damage connection testig commisining Including louvers/ shutters complete with frame for a exhaust fan of all size etc. as required.	Each	15			
4.15)	NS	Supply of ISI marked energy efficient sweep ceiling fan with double ball bearing , motor ,blades , down rod , canopies , capacitor etc . Suitable for operation on 230 volts , 50 Hz. , single phase , AC supply complete as required of and as per specifications attached .(1200mm Sweep)	Each	9			
4.16)	NS	Supply , fixing of Wall fans up to 600mm sweep including making good the damage connection testig commisining extra for fixing complete as required.	Each	42			
		TOTAL SUB-HEAD-IV					
		SUB-HEAD-V-DISTRIBUTION BOARD & MCCB, MCB					
5.1)	2.7	Supplying and fixing following way prewired SP&N MCB distributionboard of steel sheet for 240 volts on surface/ recess completewith loose wire box, terminal connectors for all incoming andoutgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator)					
b)	2.7.6	2 + 12 way/14 way, Double door	Each	2			

5.2)	2.8	Supplying and fixing following way prewired TP&N MCB distributionboard of steel sheet for 415 volts on surface/ recess completewith loose wire box, terminal connectors for all incoming andoutgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)					
a)	2.8.5	4 way (4 + 12), Double door	Each	2			
b)	2.8.6	6 way (4 + 18), Double door	Each	2			
c)	2.8.7	8 way (4 + 24), Double door	Each	2			
d)	2.8.8	12 way (4 + 36), Double door	Each	3			
	2.9	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 FRLS 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.)					
	2.9.6	6 way Double door	Each	1			
5.3)	2.10	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
a)	2.10.1	Single pole	Each	244			
5.4)	2.12	Supplying and fixing following rating, double pole, 240 volts, isolatorin the existing MCB DB complete with connections, testing andcommissioning etc. as required.					
a)	2.12.2	63 amps	Each	2			

5.5)	2.13	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
a)	2.13.1	40 amps	Each	20			
b)	2.13.2	63 amps	Each	4			
c)	2.13.3	100 amps	Each	3			
5.7)	2.11	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	65			
TOTAL SUB-HEAD-V							
SUB-HEAD-VI-CABLE TRAYS							
6.1)	4.1	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)	4.1.1	100 mm width X 50 mm depth X 1.6 mm thickness	Mtrs	75			
b)	4.1.2	150 mm width X 50 mm depth X 1.6 mm thickness	Mtrs	80			
c)	4.1.4	300 mm width X 50 mm depth X 1.6 mm thickness	Mtrs	130			
d)	4.1.6	450 mm width X 50 mm depth X 2.0 mm thickness	Mtrs	150			
6.2)	4.2	Supplying and installing following size of perforated pre-painted M.S. cable trays bends with perforation not more than 17.5%,, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)	4.2.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	20			
b)	4.2.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	25			
c)	4.2.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	35			
d)	4.2.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	40			
6.3)	4.3	Supplying and installing following size of perforated pre-painted M.S. cable trays reducers with perforation not more than 17.5% in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)	4.3.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	13			
b)	4.3.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	10			
c)	4.3.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	10			
d)	4.3.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	12			

6.4)	4.4	Supplying and installing following size of perforated pre-painted M.S. cable trays tee's with perforation not more than 17.5% in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
a)	4.4.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	10		
b)	4.4.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	10		
c)	4.4.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	10		
d)	4.4.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	10		
6.5)	4.5	Supplying and installing following size of perforated pre-painted M.S. cable trays cross members with perforation not more than 17.5% in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
a)	4.5.1	100 mm width X 50 mm depth X 1.6 mm thickness	Each	10		
b)	4.5.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	10		
c)	4.5.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	10		
d)	4.5.6	450 mm width X 50 mm depth X 2.0 mm thickness	Each	10		
6.6)	MR	Supplying and fixing of following recessed type raceway made out of 2mm thick G.I sheet complete with joints, horizontal bends , vertical bends , level adjustment including cutting of floor & finishing the same including actual size of Junction box etc. as required.				
a)	MR	100mmX40mm (Nominal)	Metre	100		
b)	MR	150mmX40mm (Nominal)	Metre	100		
6.7)		Providing & fixing in of following sizes of powder coated 14 SWG MS Junction Box in floor with 3mm thick stainless steel cover including all necessary hardware as required for fixing complete with cutting of floors & making good of the same.				
a)	MR	100mm x 100mm x 50mm Junction box	Each	72		
b)	MR	150mm x 150mm x 50mm Junction box	Each	25		
TOTAL SUB-HEAD-VI						
SUB-HEAD-VII CABLES						
7.3)	M.R.	Supply of following size of 1.1kv grade multicore aluminium conductor XLPE insulated and PVC sheathed armoured cable as per IS : 7098:1988 with upto date amendments.				
(a)	M.R.	3.5 core, 240 Sq.mm.	Meter	120		

(b)	M.R.	3.5 core, 150 Sq.mm.	Meter	120		
(c)	M.R.	3.5 core, 120 Sq.mm.	Meter	150		
(d)	M.R.	3.5 core, 95 Sq.mm.	Meter	200		
(e)	M.R.	4 core, 35 Sq.mm.	Meter	240		
(f)	M.R.	4 core, 25 Sq.mm.	Meter	300		
7.4)	7.1	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
(a)	7.1.1	Upto 35 sq. mm	Meter	540		
(b)	7.1.2	Above 35 sq. mm and upto 95 sq. mm	Meter	200		
(c)	7.1.3	Above 95 sq. mm and upto 185 sq. mm	Meter	270		
(d)	7.1.4	Above 185 sq. mm and upto 400 sq. mm	Meter	120		
7.5)	9.1	Supply and making end termination with flame proof double compression brass gland and aluminium thimbles for XLPE insulated and PVC sheathed aluminium conductor cable of 1.1kv grade of the following sizes as required.				
(a)	9.1.29	3½ X 240 sq. mm (62mm)	Each	2		
(b)	9.1.26	3½ X 150 sq. mm (50mm)	Each	2		
(c)	9.1.25	3½ X 120 sq. mm (45mm)	Each	2		
(d)	9.1.24	3½ X 95 sq. mm (45mm)	Each	2		
(e)	9.1.35	4 X 35 sq. mm (32mm)	Each	10		
(f)	9.1.34	4 X 25 sq. mm (28mm)	Each	10		
7.6)	2.22	Providing and fixing H.T. danger notice plate of 250 mm X 200 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	4		
7.7)	14.14	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.				
	14.14.2	150 mm dia.	Meter	20		
	14.14.3	250 mm dia.	Meter	20		
TOTAL SUB-HEAD-VII						

		SUB HEAD VIII - LIGHTNING PROTECTION AND EARTHING SYSTEM					
8.1)	6.2	Providing and fixing of lightning conductor finial, made of 25mm dia 300mm, long GI tube, having single prong at top, with 85mm dia. 6mm thick GI base plate including holes etc. complete as required.	Each	4			
8.2)	6.4	Jointing copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc as required.	Each	2			
8.3)	6.7	Providing and fixing G.I. tape 20mm x 3mm thick on parapet or surface of wall for lightning conductor as required (For horizontal run)	Metre	350			
8.4)	6.8	Providing and fixing GI tape 20mm x 3mm thick on parapet or surface of wall for lightning conductor as required. (for vertical run).	Metre	150			
8.5)	6.12	Providing and fixing testing joint, made of 20mm x3mm thick GI strip, 125mm long, with 4 nos. of GI bolts, nuts, check nuts and spring washers etc.complete as required.	Each	2			
8.6)	6.14	Providing and laying GI tape, 32mm x 6mm thick, from earth electrode directly in ground as required.	Metre	150			
		TOTAL SUB-HEAD-VIII					
		SUBHEAD - IX - EARTHING SYSTEM :					
9.1)	NS	Supply and fixing of Alltec UL Listed make long life Maintenance Free "C" Bar Earthing System with constant performance service warranty "C" Bar & Tape Connector should be 17.6 mm Copper Cladded Rod - UL Listed, 250 Micron, 8 / 10 Ft Long with Exo Thermic Weld T Weld Connector. The system with Rod to tape jointer rated for high fault currents up to 10kA, which does not require manual addition of water. The system installed with ALLTEC - TerraFill TF 50 & TF- 50 XT BackFill should RoHS & Low resistivity Certified. The BackFill having not more than 0.20 Ohm/cm resistance, eco friendly, non degradable and non soluble. The earthing pit shall be designed and supplied with Poly-plastic Pit Cover non conductive, environment friendly.	Set	8			

9.3)	5.10	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	Meter	400			
9.4)	5.14	Providing and fixing 25 mm x 5 mm copper strip on surface or in recess for connections etc. as required.	Meter	450			
9.5)	5.11	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.	Meter	250			
9.6)	5.15	Providing and fixing 25 mm x 5 mm G.I strip on surface or in recess for connections etc. as required.	Meter	150			
9.7)	5.16	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	Meter	1500			
TOTAL SUB-HEAD-IX							
SUB HEAD - X : LT Panel							
10.11)	MR	UPS Panel: Supplying, fixing, connecting, testing and commissioning of sheet steel cubicle type panels floor / wall mounted type fabricated from 16 gauge CRCA sheet, dust and vermin proof, indoor type TPN Main board with hinged lockable doors fabricated from 14 gaug					
		Type of construction: Form 3, IP classification: 42					
		The internal control wiring shall be fuse less. All control wiring and metering protection shall be by MCB's.					
		Color: Siemens color code 7032 Powder Coated, as per approved sample.					
		Incomer					
		1nos 150A TPN MCCB 25kA with inbuilt Microprocessor release with rotary handle handle.					
		1 set 96mm x 96mm Voltmeter (0-500V) with 3 way and OFF selector switch.					
		1set 150/5A CTs for metering					
		1 set 96mm x 96mm Ammeter (0-150A) with 3 way OFF selector switch.					
		1 set of three phase indicating lamps with 2A SP MCB for protection.					

		Busbar: 200A TPN Aluminum with Heat Shrink Sleeve					
		Outgoing:					
		63A FP MCB - 3 Nos.					
		40A FP MCB - 1 Nos.					
		40A DP MCB - 14 Nos.					
		Spare					
		63A FP MCB - 2 Nos.					
		40A FP MCB - 2 Nos.					
		40A DP MCB - 2 Nos.					
		Complete with above items.	Sets	1			
		TOTAL SUB-HEAD-X					
		SUB HEAD - XI : FIRE DETECTION WORK					
11.1	M.R.	Supply, Installation, Testing & Commissioning of Microprocessor based ,4 loop fire alarm control panel fully networkable with each loop capable of taking minimum 127 devices in any combination, minimum 5.7" TFT display The panel shall be soft addressable type. The panel shall be able to give pin point location of all fire/fault conditions. Further, the panel must be able to automatically switch off respective control switches when ever any alarm is triggered. The panel shall have hot redundancy (CPU & Power Supply) as incase of faliture of one CPU/Power Supply the other (redundant) CPU/Power Supply should take over fully without any delay and manual intervention. The panel shall have in built rectifier, provision for external printer (if required), Loop cards, Display to indicate Fire/Fault Signal with address and analog output, complete in all respects, integral SMF lead acid batteries with sealed cells of 24 V capable of running for a minimum of 8 hours in normal condition and 30 minutes in alarm condition with integral battery charger complete as required and as per specification complete as required.	Each				
				1			

11.2	M.R.	Supply, Installation, Testing & Commissioning of Analog Addressable Intelligent Automatic adaptable to varying environment conditions , multisensor detector with inbuilt optical smoke sensors as well as additional heat detector sensor with decentralise intelligence , soft addressable Photothermal type with inbuilt fault isolator as per NFPA style 7 wiring with LED Blinking display complete with base as required	Each	148			
11.3	M.R.	Supply, Installation, Testing & Commissioning of Analogue Addressable Intelligent Automatic adaptable to varying environment conditions ,Heat Detector with fixed & rate of rise temperature function with decentralise intelligence , soft addressable type, with inbuilt fault isolator as per NFPA style 7 wiring with LED blinking display complete with base as required.	Each	3			
11.4	M.R.	Supply, Installation, Testing & Commissioning of Addressable Manual Call Point soft addressable type with in built fault isolator complete as required.	Each	9			
11.5	M.R.	Supply, Installation, Testing & Commissioning of Loop Powered Addressable Hooter cum strobe complete as required , no additional Control module and cable is permitted complete as required	Each	9			
11.6	M.R.	Supplying, assembling, erection, testing & commissioning of Response Indicator which consists of steady glowing LED. This LED shall be mounted within a M.S. box and connected in parallel to the built in indicator of the detector as per specifications. The RI shall come "ON" as soon as the detector activates complete as required	Each	24			
11.7	M.R.	Supplying, fixing, testing and commissioning of Addressable Control module for AHU tripping/ damper control/ Lift well Pressurization fans/ Lift lobby pressurization fans/ Stairwell Pressurization fan monitoring etc. as required.	Each	14			
11.8	M.R.	Supplying, fixing, testing and commissioning of Addressable Monitor module with inbuilt isolator for Flow Switch Monitoring and any integration etc complete as required	Each	8			

11.9		Supplying, assembling, erection, testing & commissioning of Fire Fighter's Two way talk back panel fitted on wall , complete in all respects as per specifications. complete as required	Each	1			
11.10	M.R.	Supplying, assembling, erection, testing & commissioning of , red coloured Fire Fighter's Telephone jack fitted on wall including the cost of breaking and making good the wall wherever required, complete in all respects as per specifications complete as required	Each	9			
11.11	M.R.	Supplying, assembling, erection, testing & commissioning of 2 way fire fighter's telephone handset complete in all respects as per specifications complete as required	Each	2			
11.12	M.R.	Supply, Installation,Testing & Commissioning of Repeater Panel (LCD indicator panel) with 2 line X 20 characters alpha numeric LCD display with all commands such as reset, mute, silence with suitable battery backup complete as required	Each	1			
11.13	M.R.	Supplying, installation, testing & commissioning of PVC insulated 2 x 1.5 sq.mm twisted pair FRLS copper conductor flexible cable with terminations on each end with ferrules etc. in the existing conduit complete as required.	Metre	1900			
11.14	M.R.	Supplying, installation, testing & commissioning of Self illumination EXIT Signage's 4" x 12 " size as required & approved by the Consultant/ Engineer Incharge complete as required					
(a)	M.R.	Double arrow exit	Each	4			
(b)	M.R.	Double side single left/ right arrow exit	Each	5			
(c)	M.R.	Hydrant signage	Each	5			
TOTAL SUB-HEAD-XI							
SUB-HEAD-XII : PA SYSTEM							
12.1	M.R.	Supply, Installation, Testing & Commissioning of IP based Networkable touch screen paging station for selection of zones, supervision of system status, setting of scheduled broadcasts with the following functions: Built-in monitoring loudspeaker, Detachable goose-neck microphone, LCD touchscreen display complete as required	Set	1			

12.2	M.R.	Supply, Installation, Testing & Commissioning of 8 zone IP based, digital Voice Alarm controller expandable upto 256 zones. The voice alarm controller should be able to connect directly over existing Ethernet. It should have functions like the audio playing, zone control, fault monitoring, log recording, volume control and amplifier switchover. The Voice alarm controller should also have the following functions: 255 Priorities, Time schedule broadcasts, Capable of amplifier redundancy, 8 trigger inputs/outputs, 4 simultaneous audio messages per controller complete as required	Set	1			
12.3	M.R.	Supply, Installation, Testing & Commissioning of 1X500W Class-D Amplifier with 1 independent channel and can provide automatic re-settable overcurrent, overload, overheating, overvoltage, undervoltage and DC protection. Can do automatic switchover if used as hot standby amplifier. Should take audio Input from controller through ethernet via RJ45 port. Freq Response of 70Hz - 18KHz, SNR > 100dB complete as required	Set	4			
12.4	M.R.	Supply, Installation, Testing & Commissioning of 20W column loudspeaker with max SPL1M 102dB . Vertical Disperion 80 degree. Horizontal Dispersion 90 degree. Frequency response of 120Hz - 20KHz. Weather resistant to IP44 complete as required	Each	24			
12.5	M.R.	Supply, Installation, Testing & Commissioning of 6W Ceiling Speaker with max SPL1M 96dB . Frequency response of 80Hz-20KHz with a dispersion angle of 160 deg. The speaker should have tappings at 6W/3W complete as required	Each	124			
12.6	M.R.	Supplying and drawing following sizes of FRLS PVC insulated flexible copper conductor, single core cable in the existing surface/ recessed PVC/steel conduit/ PVC casing and capping as required :					
a)	M.R.	3 x 1.5 Sq.mm.	Meter	192			
b)	M.R.	3 x 2.5 Sq.mm.	Meter	200			
12.7	M.R.	Supplying, laying, terminating & connecting of 2 core 24/0.20mm flexible copper conductor cable with terminations, labour and other petty material etc. complete in all respect etc complete as required.	Metre	800			

12.8	M.R.	Fabrication, supplying & installing of M.S. rack of 20U size duly powder coated to accommodate item 1,2 & 3 as above etc complete as required.	Each	1		
		TOTAL SUB-HEAD-XII				
		SUB HEAD-XIII: CCTV SURVEILLANCE SYSTEM				
13.1	M.R.	Fixed color camera with indoor housing				
		Supply, Installation, Testing & Commissioning of 1080P 25/20fps IP Fixed True Day/Night inbuilt IR Box Dome Camera, fixed 3.6 mm, H.264, PoE, DC12V/AC24V, ONVIF with all accessories like tamper proof screws, clamps, wiring etc. complete as required.	Nos.	17		
13.2	M.R.	Fixed color camera with outdoor housing				
		Supply, Installation, Testing & Commissioning of 1080P 25/20fps IP Fixed True Day/Night inbuilt IR Box Dome Camera, Vari-focal 2.8-12mm, H.264, PoE, DC12V/AC24V, ONVIF with all accessories like tamper proof screws, clamps, wiring etc. complete as required.	No.	11		
13.3	M.R.	Box Color Camera				
		Supply, Installation, Testing & Commissioning of 1080P 25/20fps IP Fixed True Day/Night inbuilt IR Box Camera with Vari-focal 2.8-12mm, H.264, PoE, DC12V/AC24V, ONVIF with all accessories like Outdoor weatherproof Housing, brackets, tamper proof screws, clamps, wiring etc. complete as required.	No.	15		
13.4	M.R.	CCTV Monitors				
		Supply, installation, testing & commissioning of 42" Flat LED Color Monitors etc complete as required.	No.	3		
13.5	M.R.	Power Supply				
		Supply, Installation, Testing & Commissioning of SMPS Power Supply with battery backup for Bullet cameras etc complete as required.	No.	16		
13.6	M.R.	NVR				

		Supply, installation, testing & commissioning of Network Video recorder, All-in-one recording, dual stream, e-signature, electronica Image stabilization, de-fog, viewing, virtual disk quota management, and management solution for network surveillance systems of up to 32 channels, HDMI Output(1080p), RAID 6/10 controller, 7 x 4 TB ,surveillance systems of up to 32channels (all channels pre-licensed), 8 x HDD (4 TB) max, 2 nos e-SATA for backup, redundant ethernet, redundant power supply, Operating Temerature -10 °C to +55 °C, NVR shall have Video Motion Detection (VMD) facility for individual camera, hot swappable HDD, sufficient video recording capacity & complete as per specifications etc complete as required.	No.	2		
13.7	M.R.	Supply, installation, testing & commissioning of 24 port 10/1000 network switches etc complete as required.	No.	3		
13.8	M.R.	Client Workstation				
		The workstion shall have the the following specifications:- Processor Intel i5 with internal memory of 4 GB RAM. Operating system Windows 7, 32 bit version. Video graphics card 512 MB. Resolution support for cameras 2560 x 1600 display resolution capable and directX true colour 32 bit. Dual Link VDI outputs. Client software shall support Dual monitors each displaying 16 cameras simultaneously. A maximum of 32 cameras viewing per workstion at a time programmable to sequence etc complete as required.	No.	1		
13.9	M.R.	Patch Panel				
a)	M.R.	Supply, installation & testing of 24 Port Jack/ Patch panel etc complete as required.	No.	3		
b)	M.R.	Supply, installation & testing of CAT-6 Patch Cord 1 mtr etc complete as required.	No.	32		
c)	M.R.	Supply, installation & testing of CAT-6 Patch Cord 3 mtr etc complete as required.	No.	3		
13.10	M.R.	19 inch rack mount				
a)	M.R.	19 inck rack mount console unit - 21 U with 4 cooling fans on top and bottom at control room etc complete as required.	Nos.	1		
b)	M.R.	19 inck rack mount console unit - 6 U with 2 cooling fans on top and bottom at Fiel location etc complete as required.	Nos.	1		

13.11	M.R.	Supplying and fixing of following cables along with accessories and making good the same as required.					
a)	M.R.	Supply, laying & testing of Cat 5 / 6 UTP cable with all termination crimping etc complete as required.	Metre	1500			
b)	M.R.	Supply, laying & testing of 3 x 1.5 sqmm Power Cable for powering the cameras and Switches etc complete as required.	Metre	550			
		TOTAL SUB-HEAD-XIII					
		TOTAL ELECTRICAL WORKS					

















