

Cultural & Information Center, Jabalpur (Phase I)

Cultural & Information Center, Jabalpur (Phase I)			
		Summary Sheet	
S.No	Particulars	Amount	
1	Civil Works	27 71 60 716	
2	Plumbing Works	2 00 85 284	
3	Fire Fighting Works	1 36 88 001	
4	Electrical Works	6 19 00 592	
5	HVAC Works	6 00 92 751	
6	External Developemet & Landscape Works	2 07 53 181	
7	Furniture	40 88 700	
8	Auditorium Works	3 89 85 650	
9	Lift & Escalator Works	3 39 74 407	
10	Audio & Video Works	2 15 24 260	
	GRAND TOTAL	55 22 53 540	

CIVIL WORKS SUMMARY

S.NO.	DESCRIPTION OF WORK	AMOUNT	
			TOTAL
A	EARTH WORK	Rs.	7,604,859
B	CONCRETE WORK	Rs.	2,869,596
C	REINFORCED CEMENT CONCRETE WORK	Rs.	144,966,901
D	BRICK WORK	Rs.	13,698,905
E	MARBLE WORK	Rs.	290,932
F	WOOD WORK	Rs.	4,935,712
G	STEEL WORK	Rs.	43,485,171
H	FLOORING	Rs.	25,803,867
I	ROOFING	Rs.	3,762,373
J	FINISHING	Rs.	7,040,152
K	WATER PROOFING WORK	Rs.	14,302,574
L	ALUMINIUM WORK	Rs.	173,134
M	STRUCTURAL GLAZING ALUMINIUM COMPOSITION PANEL	Rs.	8,226,541
	Total :	Rs.	277,160,716

Civil work						
SCHEDULE OF QUANTITIES						
SL.N	Code	Description	UNIT	QTY	RATE	AMOUNT
1	2.6 p15	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled and neatly dressed.				
a	2.6.1	All kinds of soil	cum	20950.2909	114.30	2394618.25
2	2.7 p15	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled and neatly dressed.				
a	2.7.1	Ordinary rock	cum	10475.1455	176.40	1847815.658
b	2.7.2	Hard rock (requiring blasting)	cum	3491.71515	281.70	983616.1579
3	2.8 p16	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
	2.8.1	All kinds of soil	cum	2499.02	116.10	290136.5331
4	2.9 p16	Excavation work in foundation trenches or drains not exceeding 1.5 m in width or 10 sqm on plan including dressing of sides and ramming of bottoms lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soils as directed, within a lead of 50m.				
a	2.9.1	Ordinary rock	cum	1249.51	181.80	227161.1616
b	2.9.2	Hard rock (requiring blasting)	cum	416.50	288.00	119953.0886
5	2.25 p19	Filling by available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	cum	472.46	53.10	25087.50387
6	2.34 p20	Diluting and injecting chemical emulsion for POSTCONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion .				
a	2.34.1	Along external wall where the apron is not provided using chemical emulsion @ 7.5 liters / sqm of the vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. complete				
a(i)	2.34.1.1	With Chlorpyrifos/ Lindane E.C. 20% with 1% concentration.	meter	440.52	8.10	3568.212

7	2.34.4 p21	Treatment of soil under existing floors using chemical emulsion @ one liter per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor :				
a	2.34.3.1	With Chlorpyrifos/Lindane E.C. 20% with 1% concentration.	sqm	4405.2	55.80	245810.16
	CPWD					
8	2.34	Supplying chemical emulsion in sealed containers including delivery as specified :				
a	2.34.1	Chlorpyrifos/Lindane emulsifiable concentrate of 20%.	litre	8766.35	167.36	1467092.17
		Toral carried over to summary				7604858.895
B		Concrete Work				
1	4.1 p34	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering All work up to plinth level.				
a	4.1.3	Cement concrete grade M-15 (Nominal Mix) with 40 mm maximum size of stone aggregate.	cum	694.94	3684.60	2560593
b	4.1.5	Cement concrete grade M-10 (Nominal Mix) with 40 mm maximum size of stone aggregate.	cum	45	3175.20	142884
2	4.16 p34	Making plinth protection 50mm thick of Cement concrete grade M- 10 (Nominal Mix with 20 mm maximum size of stone aggregate) over 75mm bed by dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	sqm	440.52	377.10	166119
		Toral carried over to summary				2869596
C		Reinforcement Work				
1	5.30 p51	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement. including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-20 grade reinforced cement concrete by using 405 kg. of cement per cum of concrete. All work up to floor 2 level.				
			cum	4973.7	4689.90	23326362

1a	5.32 p51	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement. including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-30 grade reinforced cement concrete by using 420 kg. of cement per cum of concrete. All work up to floor 2 level.	cum	994.7	4779.00	4753905
1b	5.33 p51	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement. including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-35 grade reinforced cement concrete by using 428 kg. of cement per cum of concrete. All work up to floor 2 level.	cum	1890.02	4826.70	9122573
1c		Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement. including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-50 grade reinforced cement concrete by using 445 kg. of cement per cum of concrete. All work up to floor 2 level.	cum	2088.97	4957.20	10355454
1d	5.9 p46	RBC in cement mortar 1:3 excluding the cost of reinforcement, with Cement concrete M-15 (Nominal Mix with 20 mm maximum size of stone aggregate) on top up to 1/3 effective depth of RBC (slab) etc.	cum	25.30	5160.60	130552
2	5.14 p48	Providing, hoisting and fixing up to floor two level precast reinforced cement concrete in shelves including setting in cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering and finishing with neat cement punning on exposed surfaces but excluding the cost of reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate)	cum	7.80	7803.90	60870
3	5.11 p47	Providing, hoisting and fixing up to floor two level precast reinforced cement concrete in small lintels not exceeding 1.5m clear span up to floor two level including the cost of required centering, shuttering and finishing smooth with 6 mm thick cement plaster 1:3 (1 cement : 3 fine sand) on exposed surfaces but excluding the cost of reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate).	cum	113.30	6973.20	790061

4	5.8 p47	Reinforced cement concrete work in vertical and horizontal fins individually or forming box louvers, facias and eaves boards up to floor two level xcluding the cost of centering, shuttering, finishing and reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate)	cum	11.51	4412.70	50781
5	5.23 p49	Providing and filling in position, blown bitumen in expansion joints.	per cm depth per cm width per 100m	47.30	434.70	206
6	5.25 p50	Providing and fixing in position 12mm thick bitumen impregnated fibre board conforming to IS: 1838 including cost of primer, sealing compound in expansion joints.	per cm depth per cm width per 100m length	47.30	372.60	176
7	5.26 p50	Providing and fixing sheet covering over expansion joints with iron screws as per design to match the colour / shade of wall treatment.				
	5.26.2	Aluminium fluted strips 3.15mm thick.				
	5.26.2.2	200 mm wide.	metre	47.30	378.00	17879
8	5.37 p52	Add Extra in respective item for additional floor above floor two level.	cum	8009.40	83.70	670387
9	20.1 p209	Centering and shuttering including strutting, propping etc.and removal of form for :				
a	20.1.1	Foundations, footings, bases of columns, etc. For mass concrete.	sqm	3002.26	124.20	372880
b	20.1.2	Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc	sqm	1711.16	194.40	332649
c	20.1.3	Suspended floors, roofs, landings, balconies and access platform.	sqm	14363.48	204.30	2934459
d	20.1.5	Lintels, beams, plinth beams, girders, bressumers and cantilevers.	sqm	12933.72	182.70	2362991
e	20.1.6	Columns, Pillars, Piers, Abutments, Posts and Struts.	sqm	2374.01	253.80	602523
f	20.1.7	Stairs, (excluding landings) except spiral-staircases.	sqm	1642.80	250.20	411028
10	5.20 p49	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding including cost of binding wire upto floor two level including all wastage etc. complete.				
a	5.20.6	Thermo-Mechanically Treated bars.	kg	1625800.55	54.00	87793230
11	5.20.7	Add extra for providing reinforcement above Floor two level for every additional floor or part there of. (1% of the respective item)	kg	16258.01	54.00	877932
		Toral carried over to summary				144966901

D		BRICK WORK				
1	6.1 p58	Brick work with well burnt chimney bricks in bulls patent trench kiln manufactured by ghol process, crushing strength not less than 40kg /sqcm and water absorption not more than 15% in foundation and plinth.				
a	6.1.2	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	61.49	3995.10	245670.2848
2	6.3 p58	Brick work with chimney brick of class designation 40 in superstructure above plinth level upto floor 2 level including the cost of scaffolding in :				
a	6.3.2	Cement mortar 1:6(1 cement : 6 coarse sand)	cum	121.26	3798.00	460547.6164
3	6.31 p61	Providing and laying autoclaved aerated cement blocks masonry with 100mm thick AAC blocks in super structure above plinth level up to floor II level in cement mortar 1:4 (1 cement : 4 coarse sand) The rate includes providing and placing in position 2 Nos. 6 mm dia M.S. bars at every third course of masonry work	cum	362.00	5319.00	1925474.543
	DSR					
4	6.47 p115	Providing and laying autoclaved aerated cement blocks masonry with 150 mm / 230mm / 300 mm thick AAC blocks in super structure above plinth level up to floor V level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineerin- Charge. (The payment of RCC band and reinforcement shall be made for seperately).	cum	910.36	5118.39	4659578.544
5	6.4 p58	Extra for brick work in superstructure above floor 2 level for each floors or part there of .	cum	856.42	366.30	313704.8557
6	6.9 p59	Half brick masonry with of class designation 40 in foundation and plinth in.				
a	6.9.2	Cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	1513.77	465.30	704357.181
7	6.10 p59	Half brick masonry with of class designation 40 in super structure above plinth level up to floor 2 level including the cost of scaffolding.				
a	6.10.2	Cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	4211.26	503.10	2118686.164
8	6.11 p59	Extra for half brick masonry in superstructure, above floor 2 level for every floors or part thereof by mechanical means by lifting material using mobile crane.	sqm	6833.59	8.10	55352.04863
9	6.12 p59	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with of class designation 40).	sqm	4211.26	61.20	257729.265
10	6.37 p62	Brick edging 7cm wide 11.4cm. deep to plinth protection with bricks of class designation 40 including grouting with cement mortar 1:4 (1 cement : 4 fine sand).	meter	462.52	31.50	14569.254

11	NS	Thermal Insulation of walls with 50 mm XPS polystyrene (Density of 32-35 kg/cum, K value of 0.028 W/mk and water absorption not less than 1) fixed with suitable adhesive between internal and external walls, providing and fixing 2 layers of chicken wire mesh with PVC anchors (recommended by XPS manufacturer) for fixing mesh to wall through insulation. including cost of scaffolding etc complete as per the directions of the Engineer-in-charge :				
	a	Cost to include 50mm XPS, chicken mesh & anchors	sqm	3619.99	813.05	2943235.715
		Toral carried over to summary				13698905
F		MARBLE WORK				
1	8.2 p78	Providing and fixing 16mm thick gang saw cut mirror polished pre moulded 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.				
	a	8.2.8 Granite of any colour and shade				
		8.2.8.2 Area of slab over 0.50 sqm.	sqm	104.00	2289.60	238118
2	8.3 p79	Extra for providing full edge moulding to 16mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineerin- Charge.				
	a	8.3.2 Granite work	metre	148.00	131.40	19447
3	8.4 p79	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.	metre	260.00	124.20	32292
4	8.5 p79	Extra for providing opening of required size & shape for wash basins/ 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.	each	6	179.10	1075
		Toral carried over to summary				290932
F		Wood Work				
1	9.1 p86	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position :				
	a	9.1.3 Second class teak wood	cum	8.34	74823.30	624001
2	9.40. p93	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete:				
	a	2nd class teak wood				
(i)	9.40.1.2	50x20 mm	metre	855.35	108.90	93148

3	9.20. p90	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters using following hinges				
a	9.20.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	sqm	286.08	1367.10	391100
4	9.23 p90	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 9.20 and 9.21.	sqm	286.08	315.90	90373
5	9.10. p88	Providing and fixing factory made laminated veneer lumber glazed shutter conforming to IS: 14616 and TADS 15:2001 (Part B) , using 4mm thick float glass panes for doors, windows and clerestory windows including ISI marked black enamelled M.S butt hinges with necessary screws as per directions of Engineer-in-charge.				
	9.10.1	30 mm thick shutters	sqm	52.50	1805.40	94784
6	9.6 p86	Providing and fixing 35 mm thick factory made laminated veneer lumber door shutter conforming to IS : 14616 and TADS 15:2001 (Part B) including ISI marked black enameled M.S. butt hinges with necessary screws as per directions of Engineerin- charge and panelling with panels of:				
	9.6.2	12 mm thick pre-laminated particle board (decorative lamination on both sides) grade - I, medium density flat pressed, three layer particle board FPT - I or graded wood particle board FPT - I, conforming to IS : 3087 bonded with BVP type synthetic resin adhesive as per IS : 848 and pre-laminated conforming to IS : 12823 Grade I, Type - II marked:	sqm	83.48	2158.20	180156
7	9.117 p104	Providing and fixing factory made UPVC door frame made of UPVC extruded section having an overall dimension as below (tolerance ± 1 mm) with wall thickness $2.0\text{mm} \pm 0.2\text{mm}$, corners of the door frame to be mitred and welded of plastic, galvanized brackets and stainless steel screws. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 X 19mm and $1\text{mm} \pm 0.1\text{mm}$ wall thickness and 3 nos. stainless steel hinges fixed to the frame complete as per manufacturers specification and direction of Engineer-in-charge.				
	9.117.2	Extruded section profile size 42x50 mm.	metre	654.00	175.50	114777
8	17.1 p192	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side having 12 mm air gap including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specification drawings and direction of Engineer-in-charge complete.	sqm	107.55	3181.50	342170
8a	NS	Extra for Colour glass with following i) VLT > 40%, ii) SHGC < 0.25 , iii) U value - <2.2 w/m2 deg. K.	sqm	215.10	760.00	163476

9	9.11 p88	Extra for providing heavy sheet float glass panes instead of ordinary float glass in glazed doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured)				
	9.11.1	5.5 mm thick instead of 4 mm thick.	sqm	52.50	146.70	7702
10	9.96 p100	Providing and fixing aluminium sliding door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete :				
a	9.96.1	300x16mm	each	133	176.40	23461
11	9.97 p100	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete :				
a	9.97.2	250 x 10mm	each	264	68.40	18058
b	9.97.4	150 x 10mm	each	70	51.30	3591
c	9.97.5	100 x 10 mm	each	70	36.00	2520
12	9.100. p101	Providing and fixing aluminium handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete :				
a	9.100.1	125mm	each	177	53.10	9399
b	9.100.2	100mm	each	70	39.60	2772
13	9.101 p101	Providing and fixing aluminium hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade with necessary screws etc complete				
a	9.101.2	Twin rubber stopper	each	137	58.50	8015
14	9.84 p99	Providing and fixing IS : 3564 marked aluminium extruded section body tubular type universal hydraulic door closer with double speed adjustment with necessary accessories and screws etc. complete.				
	DSR		each	110	992.70	109197

15	9.161 p177	Providing and fixing fire resistant door frame of section 50 x 60 mm on horizontal side & 35 x 60 mm on vertical sides having built in rebate made out of 1.6 mm thick GI sheet (Zinc coating not less than 120gm/m ²) suitable for mounting 120 min Fire Rated Glazed Door Shutters. The frame shall be filled with Mineral wool Insulation having density min 96Kg/m ³ . The frame will have a provision of G.I. Anchor fastners 14 nos (5 each on vertical style & 4 on horizontal style of size M10 x 80) suitable for fixing in the opening along with Factory made Template for SS Ball Bearing Hinges of Size 100x89x3mm for fixing of fire rated glazed shutter. The frame shall be finished with a approved fire resistant primer or Powder coating of not less than 30 micron in desired shade as per the directions of Engineer - in- charge . (Cost of SS ball bearing hinges is excluded).	metre	189.00	1134.00	214326
16	9.162 p177	Providing and fixing 60 mm thick glazed fire resistant door shutters of 120 min Fire Rating confirming to IS:3614 (Part II) or EN1634- 1:1999, tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, top rail & side rail 60 mm x 60 mm wide and bottom rail of 110 mm x 60 mm made out of 1.6mm thick G.I. sheet (zinc coating not less than 120gm/m ²) duly filled mineral wool insulation having density min 96 kg/m ³ and fixing with necessary stainless steel ball bearing hinges of size 100x89x3mm of approved make, including applying a coat of approved fire resistant primer or powder coating not less than 30 micron etc all complete as per direction of Engineer-in-charge (panelling to be paid for seperately).	sqm	108.00	6155.42	664785
17	NS	Supply and installation of Besco by Merino TITAN STANDARD series cubicles of width and depth as per specifications / site drawings. Cubicle height to be 1980 mm. Made from solid grade compact high pressure laminate as per IS:2046 manufactured under high specific pressure > 5 MPa and temperature >120oC with bunch of kraft papers impregnated with thermosetting phenolic resin and decorative papers made of Alpha cellulose fiber impregnated with thermosetting melamine resin which provide superior scratch, abrasion, heat, chemical, impact, graffiti & moisture resistance along with anti-bacterial properties. Panels have a black core that when machined, presents a distinctive black edge. Panel thickness 12 mm. Design no. as specified by Arch. / Engr. in suede finish. Size of panels to be as per drawing.	each	47.00	37827.73	1777903
		Toral carried over to summary				4935712
G		STEEL WORK				

1	10.2 p113	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete:	kg	452122.00	55.80	25228407.6
2	10.16 p115	Steel work in built up tubular trusses including cutting, hoisting fixing in position and applying a priming coat of approved steel primer, welded and bolted including special shaped washers etc. complete.				
	10.16.2	Hot finished seamless type tubes.	kg	225500	77.40	17453700
3	10.18 p116	Providing and fixing circular/ Hexagonal cast iron or M.S. sheet box for ceiling fan clamp of internal dia 140mm, 73mm height, top lid of 1.5mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/ M.S. sheet box by means of 3.3mm dia. round headed screws, one lock at the corners. Clamp shall be made of 12mm dia M.S. bar bent to shape as per standard drawing.	each	20	94.50	1890
4	NS	Providing, fabricating and installing in position, M.S. railings consisting horizontal top rail of Teak wood 75 x 65mm size fixed to balusters with screws, including necessary welding, grouting, chasing and grinding etc. as per detail in drawing with two or more coats of synthetic enamel paint and polishing and of approved zinc chromate primer etc., complete. The length of the Wooden Hand Rail as erected in position shall be measured.	sam	152.334	2903.75	442340
5	10.6 p113	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete including the cost of providing and fixing necessary 27.5cm long wire springs grade No.2 and M.S. top cover of required thickness for rolling shutters.				
	10.6.1	80x1.25mm M.S. laths with 1.25 mm thick top cover.	sam	96	1727.10	165802
6	10.7 p113	Providing and fixing ball bearing for rolling shutters.	each	16	535.50	8568
7	10.8 p114	Extra for providing mechanical device chain and crank operation for operating rolling shutters.				
	10.8.2	Exceeding 16.80 sam in area.	sam	96	604.80	58061
8	10.15 p115	Providing and fixing M.S.Tubular frames for doors, windows, ventilators and cupboard with L-Type section made of 1.60mm thick M.S. Sheet, joints mitred and welded and grinded finish profiles required size with 15x3mm lugs 10cm long embedded in cement concrete M-10 (Nominal Mix with 20mm mmaximum size of stone aggregate) blocks 15x10x10cm or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as required including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primers.	kg	1254	100.80	126403
Total carried over to summary						43485171

FLOORING WORK						
H	DSR					
1	16.75 p278	Providing and laying C.C. pavement (Trimex Flooring) of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator , vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-incharge. (The panel shuttering work shall be paid for separately). (Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).	cum	385.5	6220.94	2398170
2	NS	Providing & applying of Retro plate System over concrete - This is a complete process that revitalizes and strengthens old / new concrete floor – to abrasion with improved impact resistance, sealing, glossy sheen as per manufacturer specification.	sqm	4339	499.91	2169108
3	11.11 p130	40 mm thick marble chips flooring, rubbed and polished to granolithic finish, under layer 28 mm thick cement concrete M-15 (Nominal Mix with 12.5mm maximum size of stone aggregate) and top layer 12mm thick with white, black, chocolate, grey yellow or green marble chips of sizes from 7mm to 10mm nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 2:3 (2 cement marble powder mix : 3 marble chips) by volume including cement slurry etc. complete :				
a	11.11.2.	Light shade pigment with white cement.	sqm	1193.6	513.90	613391
4	NS	1) Providing & applying of Retro plate System over concrete - This is a complete process that revitalizes and strengthens old / new concrete floor – to abrasion with improved impact resistance, sealing, glossy sheen as per manufacturer specification, 2)Providing and applying solvent based colour dye Marketed by J.B.Associates, New Delhi formulated using extremely fine molecules of colour designed to penetrate and colour any cementious surface, It can be used with polished concrete as well as base colour or touch up for concrete that has received integral colours, dry shake hardener, acid stains or even as overlay to itself as per manufacturer specification	sqm	1193.6	811.60	968724
5	11.12 p130	Marble chips skirting (up to 30 cm height) rubbed and polished to granolithic finish, top layer 6 mm thick with white, black, chocolate, grey, yellow or green marble chips of sizes from smallest to 4 mm nominal size laid in cement marble powder mix 3:1 (3 cement : 1 marble powder) by weight in proportion of 4:7 (4 cement marble powder mix : 7 marble chips) by volume :				
	11.12.1	18 mm thick with under layer 12 mm thick in cement plaster 1:3 (1 cement : 3 coarse sand) :				
	11.12.1. 2	Light shade pigment with white cement.	sqm	184.55	452.70	83544
6	11.3 p128	Cement concrete flooring M-15 (nominal mix) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete.				

	11.3.1	40mm thick with 20mm maximum size of stone aggregate.	sqm	1723.80	212.40	366135
7	11.6 p128	Cement plaster skirting (up to 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.	sqm	257.25	194.40	50009
8	NS	Providing and laying synthetic tile carpet 500 x 500 with straight fivers (ege) (Reserved price of carpet = Rs 2500/- per sqm)	sqm	1461.80	3077.57	4498799
9	8.1 p78	Marble work gang saw cut (polished and machine cut) of thickness 16mm for wall lining (veneer work) in cement mortar 1:3 (1 cement : 3 coarse sand) including pointing with white cement mortar 1:2 (1 white cement:2 marble dust) with an admixture of pigment to match the marble shade:(To be secured to the backing by means of cramps, which shall be paid for separately)				
a	8.1.4	Makrana Marble				
	b	Area of slab over 0.50 sqm	sqm	648.51	2171.70	1408379
b	8.2.5	Karni Marble				
	b	Area of slab over 0.50 sqm	sqm	43.50	1868.40	81275
10	8.2. p78	Providing and fixing 16mm 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.				
a	8.2.4	Makrana Marble				
	b	Area of slab over 0.50 sqm	sqm	333.78	1863.90	622133
b	8.2.5	Katni Marble				
	b	Area of slab over 0.50 sqm	sqm	609.25	1598.40	973825
11	NS	Providing and laying 2m dia coloured marble inlay pattern on flooring as per design / basic cost for pattern consider 10000/-	each	4.00	11615.00	46460
12	11.26. p133	Kota stone slab 25mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4 (minimum size of kota stone 0.25 sqm)	sqm	1182.81	737.10	871849
13	11.27 p133	Kota stone slabs 25mm thick in risers of steps, skirting,dado and pillars laid on 12mm (average) thick cement mortar 1:3 (1 cement 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs. including rubbing and polishing complete.	sqm	857.25	738.90	633422

14	NS	Jaiselmer marble stone slab 16mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4	sqm	14.44	1479.53	21364
15	NS	Jaiselmer marble stone slabs 16mm thick in risers of steps, skirting,dado and pillars laid on 12mm (average) thick cement mortar 1:3 (1 cement 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	112.50	2085.86	234659
16	11.16 p131	Precast terrazo tiles 18-20mm thick with graded marble chips of size upto 12mm laid in floors, and landings, jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing complete with precast tiles on 20mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand)				
a	11.6.1	Light shade using white cement.	sqm	407.66	665.10	271135
b	11.6.2	Medium shade using 50% white cement and 50% ordinary cement.	sqm	57.84	612.00	35398
17	NS	DREST Gold Stone (Make : NITCO) 20 mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4 (minimum size of 300 x 300mm)	sqm	214.14	1159.28	248248
18	NS	AQUAMARIN Stone (Make : NITCO) 20 mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4 (minimum size 600 x 600 mm size)	sqm	439.92	1095.23	481813
19	NS	KHAREDA Stone (Make : NITCO) 20 mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4 (minimum size 900 x 900 mm)	sqm	244.14	2055.99	501950
20	NS	Providing and fixing Hand made Cirimic Murals wall tiles(Gonda Art ceramic Tiles) as per local Artist's specification of approved colours, shades of any size as approved by Engineer-in- Charge in wall, 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.	sqm	85.4	23860.04	2037648
	DSR					

21	8.13 p130	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.				
	8.13.1	Polished Granite stone slab jet Black, Cherry Red, Elite Brown, Cat Eye or equivalent.	sqm	566.00	2643.93	1496464
22	7.40 p73	Providing and fixing dry cladding upto 10 meter heights with 30mm thick gang saw cut stone with (machine cut edges) of uniform colour and size upto 1mx1m, fixed to structural steel frame work and/ or with the help of cramps, pins etc. and sealing the joints with approved weather sealant as per Architectural drawing and direction of Engineer-in-charge. (The steel frame work, stainless steel cramps and pins etc. shall be paid for separately.)				
a	7.40.2	White sand stone	sqm	913.00	1497.60	1367309
b	NS	Terracotta lali	sqm	1400.85	2036.46	2852768
23	7.39 p72	Extra for stone work for wall lining on exterior walls of height more than 10 m from ground level for every additional height of 3m or part there of.	sqm	2929.20	51.39	150532
24	11.29 p133	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) including pointing with cement mortar 1:2 (1 cement : 2 stone dust) with an admixture of pigment to match the shade of stone				
	11.29.2	White sand stone	sqm	38.15	446.40	17030
25	NS	Providing and laying Broken ceramic tile flooring using approved quality of ceramic tiles and thickness manufactured by M/S. Johnson's ceramic / Somani / Khajaria or equivalent make laying the tiles over bed of 20mm thick cement mortar 1:3 with cement slurry @ 3.3kg / sqm, jointed and pointed with matching gray / white cement slurry mixed with matching pigment and finishing to required level, curing etc. as per manufacturer's specifications, drawings etc.	sqm	373.20	810.09	302326
		Toral carried over to summary				25803867
I		ROOFING WORK				

1	12.50 p151	Supply & installation of pre-coated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm ±5% total coated thickness (TCT) thick Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15- 18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation and should be supplied in single length upto 12 meter or as desired by Engineerin- charge. The sheet shall be fixed using self drilling/self tapping screws of size (5.5x 55mm) with EPDM seal or with polymer coated J or L hooks, bolts and nuts 8mm diameter with bitumen and G.I. limpet washers or with G.I. limpet washers filled with white lead complete upto any pitch in horizontal/vertical or curved surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.				
			sqm	2051.69	520.20	1067289
2	12.51 p151	Providing and fixing pre-coated galvanised steel sheet roofing accessories 0.50 mm +/- 5% total coated thickness (TCT) thick Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers complete :				
	12.51.1	Ridges plain (500 - 600mm).	metre	56.00	502.20	28123
	12.51.2	Flashings/ Aprons.(Upto 600 mm)	metre	8.60	491.40	4226
	12.51.6	Gutter ,(600 mm over all girth).	metre	112.00	777.60	87091
3	12.52 p	Providing and fixing False Ceiling Tiles of approved materials of size 595 x 595mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanised steel sections (galvanized @ 170 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 center to center and cross "T" of size 24x25mm made of 0.30mm thick (minimum) sheet, 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600mm and secondary cross "T" of length 600mm and size				

		24 x 25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and laying 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. Main "T" runners to be suspended from ceiling using GI slotted cleats fixed to ceiling with 6 mm dia and 50mm long dash fasteners, 4mm GI adjustable rods with galvanised level clips spaced at 1200mm center to center along main T, bottom exposed width of 24mm of all T-sections shall be prepainted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-Charge.(The rate is excluding cost of tiles which will be paid separately).	sqm	1245.6	336.60	419269
	DSR					
4	12.52.1	GI Metal Ceiling Lay in plain Tegular edge Global white color tiles of size 595x595 mm, and 0.5 mm thick with 8 mm drop; made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.	sqm	634.8	601.16	381613
	DSR					
5	12.52.4	12.5 mm thick fully Perforated Gypsum Board tile made from plasterboard having glass fibre conforming to IS: 2095 part I, of size 595x595 mm, having perforation of 9.7x9.7 mm at 19.4 mm c/c with center borders of 48 mm and the side borders of 30 mm, backed with non woven tissue on the back side, having an NRC (Noise Reduction Coefficient) of 0.79, with 50 mm resin bonded glass wool backing.	sqm	400.7	568.22	227684
	DSR					
6	12.52.3	12.5 mm thick square edge PVC Laminated Gypsum Tile of size 595x595 mm, made of Gypsum plasterboard, manufactured from natural gypsum as per IS 2095 part I and laminated with white 0.16mm thick fire retardant PVC film on the face side and 12micron metalized polyester on the back side with all edges sealed with the face side PVC film which goes around and wraps the edges and is bonded to the edges and the back side metalized polyester film so as to make the tile a completely sealed unit.	sqm	210.1	557.24	117075
7	12.53 p153	Providing and fixing and applying plaster of paris (POP) false ceiling consisting of frame work made with 50 mm sq. M.S tubes of 18 G thickness as main runners at 600 mm c/c both ways, suspended/supported with M.S flats 25 x 4 mm from existing R.C.C slab including providing and fixing expanded metal of size 5.25 mm x 1.25 mm thickness welded to main runner and applying POP (Calcium sulphate semihydrate variety) to the expanded metal of thickness not less than 10mm finished smooth to line and level including necessary supports scaffolding etc. as required and also including applying a coat of red oxide zinc chromate primer over the M.S frame work and suspenders complete.	sqm	1640.1	865.80	1419999
8	12.21 p146	Providing gola 75x75 mm in cement concrete M-15 with aggregate 10mm and down gauge including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :				

a	12.21.1	In 75x75mm deep chase	metre	125.80	75.60	9510
9	12.22 p146	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete M-15 with aggregate of 20 mm nominal size over P.V.C. sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complet	each	4	123.30	493
Toral carried over to summary						3762373
J	FINISHING WORK					
1	13.4 p156	12 mm cement plaster of mix :				
	13.4.2	1:6 (1 cement: 6 coarse sand)	sqm	10541.66	91.80	967724
2	13.5 p156	15 mm cement plaster on rough side of single or half brick wall of mix :				
	13.5.2	1:6 (1 cement : 6 coarse sand)	sqm	4211.26	99.00	416915
3	13.16 p157	6mm cement plaster of mix :				
	13.16.1	1:3 (1 cement : 3 fine sand)	sqm	15081.66	74.70	1126600
4	13.72 p165	Washed stone grit plaster on exterior walls of height upto 10 M. above level in two layers, under layer 12mm cement plaster 1:4 (1 cement: 4 coarse sand) furrowing the under layer with scratching tool, applying cement slurry on the under layer @ 2 Kg of cement per square meter, top layer 15mm cement plaster 1:1/2:2 (1 cement: 1/2 coarse sand : 2 stone chipping 10mm nominal size) in panels with groove all around as per approved pattern including scrubbing and washing, the top layer with brushes and water to expose the stone chippings ,complete as per specification and direction of Engineer-in- charge (Payment for providing grooves shall be made separately).	sqm	3329.45	293.40	976859
5	13.73 p165	Forming groove of uniform size in the top layer of washed stone grit plaster as per approved pattern using wooden battens, nailed to the under layer including removal of wooden battens, repair to the edges of panels and finishing the groove complete as per specifications and direction of the Engineer-in-charge :				
a	13.73.1	15 mm wide and 15 mm deep groove	metre	6975.98	13.41	93548
6	NS	Providing and fixing chicken wire mesh (6mm x 6mm) of 24 gauge 200 mm wide along the joints of R.C.C. work and brick work with hooks/nails etc. complete so as to receiving the plastering work over chicken mesh as per the direction of Engineer-in-charge	sqm	484.92	95.88	46492
	DSR					

7	13.80. p234	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.	sqm	14752.92	78.62	1159801
	DSR					
8	13.81. p234	Distempering with 1st quality acrylic distemper, 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.				
a	13.81.2	Two coats	sqm	15081.66	44.69	673924
	DSR					
9	13.82. p234	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.				
	13.82.2	Two coats	sqm	14752.92	66.51	981217
	DSR					
10	13.85 p235	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.				
a	13.85.1	With ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ litre	sqm	770.59	34.61	26666
b	13.85.2	With ready mixed red oxide zinc chromatic on steel / iron works having VOC content less than 250 grams/ litre	sqm	17151.08	29.30	502441
12	13.68 p164	French sprit polishing				
	13.68.1	Two or more coats on new works including a coat of wood filler.	sqm	770.59	88.20	67966
		Toral carried over to summary				7040152
K		WATER PROOFING WORK				
I	NS	Waterproofing of Base/Raft for Horizontal surface : Supplying & installing positive side waterproofing treatment for "Raft Slab/Base Slab" by using Pre applied, flexible, fully bonded sheet membrane before casting of the base RCC slab. Fully bonded sheet membrane does not require dry PCC/blinding concrete and can be installed on damp PCC as long as PCC is free from ponded water. Fully bonded sheet membrane should have sufficient high puncture resistance of minimum 1200N as per ASTM E 154 & does not require protection screed & steel reinforcement can be laid directly over the robust membrane allowing faster construction.				

		Fully bonded sheet membrane shall have minimum thickness of 4.5mm & shall have "CE Marking" & Membrane shall be supplied with original manufacturer test certificate & Membrane shall be installed in strict accordance with original manufacturer instructions (private label supplier & membrane without CE marking are not acceptable) & contractor should produce method statement from original manufacturer. Fully bonded sheet membrane shall have DUO SELVEDGE, ie dual lap sealing . Duo Selvedge will ensure double sealing of laps so as to provide strong lap adhesion of > 1500 N as per ASTM D 1876 & provide an intimate bond to underneath of poured concrete used as base/ raft slab to resist water migration. The fully bonded sheet membrane shall consist of a multi layer composite film which consists of high performance polyester reinforcement & a trafficable weather resistant layer . Fully bonded sheet membrane shall be chemically resistant in all types of soil or water and is unaffected by ground settlement beneath slabs.				
a	NS	Sub-base (P.C.C.) of the structure should be cleaned of all dirt, loose & sharp edge material and kept dry.				
		Fully bonded sheet waterproofing membrane shall have following typical properties : 1) Peel Adhesion to Concrete > 4248 N/M (as per ASTM D 903) 2) Lap Adhesion > 1500 N (as per ASTM D 1876) 3) Resistance to Hydrostatic Head > 110M (as per ASTM D 5385) 4) Puncture Resistance > 1200 N (as per ASTM E 154) Fully bonded sheet membrane shall be laid over the entire area and returned on to a vertical slab formwork. No Screed Protection Required for Fully Bonded sheet Membrane Allowing Faster Construction Approved Brands : Colphene BSW of Soprema, France or equivalent				
		Fully bonded sheet membrane for base slab/ raft slab waterproofing shall be installed with minimum standard 100 mm selvedge laps. Selvedge shall be Duo Selvedge, 55mm self adhesive and 45mm thermofusible film over entire area and turned up on to a vertical timber formwork/blockwork , as per recommendations/drawings. The membrane shall be laid over the concrete blinding having uniform surface including necessary overlaps between the membranes , firm rolling onto the surface to get a tight seal, etc. complete all as per manufacturer's recommendations, etc. complete with all lead and lift for all materials and labour and as directed by engineer in charge.	sqm	5761.56	1 220	7,026,654
2	NS	FOR VERTICAL SURFACE :				

		<p>Waterproofing of Un-Confined Retaining Wall: Supplying & Installing 1.5mm thick self adhesive , cold applied , flexible waterproofing membrane comprising of a self adhesive rubberized asphalt with tri-laminated polyethylene film . Membrane should be supplied with original manufacturer's Material Test Certificate (MTC) & shall have CE marking and membrane should be installed in strict accordance with original manufacturer's instructions and contractor should produce method statement from original product manufacturer . The self adhesive membrane shall have following minimum properties :</p> <p>(i) Lap Adhesion : > 2000 N/M (ii) Thickness : 1.5mm (iii) Tear Resistance : > 400 N (iv) Puncture Resistance : > 375N Approved Brands : Colphene 3000 of SOPREMA, TEXSA or equivalent</p>				
		<p>The membrane shall be applied as per following procedure a) Clean the RCC surface free from dust with brush. Remove any sharp protrusions on the RCC wall by chipping and local repairs. b) Apply solvent based local primer on the surface and allow to dry. c) Roll out membrane, cut it to manageable lengths & stick it to surface by peeling off release paper on back of the membrane. Press membrane in place. d) Membrane Protection : Protection of membrane with Supply & spot bonding 7-8mm thick dimpled HDPE protection board spot bonded onto the self adhesive membrane with liquid mastic. and shall be applied prior to backfilling. The backfilling shall be done within 2-3 days of fixing protection board. Approved Products : ProtecDRain of Soprema, France OR EQUIVALENT;</p>	sqm	6,567	990	6,501,530
3	NS	<p>Providing and Applying waterproofing for Terraces by following methods as per the specifications listed below and Testing of treatment as per the requirements.</p>				
		<p>First part consist of all surface area should cleaned up to visible of hair cracks / aggregate texture. Cleaning of RCC member should be done by hacking tool, wire brush, wire grinder & air blower etc. Open cracks & construction joints should be sealed with cement mortar with additive. All clean & treated area should tested for water tighness by flooding water. All wet spots & water leakage area should mark for treatment.</p>				

		The Second part consisting of providing and applying a high performance, low odour, one-part, fast curing, high solids, cold applied polyurethane elastomer waterproof membrane over uniform surface of slab. Product should have European Technical approval ETA 05/0113 and should have CE Marking. Product without CE marking are not acceptable be European Apply minimum 1.6 kg/sqm to achieve the required minimum DFT of 1.5mm. PU waterproof coating shall be such which can be applied to damp concrete allowing faster construction and PU waterproof coating can be applied in all weathers. PU should have following minimum properties: i) Density : 1140 Kg/cum ii) Tensile Strength > 2.5 MPa iii) Elongation > 500% iv) Chemical Resistance - Excellent shall be applied as per manufacturer specification. Approved Brands - Alsam 400 of Soprema, France, Texsa or equivalent				
		The third Part consisting of laying screed to slope M15 Grade (1:2:4) with minimum 50mm at rain outlet (for easy flow of water/rain water). Treated surface shall be kept ponded for continuous period of 7 days to detect any seepage/ leakage/ dampness if any, the surface then shall be cleaned to withstand weather and domestic use. RMC including all infra in pumping position to be supplied by client/contractor (average thickness 75-100mm)	sqm	189	1 650	311,850
	a	Extra for providing and installing XPS Insulation 75mm thick. XPS insulation shall have closed cell structure so as to be ideal for roof insulation. XPS insulation shall have compressive strength of >500 kpA(AS PER en 826); Resistance to Fire of "E" Class, Water absorbtion of <0.7% (as per EN 12087) , thermal conductivity of 0.029-0.034 W/m-k.	sqm	189	760	143,640
4	18.5 p196	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : (a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. (b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.				
		1st course of applying cement slurry @ 4.4 kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions.	sqm	460	173.70	79,978

5	18.16 p199	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd & 4th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0mm thick of 3.00 Kg/sqm weight consisting of five layers prefabricated with centre core as 100micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 100 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat which shall be paid for separately.				
			sqm	951.50	251.10	238922
		Toral carried over to summary				14302574
L		ALUMINIUM WORK				
	DSR					
1	21.18 p377	Providing and fixing 12 mm thick frameless toughened glass 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)	sqm	36.72	4147.97	152313.27
	DSR					
2	21.19 p377	Filling the gap in between aluminium/ stone/ wood frame and adjacent RCC/ Brick/ Stone/ wood/ Ceramic/ Gypsum work by providing weather/structural non sag elastomeric PU sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete, complying to ASTM C920, DIN 18540-F & ISO 11600.				
	21.19.2	Upto 10 mm depth and 10 mm width	metre	24.90	119.88	2985.01
3	17.4 p191	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors, embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.	each	7	1781.10	12467.70
4	17.12 p193	Providing and fixing aluminium tubular handle bar 32 mm outer dia, 3.0 mm thick & 2100mm long with SS screws etc. complete as per direction of Engineer in charge.				
a	17.12.3	Polyester powder coated minimum thickness 50 micron aluminium tubular handle bar	each	7	499.50	3496.50

5	17.13 p193	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc complete.	each	7	267.30	1871.10
Total carried over to summary						173134
M		STRUCTURAL GLAZING ALUMINIUM COMPOSITION PANEL				
1	25.2 p402	Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels. including:				
	a	Structural analysis & design and preparation of shop drawings for the specified design loads conforming to IS 875 part III (the system must passed the proof test at 1.5 times design wind pressure without any failure), including functional design of the aluminum sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants, flashings, fire stop (barrier)- cum-smoke seals, microwave cured EPDM gaskets for water tightness, pressure equalisation & drainage and protection against fire hazard including:				
	b	Fabricating and supplying serrated M.S. hot dip galvanised / Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimensional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/ masonry/structural steel framework of building structure using stainless steel anchor fasteners/ bolts, nylon seperator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers.				
	c	Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment , including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass				
	d	Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight.				
	e	Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified.				

		The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved by Engineer-in-charge. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for occupation. In the end, the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineerin-Charge.				
	NOTE :	1. The cost of providing extruded aluminium frames, shadow boxes, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this subhead. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places				
		2). The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 Sqm from the certified laboratories accredited by NABL(National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. Cost of testing is payable separately. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work. Performance Testing of Structural glazing system Tests to be conducted in the NBL Certified laboratories.				
		1. Performance Laboratory Test for Air Leakage Test (-50pa to – 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr”				
		2. Static Water Penetration Test. (50pa to 1500pa) as per ASTM E- 331-09 testing method for a range up to 2000 ml.”				
		3. Dynamic Water Penetration (50pa to 1500pa) as per AAMA 501.01-05 testing method for a range upto 2000 ml”				
		4. Structural Performance Deflection and deformation by static air pressure test (1.5 times desing wind pressure without any failure) as per ASTM E- 330-10 testing method for a range upto 50 mm”				
		5. Seismic Movement Test (upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test” Tests to be conducted on site 6. Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35psi) upto 2000ml”				
		6. Onsite Test for Water Leakage for pressure range 50kpa to 240kpa (35psi) upto 2000ml (Rate 2409.90 + 15.3%)	sqm	678.04	2168.91	1470602.314

2	25.6 p405	Providing and supplying Spandrel Glass Panels comprising of 6 mm thick heat strengthened monolithic float glass of approved colour and shade with reflective soft coating on surface of approved colour and shade so as to match the colour and shade of the IGUs in the vision panels etc., all complete for the required performances as specified, as per the Architectural drawings, as per the approved shop drawings, as specified, and as directed by the Engineer- in-Charge. For payment, only the actual area of glass on face of the glass panels (but excluding the area of grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm.(Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevant Item*).				
		(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, having properties as visible Light transmittance (VLT) of 25 to 35%, Light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 degree K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement. (Rate 2798.70 + 15.3%)	sqm	678.04	2518.83	1707861.196
3	26.4 p404	Extra for openable side / top hung vision glass panels (IGUs) including providing and supplying at site all accessories and hardwares for the openable panels as specified and of the approved make such as heavy duty stainless steel friction hinges, min 4 -point cremone locking sets with stainless steel plates, handles, buffers etc. including necessary stainless steel screws/ fasteners, nuts, bolts, washers etc. all complete as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineerin- Charge. (Rate 2409.90 + 15.3%)	sqm	13.56	2647.44	35901.27198
4	Reference other work	Design , Engineer, Fabricate, Deliver and Install 4mm Thick ACP (eurobond make) Fin horizontal of rectangular shape of size 48mm x 800mm face of building fixed with MS Framing & brackets. The bracket fixing to be at C/C provided SS through bolts for MS bracket to fin fixing & Additional support with 12dia S.S Rod each 2400mm (Both Side Inside and Our Side)	sqm	578.00	8552.00	4943056
5	12.47 p151	Providing & fixing UV stabilised fiberglass reinforced plastic sheet roofing up to any pitch including fixing with polymer coated 'J' or 'L' hooks, bolts & nuts 8 mm dia. G.I plain/bitumen washers complete but excluding the cost of purlins, rafters, trusses etc. The sheets shall be manufactured out of 2400 TEX panel rovigs incorporating minimum 0.3% Ultra-violet stabiliser in resin system under approximately 2400 psi and hot cured. They shall be of uniform pigmentation and thickness without air pockets and shall conform to IS 10192 and IS 12866.The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified.				
	12.47.2	2 mm thick flat	sqm	100.00	691.20	69120
Toral carried over to summary						8226540.782

**CULTURAL AND INFORMATION CENTRE AT JABALPUR, MADHYA PRADESH
COST SUMMARY: SANITARY ENGINEERING SERVICES**

S.NO.	DESCRIPTION	AMOUNT
IA	SANITARY FIXTURES (UAAD/ MP SOR ITEMS)	1,161,825
IB	SANITARY FIXTURES (NON UAAD/ NON SOR ITEMS)	526,631
IIA	SOIL, WASTE AND VENT PIPES (UAAD/MP SOR ITEMS)	924,225
IIB	SOIL, WASTE AND VENT PIPES (NON UAAD/ NON SOR ITEMS)	972,092
IIIA	WATER SUPPLY (INTERNAL AND EXTERNAL) (UAAD/MP SOR ITEMS)	988,569
IIIB	WATER SUPPLY (NON UAAD/NON SOR ITEMS)	230,379
IVA	EXTERNAL SEWERAGE AND DRAINAGE SYSTEM (UAAD / SOR ITEMS)	2,139,460
IVB	EXTERNAL SEWERAGE AND DRAINAGE SYSTEM (NON UAAD/NON SOR ITEMS)	432,751
V	RAIN WATER HARVESTING WELL (SOR ITEMS)	2,441,723
VIA	WATER SUPPLY PUMPS, EQUIP, WATER TREATMENT UNIT (UAAD/SOR ITEMS)	165,707
VIB	WATER SUPPLY PUMPS, EQUIP, WATER TREATMENT UNIT (NON UAAD/NON SOR ITEMS)	3,486,589
VII	MISCELLANEOUS (NON UAAD / NON-SOR ITEMS)	2,115,332
VIII	STP WORKS (NON UAAD/NON-SOR ITEMS)	4,500,000
	TOTAL	20,085,284

PROJECT: CULTURAL AND INFORMATION CENTRE AT JABALPUR, MADHYA PRADESH
SUBJECT: TENDER FOR SANITARY ENGINEERING SERVICES
BILL OF QUANTITIES

S.NO.	REF CODE UAAD/MP SOR 2014 MPPWD	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT (Rs.)
IA. SANITARY FIXTURES (UAAD/ MP SOR ITEMS)						
1.0	MP SOR 17.5	Providing & fixing white vitreous china Extended Wall mounting water closet of size 780 x 370x 690 mm of approved shap including providing and fixing white viterios china cistern with dual flush fitting, of flushing capacity 3 litre / 6 litre (adjustable to 4 liters/8 liters including seat cover, and cistern fittings, nuts, bolts & gasket etc. complete	Each	57	9 685	5 52 039
2.0	UAAD 25.1	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required :				
	25.1.1	White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests	Each	1	5 642	5 642
3.0	UAAD 25.5.1	Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350mm with white PVC automatic flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass including painting of fittings and cutting and making good the walls and floors wherever required :				
	25.5.1.1	Single half stall urinal with 5 litre P.V.C. automatic flushing cistern.	Each	52	3 980	2 06 950
4.0	UAAD 8.10	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.				
	8.10.2	Granite stone of approved shade	Sqm	49	2 542	1 24 538
5.0	UAAD 25.7	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 :				
	25.7.3	White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps.	Each	37	1 101	40 726
6.0	UAAD 25.10	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS:13983 with C.I. brackets and stainless steel plug 40mm including painting of fittings and brackets, cutting and making good the walls wherever required.				
6.1	25.10.1	Kichen sink with drain board				
6.1.1	25.10.1.1	510X1040 mm bowl depth 250 mm	Each	1	6 534	6 534
7.0	UAAD 23.29	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931				
7.1	23.29.1	15 mm nominal bore	Each	57	324	18 468
7.2	UAAD 23.31	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.				
	23.31.1	15 mm nominal bore	Each	7	327	2 287
8.0	UAAD 23.33	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931				
8.1	23.33.1	15mm Nominal Bore	Each	205	361	73 985
9.0	SOR 17.72	Providing and Fixing CP Brass Bottle Trap of approved quality and make for sink and wash basin	Each	90	768	69 093
10.0	SOR 17.75	Providing and Fixing CP brass Soap dish of approved quality and make	Each	36	380	13 673
11.0	SOR 25.60	Providing and fixing in position best indian C.P brass made (0.3 micron chrom and 10 micron Nickel plated) Double coat hook	Each	57	648	36 936
12.0	UAAD 25.34	Providing and fixing toilet paper holder :				

	25.34.1	C.P. brass	Each	57	164	9 337
13.0	UAAD 23.37	Providing and Fixing CP brass Sink mixer of approved quality and make conforming to IS: Specification				
	23.37.1	15 mm nominal bore	Each	1	1 618	1 618
		TOTAL C/O TO SUMMARY				11 61 825
IB.		SANITARY FIXTURES (NON UAAD/ NON SOR ITEMS)				
1.0	MR	Providing and fixing in position best indian Health Faucet with 8 mm dia, 1 Meter long Flexible tube & wall bracket with NRV (Jaquar ALD-CHR- 585)	Each	57	1115.00	63 555
2.0	MR	Providing and Fixing 600 mm long Hand rail (Grab bar) for Handicap Toilets with Stainless Steel Screws on wooden cleats complete as per instructions of the engineer-in-charge (Jaquar AHS-1501) or as per equivalent make .	Each	4	2630.00	10 520
3.0	MR	Providing and Fixing CP Hinged Arms for Handicap Toilet complete as per instructions of the engineer-in-charge (Jaquar SHA 1197 N) or as per equivalent make .	Each	4	1310.00	5 240
4.0	MR	Providing and Fixing C.P brass aerosol perfume dispenser, fixed to wooden cleats with Stainless Steel screws, complete including making good the walls wherever required (Make: JAQUAR Cat No: EA03).	Each	57	2215.00	1 26 255
5.0	MR	Providing and Fixing straight / offset type flexible single body push fit type WC pan connector with factory supplied seal guard with integral Single mould sealing fins made of flexible EVA body, including bush / adaptor for use with C.I. Pipe as supplied with the pan connector (Make: Viega Cat No: 103668).	Each	57	1250.00	71 250
6.0	MR	Providing and fixing Stainless Steel Body Auto hand drier to be operated with 220 volts, single phase, with fully hygienic condition, with all accessories including cutting and making good the walls, wherever required complete as per instructions of the engineer-in-charge (EURONICS Cat No: "EH 21 NW") or as per equivalent make ..	Each	16	14495.00	2 31 920
7.0	MR	Providing and Fixing Hot Water electrical horizontal heaters. Detail cost of Hot water electrical horizontal heaters 50 ltrs.	Each	1	7841.25	7 841
8.0	MR	Providing & fixing CP auto push cock for drinking water including cutting & making good the walls wherever required complete in all respects as per Engineer-in-charge (Make: Jaquar Cat No: PRS-CHR-043).	Each	5	2 010	10 050
		TOTAL C/O TO SUMMARY				5 26 631
IIA		SOIL, WASTE AND VENT PIPES (UAAD/MP SOR ITEMS)				
1.0	UAAD 25.35	Providing and fixing soil, waste and vent pipes :				
	25.35.1	100 mm dia				
	25.35.1.2	Centrifugally cast (spun) iron socketed pipe as per IS: 3989.	Metre	680	774	5 26 320
2.1	UAAD 12.41	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion. (i) Single socketed pipes.				
2.1.1	Derived	160 mm diameter	Metre	140	270	37 800
2.2	Derived	Labour for above item	Metre	140	23	3 150
3.0	UAAD 12.37	Providing and fixing 100 mm diameter and 60 cm long rain water spout in cement mortar 1:4 (1 cement : 4 sand).				
3.1	12.37.1	Stone ware spout	Each	2	48	95
3.2	12.37.2	Labour for the above item	Each	2	14	29
4.0	UAAD 12.42	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.				
4.1	12.42.2	Push fit coupler				
4.1.1	Derived	160 mm dia	Each	8	229	1 829
4.2	12.42.3	Single Tee with door				
	Derived	160x160x160 mm	Each	8	275	2 196
4.3	12.42.5	Bend 87.5°				
	Derived	160 mm bend	Each	8	318	2 542
4.4	12.42.6	Shoe (Plain)				
	Derived	160 mm bend	Each	8	513	4 104

4.5	12.42.7	Labour rate for the above Item	Each	32	12	374
5.0	UAAD 12.43	Providing and Fixing unplastised - PVC pipe clips of approved design to unplastised - PVC soil & waste pipes by means of bombay nail of required length including and making good the wall etc. complete				
5.1	Derived from 12.43.2	160 mm dia	Each	50	135	6 750
5.2	12.43.3	Labour Rate for Item No. 5	Each	50	52	2 610
6.0	UAAD 12.44	Providing and Fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	Each	7	51	359
	12.44.1	Labour Rate for above item	Each	7	5	32
7.0	UAAD 25.37	Providing and fixing M.S. holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10X10X10cm of Cement Concrete grade M15 (Normal mix with 20 mm maximum size of stone aggregate) including cost of cutting holes and making good the walls etc.				
7.1	25.37.1	For 100mm dia. Pipe	Each	170	73	12 393
8	UAAD 25.58	Providing lead caulked joints to sand cast iron / centrifugally cast (spun) iron pipes and fittings of diameter				
	25.58.1	100 mm	Each	350	156	54 495
9.0	UAAD 25.39	Providing and fixing plain bend of required degree				
9.1	25.39.1	100mm dia				
9.1.1	25.39.1.2	Sand cast iron S&S as per IS: 3989	Each	60	248	14 850
10.0	UAAD 25.38	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.				
10.1	25.38.1	100mm dia				
10.1.1	25.38.1.2	Sand cast iron S&S as per IS: 3989	Each	60	304	18 252
11.0	UAAD 25.40	Providing and fixing heel rest sanitary bend				
11.1	25.40.1	100 mm dia				
11.1.1	25.40.1.2	Sand cast iron S&S as per IS: 3989	Each	10	302	3 015
12.0	UAAD 25.43	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.				
12.1	25.43.1	100x100x100mm				
12.1.1	25.43.1.2	Sand cast iron S&S as per IS: 3989	Each	130	516	67 041
13.0	UAAD 25.42	Providing and fixing double equal plain junction of required degree.				
13.1	25.42.1	100x100x100x100 mm				
13.1.1	25.42.1.2	Sand cast iron S&S as per IS: 3989	Each	50	590	29 475
14.0	UAAD 25.56	Providing and Fixing Terminal guard				
14.1	25.56.1	100 mm				
14.1.1	25.56.1.2	Sand cast iron S&S as per IS: 3989	Each	10	198	1 980
15.0	UAAD 25.57	Providing and Fixing collar: -				
15.1	25.57.1	100 mm				
15.1.1	25.57.1.2	Sand cast iron S&S as per IS: 3989	Each	50	205	10 260
16.0	UAAD 25.59	Providing and fixing M.S. stays and clamps for sand cast iron/centrifugally cast (spun) iron pipes of diameter:				
16.1	25.59.1	100mm	Each	10	49	486
17.0	UAAD 25.60	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 :				
17.1	25.60.1	100 mm inlet and 100 mm outlet				
17.1.1	25.60.1.1	Sand cast iron S&S as per IS: 3989	Each	75	573	42 998

18.0	UAAD 25.65	Painting sand cast iron/ centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate grey, or buff etc. over a coat of primer (of approved quality) for new work :				
18.1	25.65.1	100 mm dia	Metre	680	21	14 076
19.0	UAAD 23.10	Providing and fixing medium grade G.I. pipes medium class (ISI mark) complete with G.I. fittings (ISI mark) and clamps, including cutting and making good the walls etc. Internal work – Exposed on wall.				
19.1	23.10.4	32 mm dia	Metre	40	259	10 368
19.2	23.10.5	40 mm dia	Metre	70	312	21 861
19.3	23.10.6	50 mm dia	Metre	70	397	27 783
20.0	UAAD 23.25	Painting G.I. pipes and fittings with two coats of anticorrosive bitumastic paint of approved quality :				
20.1	23.25.4	32 mm dia	Metre	40	5	216
20.2	23.25.5	40 mm dia	Metre	70	6	441
20.3	23.25.6	50 mm dia	Metre	70	7	504
21	UAAD 12.22	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete M-15 with aggregate of 20 mm nominal size over P.V.C. sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1cement : 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complete	Each	6	123	740
21.1	12.22.1	Labour rate for Item No. 12.22	Each	6	16	97
22	Derived	Making khurras 60x60 cm with average minimum thickness of 5 cm cement concrete M-15 with aggregate of 20 mm nominal size over P.V.C. sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1cement : 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complete	Each	1	135	135
22.1	12.22.1	Labour rate for Item No. 12.22	Each	1	16	16
23.0	UAAD 23.38	Providing and Fixing CP brass Grating of approved quality and make conforming to IS: specification				
23.1	23.38.1	100 mm dia	Each	115	40	4 554
TOTAL C/O TO SUMMARY						9 24 225
IIB		SOIL, WASTE AND VENT PIPES (NON UAAD/ NON SOR ITEMS)				
1.0	MR	Providing and fixing centrifugally 150 mm dia cast (spun) iron soil, waste and vent pipes as per IS:3989 including all fittings with or without access of any degree i.e bends, junctions, cowls, offsets, access pieces, G.I. holder bats and clamps, stays, etc and jointing with drip seal joints including cutting holes in walls and floors, excavation, refilling and disposal of surplus earth wherever required and making good the same complete, as directed by the Engineer-in-charge.	Each	110	2080.00	2 28 800
2.0	MR	Providing and Fixing Floor drain by fixing G.I. Reducing elbow of 100 x 50 mm in cement concrete 1:2:4 at proper levels.	Each	40	1 530	61 208
3.0	MR	Providing and fixing G.I. Inlet fitting with maximum 3 inlets 32,40 & 50 mm size fabricated from 100 mm dia G.I.pipes and welded G.I. sockets as per site locations, fixed to C.I. Trap with Lead caulked joint and set with proper sealing compound as per drawing complete as per approval of the engineer-in-charge.	Each	75	535	40 125
4.0	MR	Providing and fixing cast brass cleanout plug with suitable insert keys for opening, male threaded joint with G.I. socket caulked to spun soil pipe including cost of lead joint etc. complete	Each	43	871	37 458
5.0	MR	Constructing inside drain with 300 mm thick brick work with bricks of class 75 in cement mortar 1:4 with coarse sand over raft or CC base, 25 mm thick cement concrete 1:2:4 bottom and filling haunches including 12 mm thick cement plaster 1:3 with coarse sand finished with a floating coat of neat cement inside and exposed on surface for drain of average depth: -				
		Size 300mm wide and 150mm average depth.	Metre	390	1 550	6 04 500
TOTAL C/O TO SUMMARY						9 72 092
III A		WATER SUPPLY (INTERNAL AND EXTERNAL) (UAAD/MP SOR ITEMS)				

1.0	SOR 2.10	Excavation trenches of required width for pipes etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5m, including getting out the excavated soil, and then returning soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed (No extra lift is payable if the work is done by mechanical means).				
	2.10.1	All Kinds of Soil (60% of Total excavation)				
1.1	2.10.1.1	Pipes etc., up to 80mm	Metre	660	86	57 024
1.0	UAAD 23.8	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work including cutting chases and making good the walls etc.				
1.1	23.8.1	15mm nominal outer dia. Pipes.	Metre	200	132	26 460
1.2	23.8.2	20mm nominal outer dia. Pipes.	Metre	210	158	33 075
1.3	23.8.3	25mm nominal outer dia. Pipes.	Metre	130	192	24 921
1.4	23.8.4	32mm nominal outer dia. Pipes.	Metre	80	239	19 152
1.5	Derived	40mm nominal outer dia. Pipes.	Metre	40	287	11 484
1.6	Derived	50mm nominal outer dia. Pipes.	Metre	20	335	6 696
1.6	Derived	65mm nominal outer dia. Pipes.	Metre	10	383	3 825
2.0	UAAD 23.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plane and brass threaded fitting i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall.				
2.1	23.7.1	15mm nominal outer dia. Pipes.	Metre	RO	78	
2.2	23.7.2	20mm nominal outer dia. Pipes.	Metre	RO	101	
2.3	23.7.3	25mm nominal outer dia. Pipes.	Metre	RO	126	
2.4	23.7.4	32mm nominal outer dia. Pipes.	Metre	RO	167	
2.5	23.7.5	40mm nominal outer dia. Pipes.	Metre	RO	273	
2.6	23.7.6	50mm nominal outer dia. Pipes.	Metre	RO	392	
3.0	UAAD 23.9	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings This includes jointing of pipes & fittings with one step CPVC solvent cement ,trenching ,refilling & testing of joints complete as per direction of Engineer in Charge. External work				
3.1	23.9.1	15 mm nominal outer dia .Pipes.	Metre	RO	73	
3.2	23.9.2	20 mm nominal outer dia .Pipes.	Metre	RO	92	
3.3	23.9.3	25mm nominal outer dia. Pipes.	Metre	RO	120	
3.4	23.9.4	32mm nominal outer dia. Pipes.	Metre	RO	155	
3.5	23.9.5	40mm nominal outer dia. Pipes.	Metre	RO	250	
3.6	23.9.6	50mm nominal outer dia. Pipes.	Metre	RO	370	
3.7	23.9.7	62.50mm nominal outer dia. Pipes.	Metre	RO	1 211	
3.8	23.9.8	75mm nominal outer dia. Pipes.	Metre	RO	1 580	
3.9	23.9.9	100mm nominal outer dia. Pipes.	Metre	RO	2 192	
3.10	23.9.10	150mm nominal outer dia. Pipes.	Metre	RO	3 805	
4.0	UAAD 23.10	Providing and fixing medium grade G.I. pipes medium class (ISI mark) complete with G.I. fittings (ISI mark) and clamps, including cutting and making good the walls etc. Internal work – Exposed on wall.				
4.1	23.10.1	15 mm nominal outer dia .Pipes.	Metre	10	125	1 251
4.2	23.10.2	20 mm nominal outer dia .Pipes.	Metre	20	155	3 096
4.3	23.10.3	25mm nominal outer dia. Pipes.	Metre	80	209	16 704
4.4	23.10.4	32mm nominal outer dia. Pipes.	Metre	60	259	15 552
4.5	23.10.5	40mm nominal outer dia. Pipes.	Metre	370	312	1 15 551
4.6	23.10.6	50mm nominal outer dia. Pipes.	Metre	620	397	2 46 078
4.7	Derived	65mm nominal outer dia. Pipes.	Metre	90	482	43 335
4.8	Derived	80mm nominal outer dia. Pipes.	Metre	100	585	58 500
4.9	Derived	100mm nominal outer dia. Pipes.	Metre	30	689	20 655

5.0	UAAD 23.12	Providing and fixing G.I. pipes medium class complete with G.I. fittings as per IS : 1239 (Part-2) including trenching and refilling etc.				
		External works				
5.1	23.12.5	40 mm nominal bore	Metre	10	261	2 610
5.2	23.12.6	50 mm nominal bore	Metre	150	325	48 735
5.3	23.12.7	65 mm nominal bore	Metre	10	410	4 095
5.4	23.12.8	80 mm nominal bore	Metre	60	529	31 752
6.0	UAAD 23.13	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :				
6.1	23.13.1	25 to 40 mm nominal bore	Each	2	197	394
6.2	23.13.2	50 to 80 mm nominal bore	Each	2	544	1 087
7.0	UAAD 23.50	Constructing one brick masonry chamber 30x30x50 cm inside, with 25 class designation modular brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for stop cock,with C.I. surface box 100x100x75 mm (inside) with hinged cover fixed in slab of cement concrete grade M-20 (Nominal Mix with 20mm maximum size of stone aggregate) necessary excavation 75 mm thick foundation concrete grade M-7.5 (Nominal Mix with 40mm maximum size of stone aggregate) & inside plastering with cement mortar 1:3 (1 cement : 3 sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design :	Each	12	961	11 534
8.0	UAAD 23.51	Constructing one brick masonry chamber 60x60x75 cm inside, with 25 class designation modular brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm. top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid. RCC top slab of Cement concrete grade M-20 (Nominal Mix with 20mm maximum size of stone aggregate) along with necessary excavation, 100 mm thick foundation concrete grade M-7.5 (Nominal Mix with 40mm maximum size of stone aggregate) & inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design. :	Each	6	5 009	30 051
9.0	UAAD 23.52	Constructing one brick masonry chamber 90x90x100 cm inside, with 25 class designation modular brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100 mm. top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid. RCC top slab of Cement concrete grade M-20 (Nominal Mix with 20mm maximum size of stone aggregate) along with necessary excavation, 100 mm thick foundation concrete grade M-7.5 (Nominal Mix with 40mm maximum size of stone aggregate) & inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design. :	Each	3	8 776	26 328
10.0	UAAD 7.22	Providing and fixing G.I. Union in G.I. pipe line including cutting and threading the pipe and making long screws etc complete (new work) :				
10.1		15mm dia nominal bore	Each	5	86	428
10.2		20mm dia nominal bore	Each	5	106	531
10.3		25 mm nominal bore	Each	10	117	1 170
10.4		32 mm nominal bore	Each	10	148	1 476
10.5		40 mm nominal bore	Each	40	185	7 380
10.6		50 mm nominal bore	Each	90	247	22 194
10.7		65mm dia. nominal bore	Each	10	466	4 662
10.8		80mm dia. nominal bore	Each	20	561	11 214
10.9	Derived	100mm dia. nominal bore	Each	5	655	3 276
11	UAAD 7.21	Painting of G.I. Pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.				
11.1		15 mm diameter pipe	Metre	10	3	27
11.2		20 mm diameter pipe	Metre	20	4	72
11.3		25 mm diameter pipe	Metre	80	5	360
11.4		32 mm diameter pipe	Metre	60	5	270
11.5		40 mm diameter pipe	Metre	380	5	2 052
11.6		50 mm diameter pipe	Metre	770	6	4 851

11.7		65 mm diameter pipe	Metre	90	8	729
11.8		80 mm diameter pipe	Metre	160	10	1 584
10	UAAD 23.17	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end):				
10.1	23.17.1	15 mm nominal bore	Each	2	122	243
10.2	23.17.2	20 mm nominal bore	Each	6	190	1 139
10.3	23.17.3	25 mm nominal bore	Each	10	221	2 205
10.4	23.17.4	32 mm nominal bore	Each	30	336	10 071
10.5	23.17.5	40 mm nominal bore	Each	25	444	11 093
10.6	23.17.6	50 mm nominal bore	Each	20	670	13 392
11	UAAD 6.6	Providing & fixing cast iron butterfly valves including jointing & testing with cost of jointing material such as bolts, nuts and rubber insertion all complete as per IS :13095-1991 (PN 16)				
11.1		65 mm nominal bore	Each	8	2 015	16 121
11.2		80 mm nominal bore	Each	3	2 184	6 553
11.4		100 mm nominal bore	Each	2	2 766	5 531
		TOTAL C/O TO SUMMARY				9 88 569
III B		WATER SUPPLY (NON UAAD/NON SOR ITEMS)				
1.0		Insulation Items				
1.1		Insulation for Internal Works				
		Providing and fixing thermal insulation over hot water pipes in chase (internal) with 6/9mm thick 'Kaiflex' or approved equivalent thermal insulation tubing, a elastomeric flexible material having hermetic blister closed cell structure of expanded synthetic rubber having density of 60-90 Kg/m ³ over pipes of following sizes including all required accessories complete as per Manufactuer's specifications and finishing it with 6mm thick plaster of 1:3 Mix (1 Portland Cement : 3 hard settling cement compound) Detail Cost of Thermal insulation 6 mm thick.				
1.1.1		For 15mm Dia or Equivalent	Metre	20	144	2 888
1.1.2		For 20mm Dia or Equivalent	Metre	20	151	3 016
1.2		Providing and Fixing installation for Hot water pipes line with Glass wool Blankets / Mats of 50 mm thickness, with Aluminium foil facing and including cleaning of pipes, wrapping of mats around the pipe with 50 mm overlap in all sides and sealing the joints with POP Tape stitching 24 SWG X 20 mm G.I. Wire mesh netting over the mat with Aluminium foil facing on external side. Detail Cost of Hot water pipe line with Glass wool.				
1.2.1		25 mm NB	Metre	20	346	6 922
1.2.2		32 mm NB	Metre	20	411	8 225
1.2.3		40 mm NB	Metre	90	436	39 198
2		Providing and cladding 28 gauge aluminum sheets with 50mm overlap and fixing with self tapping recessed screws, complete as per requirements over the insulated hot water pipes as per above item for external insulation. Detail Cost of 28 gauge aluminum sheets.				
2.1		25 mm NB	Metre	20	163	3 252
2.2		32 mm NB	Metre	20	186	3 717
2.3		40 mm NB	Metre	100	256	25 553
3		Providing & fixing butterfly valve (with motorized actuator) of rating PN 1.6, wafer type, in cast iron body with Ductile Iron disc, EPDM seal, SS single piece shaft, conforming to IS-13095 of the following sizes complete with cast iron hand level companion flanges, bolts, nuts, washers & inserted rubber gaskets, as required and as per enclosed specification, with single phase Electrical Actuator, of 15Nm- 400Nm Torque, made of aluminium alloy (resistant to heat, acid , alkali, corrosion), and weather proof heavy duty motor, with stabilized start speed to effectively avoid water hammering, with waterproofing seal (IP 67) for all housing seals, low noise level, built -in thermal protection complete as per approved type and specifications as per instructions of the engineer - in - charge.				
3.1		40 mm dia	Each	1	13 332	13 332
3.2		50 mm dia	Each	3	13 464	40 393
4		Providing and laying UPVC pipes (I.S:4985) of 10kg./cm ² including all fittings with or without access i.e bends, junctions, cowls, offsets, etc., and jointing with solvent cement including cutting holes in walls and floors ,wherever required and making good the same, complete as directed by the Engineer-in-Charge. (For Garden hydrant)				
4.1		32 mm O.D.	Metre	30	115	3 435

4.2		40 mm O.D.	Metre	225	147	33 050
4.3		50 mm O.D.	Metre	100	201	20 075
4.4		63 mm O.D.	Metre	100	273	27 320
TOTAL C/O TO SUMMARY						2 30 379
IV A EXTERNAL SEWERAGE AND DRAINAGE SYSTEM (UAAD / SOR ITEMS)						
1.0	SOR 2.10	Excavation trenches of required width for pipes etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5m, including getting out the excavated soil, and then returning soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed (No extra lift is payable if the work is done by mechanical means).				
	2.10.1	All Kinds of Soil (60% of Total excavation)				
1.1	2.10.1.2	Pipes etc., exceeding 80mm dia but not exceeding 300 mm dia	Metre	800	140	1 12 320
1.2	2.10.1.3	Pipes etc., exceeding 300mm dia but not exceeding 600 mm dia	Metre	120	220	26 352
2.0	UAAD 11.1	Providing and Laying and Jointing salt glazed stone ware (S.W.) pipes socket and spigot ISI marked as per IS 651-2007 SP1 class with stiff cement mortar 1:1 including testing of joints etc. complete.				
2.1		100 MM Dia	Per Metre	10	148	1 476
2.2		150 MM Dia	Per Metre	10	249	2 493
2.3		200 MM Dia	Per Metre	10	456	4 563
2.4		250 MM Dia	Per Metre	10	717	7 173
3	UAAD 11.2	Laying and Jointing salt glazed stone ware (S.W.) pipes s&s (socket and spigot) with stiff cement mortar 1:1 including testing of joints complete.				
3.1		100 MM Dia	Per Metre	10	50	504
3.2		150 MM Dia	Per Metre	10	75	747
3.3		200 MM Dia	Per Metre	10	95	954
3.4		250 MM Dia	Per Metre	10	121	1 206
4	UAAD 12.2	Providing and supply of DWC HDPE Pipes of renowned duly tested inclusive of all taxes related to central, state and municipal, inclusive of excise duty, inspection charges, transportation charges, transit insurance, loading/ unloading and stacking at site/ store etc, complete.				
4.1	12.2.1	Internal / Outer dia				
4.1.1	12.2.1.3	135 mm / 160 mm	Metre	20	172	3 438
4.1.2	12.2.1.4	170 mm / 200 mm	Metre	230	268	61 686
4.1.3	12.2.1.5	250 mm / 295 mm	Metre	150	690	1 03 545
5	SOR 19.6	Providing and laying cement concrete 1:3:6 (1 cement : 3 sand : 6 graded stone aggregate 20 mm nominal size) all-round of HDPE DWC/NP2 pipes including bed concrete as per standard design:				
5.1	19.5.2	160 mm diameter OD	Metre	30	634	19 008
5.2	19.5.3	200 mm diameter OD	Metre	230	739	1 69 947
5.3	19.5.4	250 mm diameter OD	Metre	400	854	3 41 640
5.4	19.5.5	300 mm diameter OD	Metre	160	970	1 55 232
5.5	Derived	400 mm diameter OD	Metre	90	1 086	97 767
5.6	Derived	450 mm diameter OD	Metre	20	1 202	24 048
6.0	UAAD 24.3	Providing, Laying and jointing non-pressure NP2 Class (Light duty) RCC pipes with collar jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 Cement: 2 Fine sand) including testing of joints etc. complete				
6.1	24.3.3	250 mm dia.	Metre	250	191	47 700
6.2	24.3.4	300 mm dia.	Metre	160	437	69 984
6.3	Derived	400 mm dia.	Metre	90	637	57 348
6.4	24.3.5	450 mm dia.	Metre	20	689	13 770
7.0	UAAD 24.4	Constructing brick masonry mouldlar brick class designation 40 manhole in cement mortar 1:4 (1 cement : 4 sand) R.C.C. top slab with Cement concrete grade M-20 (Nominal Mix with 20mm maximum size of stone aggregate), 20 cm thick foundation concrete grade M-7.5 (Nominal Mix with 40mm maximum size of stone aggregate) inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 sand) finished with floating coat of neat cement and making channels in cement concrete grade M-15 (Nominal Mix with 20mm maximum size of stone aggregate) as per standard design. The sizes of manhole and manhole covers as detailed below.				
7.1	UAAD 24.4.1	Manhole inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :	Each	5	6 639	33 197

7.2	UAAD 24.5	Extra for depth for manholes. With Modular bricks class designation 40				
7.2.1	24.5.1	90x80cm size manhole	per metre	2	4 393	8 786
8.0	UAAD 24.14	Constructing brick masonry circular manhole 1.52m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 sand) inside cement plaster 12mm thick with cement mortar 1:3 (1 cement : 3 sand) finished with a floating coat of neat cement, foundation concrete grade M-10 (Nominal Mix with 40mm maximum size of stone aggregate) and making necessary channel in cement concrete grade M-15 (Nominal Mix with 20mm maximum size of stone aggregate) finished with a floating coat of neat cement all complete as per standard design : with Modular bricks class designation 40.				
		2.30 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg.fixed in cement concrete grade M-15 (Nominal Mix with 20mm maximum size of stone aggregate) including centering shuttering all complete.(excavation,foot rests and 12mm thick cement plaster at the external surface shall be paid for sepately)	Each	5	26 100	1 30 500
9.0	24.15	Extra depth for circular type manhole 1.52 m internal dia (at bottom) beyond 2.30 m to 2.29 m : with Modular bricks class designation 40.	per metre	2	11 794	23 587
10.0	UAAD 24.6	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 sand), in side cement plaster 12mm thick with cement mortar 1:3 (1 cement : 3 sand) finished with a floating coat of neat cement, foundation concrete grade M-10 (Nominal Mix with 40mm maximum size of stone aggregate), and making necessary channel in cement concrete grade M-15 (Nominal Mix with 40mm maximum size of stone aggregate) coat of neat cement all complete as per standard design : With Modular bricks class designation 40.				
		0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total-weight of cover and frame to be not less than 182kg., fixed in cement concrete grade M-15 (Nominal Mix with 40mm maximum size of stone aggregate) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately).	Each	40	6 341	2 53 620
11.0	UAAD 24.5.1	Extra for increasing depth of manhole mentioned at Item No. 14.5 from depth of 900mm to 1650mm.	Metre	11	4 393	48 322
12.0	UAAD 24.16	Constructing brick masonry circular manhole 1.22m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 sand) inside cement plaster 12mm thick with cement mortar 1:3 (1 cement : 3 sand) finished with a floating coat of neat cement foundation concrete grade M-10 (Nominal Mix with 40mm maximum size of stone aggregate) and making necessary channel in cement concrete grade M-15 (Nominal Mix with 20mm maximum size of stone aggregate) finished with a floating coat of neat cement all complete as per standard design : With Modular bricks class designation 40.				
		1.68 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg. fixed in cement concrete grade M-15 (Nominal Mix with 20mm maximum size of stone aggregate) including centering shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately):	Each	12	12 006	1 44 072
13.0	UAAD 24.17	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.68 m to 2.29 m : with Modular bricks class designation 40.	Metre	10	4 864	48 636

14.0	UAAD 24.18	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block grade M-10 (Nominal Mix with 20mm maximum size of stone aggregate) complete as per design.	Each	500	195	97 650
15.0	UAAD 24.1	Providing and fixing square-mouth S.W. gully trap grade 'A'" complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design : With Modular Bricks class designation 40.				
15.1	24.1.3	180 x 150 mm size P type.	Each	5	1 346	6 728
15.2		Providing and fixing square-mouth S.W. gully trap grade 'A'" complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 450 x450 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design : With Modular Bricks class designation 40.				
15.2.1		180 x 150 mm size P type.	Each	5	4 280	21 398
16.0	UAAD 3.28	Providing and laying in position sizes of flanged cast iron standard specials class medium or heavy which does not appear in above items of the schedule (Heavy class)				
16.1		80 mm to 300 mm dia	Kg	1	65	65
TOTAL C/O TO SUMMARY						21 39 460
IV B	EXTERNAL SEWERAGE AND DRAINAGE SYSTEM (NON UAAD/NON SOR ITEMS)					
1.0		Constructing brick masonry catch basin with 75 class designation bricks in cement mortar 1:5 (1 cement: 5 coarse sand), 150mm thick foundation concrete 1:5:10 (1 cement: 5 coarse sand: 10 graded stone aggregate 40mm nominal size) inside and outside plaster in cement mortar 1:3 (1 cement: 3 coarse sand). inside finished with floating coat of neat cement, making haunches and channel in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) neatly finished, complete as per standard design including excavation, refilling and disposal of surplus earth.				
1.1		Size 450X450X450mm inside with precast S.F.R.C. grating of 610 mm dia of approved design and sample fixed in Plain Cement Concrete 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) including centering, shuttering all complete as per site conditions.	Each	20	7 850	1 57 000
1.2		Size 600X600X600mm inside with precast S.F.R.C. grating of 710x710 mm square of approved design and sample fixed in Plain Cement Concrete 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) including centering, shuttering all complete as per site conditions.	Each	15	9 970	1 49 550
2.0		Extra for item for depth exceeding 45cm.	Each	5	5 395	26 975
3.0		Extra for item for depth exceeding 60cm	Each	2	5 765	11 530
4.0		Contrsuction of Oil / Grease Trap chamber of size 2 m x1 m (Internal) with effective depth of 1 m with Brick Masonry in Cement 1:4 (1 Cement: 4 Coarse sand) over a bed of 150 mm thick PCC 1:4:8 (1 Cement: 4 Coarse sand: 8 graded stone aggregate 40 mm nominal size) 12 mm thick Cement plaster 1:3 (1 Cement: 3 Coarse sand) including a baffle wall of Brick work, covered with RCC slab of 150 mm thickness, of 1:2:4 mix (1 Cement: 2 Coarse sand: 4 graded stone aggregate of 20 mm nominal size) including centering, shuttering and reinforcement complete with providing and fixing Foot rests @300 mm C to C with Two 600x600 mm DI Heavy duty Manhole Covers with Lifting arrangement, including 150 mm dia Inlet & Outlet pipes complete .	Each	1	87 696	87 696
TOTAL C/O TO SUMMARY						4 32 751
V	RAIN WATER HARVESTING WELL (SOR ITEMS)					

1.0	UAAD 22.3	Construction of percolation chamber/pit including dismantling of floor area for contraction of pit, excavation in all type of soil/murram, brick masonry with chimney brick TM-40 (with making outlet, inlet, outlet hole as per designe) in cement mortar 1:4, with 12 mm thick plaster in cement mortar 1:3.	Cum	300	4 331	12 99 240
2.0	SOR 16.1	Boring/drilling bore well of required dia perfectly vertical to receive casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre depth below ground level.				
2.1	16.1.1	All type of soil				
	Derived	400 mm dia	RM	360	495	1 78 200
3.0	16.1.2	Rocky starta including boulders				
	Derived	400 mm dia	RM	360	945	3 40 200
4.0	SOR 16.8	Development of tube well in accordance with IS : 2800 (part I) and IS:11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	Hour	30	430	12 906
5.0	SOR 16.10	Providing and Fixing M.S. Clamp of required dia made of 100x10 mm flat to top of casing / housing pipe of tubewell as per IS: 2800 (Part I), including necessary bolts and nuts of required size complete.				
5.1	16.10.3	200 mm dia	Each	12	1 153	13 835
6.0	SOR 16.11	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).				
	16.11.3	200 mm dia	Each	6	239	1 431
7.0	UAAD 22.6	Providing PVC pipe slotted as per direction Engineer-in-Charge and fixing in Rain water recharge pit/Percolation pit or Soakway with jute coir wrapping pipe.				
7.1	22.6.2	200 MM Dia	RM	720	463	3 33 072
8.0	UAAD 22.7	Providing and laying filter material as given below in recharge pit/percolation pit or soak pit/ waste water treatment system.				
	22.7.1	Sand (1.5 mm to 2.00 mm)	Cum	48	1 229	58 968
	22.7.2	Gravel/Pebbles (5 to 25 mm)	Cum	48	1 024	49 162
9.0	UAAD 22.8	Brick bats	Cum	180	860	1 54 710
		TOTAL C/O TO SUMMARY				24 41 723
VIA		PUMPS AND EQUIPMENTS (UAAD/SOR ITEMS)				
		<u>WATER SUPPLY PUMPS, EQUIP, WATER TREATMENT UNIT & SOLAR HOT WATER GENERATION SYSTEM (UAAD/SOR ITEMS)</u>				
1	UAAD 7.1	Providing, Laying and Jointing of Galvanized iron pipes with specials (such as bends, elbows, tees etc.) class light, medium and heavy including testing of joints, cost of pipes, specials and jointing of materials all complete. Pipes and socket conforming to IS 1239 / 2004 Part I & Part II .				
a)		100mm dia	Metre	10	889	8 892
b)		80mm dia	Metre	25	620	15 503
c)		65mm dia	Metre	30	508	15 228
d)		50mm dia	Metre	40	385	15 408
e)		40mm dia	Metre	10	282	2 817
f)		25mm dia	Metre	10	185	1 854

2	UAAD 7.2	Labour for laying and jointing of galvanized iron pipes with specials (such as bends, elbows, tees etc.) class light, medium and heavy including testing of joints, cost of pipes, specials				
a)		100mm dia	Metre	10	70	702
b)		80mm dia	Metre	25	43	1 080
c)		65mm dia	Metre	30	39	1 161
d)		50mm dia	Metre	40	28	1 116
e)		40mm dia	Metre	10	16	162
f)		25mm dia	Metre	10	12	117
3	UAAD 23.23	Painting of exposed pipes with two or more coats of synthetic enamel paint of approved shade as per pipe colour code including painting of legends in English with direction arrows.				
a)	Derived	100mm dia	Metre	10	27	270
b)	Derived	80mm dia	Metre	25	23	563
c)	Derived	65mm dia	Metre	30	18	540
d)	23.23.6	50mm dia	Metre	40	14	540
e)	23.23.5	40mm dia	Metre	10	11	108
f)	23.23.3	25mm dia	Metre	10	8	81
4	SOR 26.9	Providing, Installation, Testing and Commissioning stainless steel strainer fabricated out of 1.6 mm thick stainless steel sheet with 3 mm dia holes with stainless steel flange.				
a)	Derived	65mm dia	Each	2	2 264	4 527
b)	26.9.1	80 mm dia	Each	2	4 116	8 231
c)	26.9.2	100 mm dia	Each	2	5 968	11 936
5.1		Providing & fixing cast iron butterfly valves including jointing & testing with cost of jointing material such as bolts, nuts and rubber insertion all complete as per IS :13095-1991				
a)		80mm dia	Each	6	2 184	13 106
b)		65mm dia	Each	13	2 015	26 196
c)		50mm dia	Each	11	1 686	18 543
5.2		Labour for laying and fixing of Cast Iron butterfly valves including jointing & testing but without cost and jointing materials				
a)		80mm dia	Each	6	39	232
b)		65mm dia	Each	13	37	480
c)		50mm dia	s	11	32	356
6	UAAD 23.18	Providing and Fixing ball valve (brass) of approved quality, High or Low pressure, with Plastic floats complete :				
a)	23.18.3	25mm dia	Each	2	381	761
b)	Derived	40mm dia	Each	1	405	405
c)	Derived	50mm dia	Each	3	468	1 404
7	UAAD 6.4a)	Providing & fixing cast iron double flanged single door reflux (non return) valves including jointing & testing with cost of jointing material such as bolts, nuts and rubber insertion all complete as per IS :5312 (Part I)				
a)		50mm nominal bore	Each	4	1 053	4 212
b)		65mm nominal bore	Each	4	1 373	5 490
c)		80mm nominal bore	Each	2	1 666	3 332
8	UAAD 6.5	Labour for laying and fixing of Cast Iron Double Flanged reflux (non return) valves including jointing & testing but without cost and jointing materials.				
a)		50mm nominal bore	Each	4	32	130
b)		65mm nominal bore	Each	4	37	148

c)		80mm nominal bore	Each	2	39	77
		Total C/O to Summary				1 65 707
VIB		WATER SUPPLY PUMPS, EQUIP, WATER TREATMENT UNIT & SOLAR HOT WATER GENERATION SYSTEM (NON-UAAD/NON-SOR ITEMS)				
1		Raw Water Pump (Filter/Softner Feed Pump) System At WTP				
		Providing and fixing vertical, inline multistage centrifugal pumping set with stainless steel SS-304 stage casing and SS-304 impellers with stainless steel shaft as per IEC standards and GJL250 cast iron suction & discharge casing, connected to TEFC ventilated induction motor of 2 pole, 2900 RPM, suitable for 400/440 Volts, 3 phase, 50 Hz A.C. supply with pressure gauge and with gunmetal isolation cocks, vibration elimination pads etc. complete with base and frame, nuts and bolts and necessary RCC foundations as per requirement as per instructions and pump shall have following duty:				
		No. of Pumps /set : 2(1 Working + 1 Stand by)				
		Capacity : app. 250 LPM each				
		Head : 25M				
		(complete set as mentioned above)	Set	1	1 52 524	1 52 524
2		HYDRO-PNEUMATIC SYSTEM (Domestic water supply) AT WTP				
		Providing, fixing and testing of packaged type skid mounted hydropneumatic system with variable frequency drive type comprising of :-				
		(i) Vertical, inline multistage centrifugal pumping set with stainless steel SS-304 stage casing and SS-304 impellers with stainless steel SS-304 shaft as per IEC standards and SS-304 suction & discharge casing, CI- Base , connected to TEFC ventilated induction motor of 2 pole, 2900rpm, suitable for 400/440 Volts, 3 phase, 50 Hz A.C. supply.				
		(ii) Pressure vessel of non corrosive FRP composite construction lined with NSF and/or FDA listed material, like high density polyethylene with fully replaceable polyurethane. Air cell burst pressure of minimum of 5 times the vessel operating pressure and cycle tested for 80,000 cycles.				
		(iii) Control Panel with programmable logic controller (PLC) for cyclic operation of pumps + Variable Frequency Drive Flying VFD. The Pump working sequence should change after every operation. Contractor overload relays and MCBs should confirm to IEC 898 – 1995/ specifications. Blinking indications for pumps start, trip, low level trip, health supply should be provided in the panel along with the ammeter & voltmeter. Control panel should also consist of cooling fan.				
		(iv) Pressure switches bellow type fitted with micro switch and having maximum pressure and differential scale should confirming BS-6134 standards and IP55 protection class.				
		(v) All required Ball Valves, Non-return valves, flexible connectors etc. and all required accessories, Heavy Duty SS 304 Manifold to make the system completely operational as a skid mounted system. Ball valves to be used should be Hot Pressed brass OT-58 with stainless steel ball and P.T.F.E seal and O-Ring. NRVs to be used should be with Springs and O-Ring arrangement.				
		Complete manifold system shall be factory assembled & totally mounted on a common base frame with following duties:				
		<u>Note:</u>				
		No. and capacity of Pressure Vessel – 01 Nos. fore ach set of the pumps (of required capacity as per Manufacturer recommendations).				
a)		For Domestic water supply for Convention Centre				
		No. of Pumps /set : 2 (1 Working + 1 Stand by)				
		Capacity : App. 85LPM each				
		Head : 50 Meters				
		(complete set as mentioned above)	Set	1	3 92 657	3 92 657

3		Soft Water Pump (Re Lift System) AT WTP				
		Providing and fixing vertical, inline multistage centrifugal pumping set with stainless steel SS-304 stage casing and SS-304 impellers with stainless steel shaft as per IEC standards and GJL250 cast iron suction & discharge casing, connected to TEFC ventilated induction motor of 2 pole, 2900 RPM, suitable for 400/440 Volts, 3 phase, 50 Hz A.C. supply with pressure gauge and with gunmetal isolation cocks, vibration elimination pads etc. complete with base and frame, nuts and bolts and necessary RCC foundations as per requirement as per instructions and pump shall have following duty:				
		No. of Pumps /set : 2 (1 Working + 1 Stand by)				
		Capacity : App. 35LPM each				
		Head : 50 Meters				
		(complete set as mentioned above)	Set	1	1 23 727	1 23 727
4		Pressure Filter (Domestic Water) AT WTP				
		Providing and fixing vertical Dual Media Pressure Filter (comprising of minimum 300mm bed depth of Anthracite and support media and minimum Height on Straight 1500mm) fabricated from high performance M.S plate of minimum 6mm thick for shell & 8mm thick for dished ends (Quality of Steel as per IS:2062 Grade B, thickness as per ASME Section 8) internally treated with coal-tar epoxy, complete with air scouring, collection system complete with initial charge of media, M.S face piping, valves, accessories, external painting with 2 coats of red oxide primer and enamel paint, testing and commissioning complete. (Tested to 5.0 Kg/m ²)				
		Each Filter				
		Discharge : 13,000 LPH				
		Filtration Rate : 17,500 lit./m ² /h				
		Suggested dia app. : 1000mm	Each	1	2 25 555	2 25 555
5		Water Softener				
		Providing and fixing 'Cation' ION exchange water softener fabricated from minimum 6 mm thick M.S. plate on min. shell and 8 mm thick M.S. plate on dished ends (Quality of Steel as per IS:2062 Grade B, thickness as per ASME Section 8) complete with initial charge of filter media and ION exchange resins, face piping accessories, diaphragm valves of approved specifications, HDPE Brine tank of min. 500 Liters, piping testing and commissioning complete with resins of approved quality and make and regeneration assembly complete with valves, ejector, brine suction valves and piping. (Bidder must indicate type and quantity of resin used and quantity of salt required per regeneration). All internal parts of the softener shall be rubber lined as per approved specifications.				
		Minimum expected rate of flow: 1300 LPH				
		Total soft water to be produced between two regenerations: app. 20 Cu.m				
		Expected raw water hardness : max app. 400 - 500 ppm				
		Expected treated water hardness: less than 5 ppm				
		Max. working pressure : 4 Kg/cm ²	Each	1	2 50 616	2 50 616
6		Salt Saturator				
		Providing and fixing Salt Saturator assembly (for supply of salt solution) consisting of HDPE/PVC tanks with automatic agitators and all required accessories for holding and supplying salt for softener complete in all respects, including providing and fixing vertical, inline multistage centrifugal pumping set with stainless steel SS-316 L stage casing and SS-316 L impellers with stainless steel shaft and suction & discharge casing . The effective capacity of the system to be of minimum 10% greater than actual salt required for approx. 3 Days with complete structural arrangement including RCC foundation etc. as per instructions of engineer-in-charge and approved fabrication shop drawings.				
		(i) Recommended no. of tanks = 1 Nos.				
		(ii) Total Capacity of each Tank = 5 000 Liters				
		(complete set as mentioned above)	Set	1	1 00 246	1 00 246
7		Chlorinator				

		Providing and fixing chemical dosing system consisting of 2 nos. electronic dosing pumps (1W+1S) with all accessories, suitable to doze chemical solution upto 1 ppm doze (of Sodium Hypochloride solution) to a filtered water flow of approx. upto 13,000 lph. against a pressure of 1.5 kg/cm2 complete with FRP moulded solution holding tank of min. 100 litre with all standard accessories.	Set	1	62 654	62 654
8		<u>Sump Pumps for Lifting Water from Drainage Sumps in Plant Room</u>				
		Providing and fixing compact monoblock dry motor submersible pumps for suitable rating, with non-clog free flow vortex impeller, minimum solid handling capacity of 46mm suitable for operation on 220/415 volts (+ 5% , -15%), 50 HZ single/three phase supply, speed 2900 RPM including M.S. galvanized lifting chain with following specifications:				
		The above pump sets must be supplied complete with following accessories.				
a)		Piping of 80mm dia for individual pump delivery line and 100mm dia for common delivery line, to be terminated outside the sump. (The pipe material should be CILA / heavy duty G.I) -- 1 Set				
		Piping of 80mm dia for individual pump delivery line and 100mm dia for common delivery line, to be terminated outside the sump. (The pipe material should be CILA / heavy duty G.I) -- 1 Set				
b)		80mm dia Butterfly valve.-- 2 Nos				
c)		80 mm dia NRV valve.-- 2 Nos				
d)		Necessary cables from pump set to control panel (position of panel marked in enclosed layout in plant room).-- 1 Set				
e)		Electrical switch panel having all necessary accessories & safety devices of standard specifications. (Panels with sump pumps near each sump as per site conditions). --1 No.				
f)		Automatic built-up water level controller with necessary length of cable upto control panel.				
		No. of Pumps / set : 2 nos (1 working + 1 stand by)				
		Discharge - 250 LPM Each				
		Total head - 15 m				
		(complete set as mentioned above)	Set	2	4 59 010	9 18 020
9		Providing and fixing standard galvanized steel flanges / blind flanges, (for headers, valves, strainers, expansion joint and pumps matching flanges) screwed or welded complete with 1.5mm thick compressed asbestos gasket, nuts, bolts and washers etc., complete including testing of joints. The flanges shall be as per I.S:6392 - 1971 table (6&7) in all respects and as per instructions of the engineer-in-charge.				
a)		250mm dia	Each	4	7 500	30 000
b)		200mm dia	Each	2	6 500	13 000
c)		150mm dia	Each	5	5 500	27 500
d)		100mm dia	Each	15	5 000	75 000
e)		80mm dia	Each	18	4 500	81 000
f)		65mm dia	Each	3	3 000	9 000
g)		50mm dia	Each	6	2 500	15 000
10		Providing and fixing reinforced neoprene rubber vibration eliminators/expansion joints (to provide relief from stresses at pipe flanges) suitable for upto 20 kg/cm2 pressure, as per specification of the manufacturers complete as required and as specified.				
a)		80mm dia	Each	4	4 341	17 365
b)		65mm dia	Each	8	3 574	28 595

2 pump

c)		50mm dia	Each	4	3 207	12 829
		Panel for WTP				
11		Supply, installation, testing and commissioning of following Water supply pumps & treatments units Electrical control panel suitable for 415 V, 3 phase, 4 wires, 50 Hz power distribution system. The panel shall be free standing floor mounting sheet metal enclosed dust and vermin proof conforming to IP-42, compartmentalized design, fabricated out of 14 SWG sheet steel, painting, earthing numbering, danger plate as per specifications and drawings, flush front with Aluminium busbars current density (1Amp/Sq mm), separate earth bus bars to be provided throughout the length of the panel. The incoming and outgoing feeder breakers, fuses, indicating lamps etc shall be accommodated in a modular multitier arrangement. The panel shall be powder coated through 9 tank process. Adequate size cable alley shall be provided all round the panel and in the back for each cable bending and termination. The outgoing feeders inside the panel shall be connected through solid bus bars. Flexible cable links are not acceptable.				
		Bus bars shall be provided with heat shrinkable sleeves and shall be colour coded. The panels shall be suitable for cable entry from top. The panels shall be fabricated after the approval of fabrication drawings.				
Note		All wires and cables used shall be FRLS. 2 Nos. earthing terminals shall be provided for 3 phase, 415 V, 50 HZ supply system. M Lifting hooks shall also be provided in case of large panels. Cadmium plated hardware shall be used in fabrication of Panels.				
		Starters shall be provided with MCCB, suitable for the specified Kw of motor of the pumps ,contactors, single phasing preventor, on-off Trip Indication Lamps, Start Stop Push Buttons, Auto Manual selector switch Ammeter with Suitable ratio CTs, Auxillary Contacts for Building Automation system and remote control, interlocking etc				
a)		Incoming :				
i)		One (1) No. 300A TPN 35KA MCCB with microprocessor overload and short circuit release load				
ii)		C. T. operated / Direct Digital voltmeter/Ampere Meter.				
iii)		1 Set (3 Nos) of phase indication lamps with 2 Amp SP MCB.				
b)		Electrolytic high conductivity aluminium three phase and neutral busbars rated at 500 amps having a maximum current density of 0.8 amp per sq mm suitable to with stand symmetrical fault level of 25 MVA at 415 volts. The neutral busbar is to be of 100% capacity.				
		OUT GOING				
i)		2 nos 63 Amp, 415 Volts TPN MPCB 15 KA having overload and short circuit protection with DOL Starter for raw water pumps .				
ii)		1 Nos. 63 Amp, TPN MPCB 10 KA having overload and short circuit protection for Domestic water hydro-pneumatic pumps provision only for connection. For Soft water supply (hydropneumatic pump)				
ii)		1 Nos. 63 Amp, TPN MPCB 10 KA having overload and short circuit protection for Domestic water hydro-pneumatic pumps provision only for connection. For Domestic water supply (hydropneumatic pump)				
vii)		1 nos. 32 Amps. TP MCCB 25 KA with rotary handle on door suitable for Connection to Built up Hydro Panel for plant room sump.				
viii)		Spare Feeder 3 H.P - 2 Nos. Fully automatic DOL starter				
ix)		1 Nos. 125 Amp, TPN MPCB 10 KA having overload and short circuit protection for R.O System panel provision only for connection.				
x)		2 Nos. 6 Amp, TPN MPCB 10 KA having overload and short circuit protection with 0.5 HP DOL Starter. (For Dosing Pumps).				

xi)		2 nos 63 Amp, 415 Volts TPN MPCB 15 KA having overload and short circuit protection with 7.5 HP DOL Starter for borewell pumps .				
NOTE:						
A		Each DOL Starter shall have				
a)		On-OFF Push Button / ON -OFF Indication Lamp, thermal O/L Type Relay, Contactor etc. as required.				
b)		A / M / OFF Selector Switch. 3 way				
c)		Single Phase Preventor MPR D-2 current operated.				
d)		C. T. operated / Direct Digital Ampere Meter.				
e)		Spare NO-NC contacts for each starter				
B		Each O/G feeder shall have				
a)		ON -OFF Indication Lamp				
		Complete set as mentioned above	Set	1	2 76 437	2 76 437
12		Providing and fixing centralized Control / Monitoring Panel for water level controller cum indicating system, as per the following details:				
(A)		Centralised PLC control panel along with touch-screen display board (min. 8" Diag. size) along with all accessories for complete controls & indication. Panel shall be made out of CRCA sheet min. 2mm thick having necessary interlocks, I/O's, required number of repeater amplifiers, all audio-visual alarms as required specifications as listed below. An emergency stop push button shall be provided in the panel. The panel shall have Modbus compatibility for seamless BMS/BAS Integration and shall be of approved make. The complete system control matrix, wiring diagram, SLD's and technical details shall be submitted by the vendor and gotten approved before commencement of execution of works.	Set	1	3 36 254	3 36 254
(B)		Water level indicators cum controllers working on hydrostatic pressure measurement principle made of Stainless Steel for installation on storage tanks, and capable of providing 4 to 20 mA analog signal compatible with PLC signal inputs and complete as per working requirements for details of equipment below. All control outputs to MCC panel shall be included as per requirements.				
a)		<u>Fire Static Underground tanks</u>				
i)		Real-Time water level indication for monitoring				
ii)		V. Low Level audio-visual alarm at less than 25% total capacity.	Set	1	30 000	30 000
b)		<u>Raw Water Underground tanks</u>				
i)		Real-Time water level indication for monitoring				
ii)		V. Low Level audio-visual alarm at less than 30% total capacity.				
iii)		V. High Level audio-visual alarm at more than 100% total capacity.				
iv)		Auto cut-in of tubewell pumps at 35%				
v)		Auto cut-out of tubewell pumps at 95%				
vi)		Auto cut-out of raw water pumps at 35%	Set	1	30 000	30 000
c)		<u>Domestic Water Underground tanks</u>				
i)		Real-Time water level indication for monitoring				
ii)		V. Low Level audio-visual alarm at less than 30% total capacity.				
iii)		V. High Level audio-visual alarm at more than 100% total capacity.				
iv)		Auto cut-in of raw water pumps at 35%				
v)		Auto cut-out of domestic water hydro pumps at 10%	Set	1	30 000	30 000
d)		<u>Domestic Water Overhead tanks</u>				
i)		Real-Time water level indication for monitoring				
ii)		V. Low Level audio-visual alarm at less than 30% total capacity.				
iii)		V. High Level audio-visual alarm at more than 100% total capacity.				
iv)		Closing of Motorized inlet valve at 99% total capacity				
v)		Opening of Motorized inlet valve at 30% total capacity	Set	1	30 000	30 000
e)		<u>Flushing Water Overhead tanks</u>				
i)		Real-Time water level indication monitoring				

ii)		V. Low Level audio-visual alarm at less than 30% total capacity.				
iii)		V. High Level audio-visual alarm at more than 100% total capacity.				
iv)		Closing of Motorized inlet valve at 99% total capacity				
v)		Opening of Motorized inlet valve at 30% total capacity	Set	1	30 000	30 000
g)		<u>Fire Overhead tanks</u>				
i)		Real-Time water level indication monitoring				
ii)		V. Low Level audio-visual alarm at less than 30% total capacity.				
iii)		V. High Level audio-visual alarm at more than 100% total capacity.				
iv)		Closing of Motorized inlet valve at 99% total capacity				
v)		Opening of Motorized inlet valve at 30% total capacity	Set	1	30 000	30 000
13		Supply and laying of control cabling with copper conductor PVC insulated and PVC sheathed armoured cables on existing tray/on surface including the cost of saddles, glands, copper lugs, ferrules/cable tags and making connections, complete as required as below:				
a)		6 core 1.5 Sq.mm	Metre	30	510	15 301
b)		4 core 1.5 Sq.mm	Metre	30	492	14 770
c)		2 core 1.5 Sq.mm	Metre	30	476	14 281
14		Supply and laying of the following 1100 volt grade armoured PVC/XLPE insulated and sheathed aluminium / copper conductor armoured cable in existing cable Tray/clamped to wall with suitable clamps saddles and bolts as required and including testing and commissioning complete as required. The costs shall include providing a gap of 1D between all the cables being laid and proper clamping with cable clamps and ties. Prices shall include providing and fixing of Identification tags for all cables etc. and as per specification and / or as per direction of Project in-charge.				
a)		3 core 2.5 Sq.mm copper conductor.	Metre	20	499	9 980
b)		3 core 4 Sq.mm copper conductor.	Metre	20	519	10 373
c)		3 core 6 Sq.mm copper conductor.	Metre	30	548	16 449
d)		4 core 10 Sq.mm aluminium conductor.	Metre	20	652	13 043
e)		4 core 25 Sq.mm aluminium conductor .	Metre	20	954	19 082
15		Supplying and laying of 8 Gauge GI wire for Earthing, in slab/wall including connections at both end with tinned copper lugs with tinned washers etc. as per specification and /or as per direction of Project in-charge.	Metre	50	35	1 750
16		Providing earthing station for pumps and M.C.C panel including excavation, C.I. manhole cover and frame complete as per specifications and I.E. rules.	Each	1	6 000	6 000
17		Supply and fixing of 14 SWG sheet steel slotted cable trays as per approved design and MS painted angle supports spaced 1000 mm apart throughout the length as specified, including the cost of MS threaded rod hangers duly painted, hooks, dash fasteners etc. for suspension from ceiling etc. as per specification and/or as per direction of Project in-charge.(Structural steel to be paid separately)				
a)		300 mm x 50 mm x 50 mm (with 40 x 40 x 6 mm MS angle supports and 10 mm dia MS rod hangers up to one meter long)	Metre	30	789	23 670
b)		150mm x 50 mm x 50 mm (with 40 x 40 x 6 mm MS angle supports and 8 mm dia MS rod hangers up to one meter long)	Metre	20	520	10 400
18		Providing and Fixing 25 mm x 5 mm G.I. Strip In 40 mm dia G.I. Pipe from earth electrode as required	Metre	10	351	3 510
TOTAL C/O TO SUMMARY						34 86 589
VII		MISCELLANEOUS (NON UAAD / NON-SOR ITEMS)				

1		Providing and fixing 750 mm long hot dipped G.I. Puddle flanges for water tanks as per I.S. 1239 (Class C) with 6mm thick M.S. Plate of suitable size and welded around the pipe fixed in walls, beams and top slab of R.C.C tanks, complete with all details in all respects and as per drawing. Detail cost of Puddle flanges				
a)		250mm dia	Each	4	3 545	14 180
b)		200mm dia	Each	2	3 313	6 626
c)		150mm dia	Each	5	3 197	15 983
d)		100mm dia	Each	15	2 384	35 753
e)		80mm dia	Each	18	1 919	34 541
f)		65mm dia	Each	3	1 512	4 537
g)		50mm dia	Each	6	1 164	6 984
2		Providing & fixing M.S. structural work fabricated from standard section e.g. M.S rounds, angles, channels, plates including cutting to size,drilling,welding fixing and welding to insert plates in RCC structural members as directed by engineer-in-charge including cutting and making good the walls, ceilings and floors. (As per the Instructions of the Engineer-In-Charge)	Kg	1 000	90	90 000
3		Providing and fixing medium duty, Water tight double sealed Ductile Iron circular Manhole Cover and Frames specially casted for placing over the underground water tanks with lifting and locking arrangements as per approved sample, complete in all respect including fixing in PCC as per site requirement.	Kg	500	106	53 109
4		Providing and fixing insect-proof coupling to vent pipes of underground tank/overhead tank with threaded or flanged joints, including M.S. flanges, nuts, bolts, 3mm thick rubber insertions complete.				
a)		100mm dia	Each	4	929	3 717
5		Providing and fixing PVC Sintex O.H water storage tanks of the approved quality including making solid supported base as per instructions and making all connections to the tank as required to make the tank functioning in all respects of the following capacity .				
a)		For 6000 lit. capacity	Each	1	60 000	60 000
b)		For 10000 lit. capacity	Each	1	1 00 000	1 00 000
c)		For 12000 lit. capacity	Each	1	1 20 000	1 20 000
c)		For 25000 lit. capacity	Each	1	2 50 000	2 50 000
6		Providing, fixing and testing, double flanged Water Flow Meter complete with digital display provision & including Pulse generator and Remote Totalizer, Model no. Kent Elster H4000 or equivalent , complete in all respect as per manufacturers specification, instructions and approval as per engineer incharge.				
a)		50mm dia	Each	1	33 455	33 455
b)		80mm dia	Each	1	36 446	36 446
9		SOLAR OF 1200 LPD CAPACITY				
a)		To supply all material, labour, fabrication, installation, testing and commissioning of solar hot water heating system Indirect with Plate Heat Exchanger, Forced Circulation type with Primary & Secondary Pumps(01W+01St.By.) (with electrical backup) complete in all respects as per approved specifications to produce hot water at 55oC-60oC as per following details. (Design & Shop Drawings of the entire system to be approved)				
b)		Solar generation system consisting of approved type plate solar collectors ISI marked with necessary Plate Heat Exchangers to exchange 0.10 Lac K. Cals/Hr. with primary & Secondary pumps of head 20mtrs. & discharge 1200 Litres per day and with all necessary valves, accessories, control & indication equipment, mechanical and electrical and civil components and insulation etc. to make the system completely functional as per site requirement and space availability				

c)		Hot Water Tank of 1 No. of 1200 Ltrs each consisting of 1 No. cylindrical closed S.S calorifier tank made out of Stainless Steel Grade 304 of the required thickness, with all the necessary connections like inlet, outlet, drain/flow off, manhole, handhole, thermowell pockets for temperature indication and thermostats etc. internally treated with anti-corrosive heat resistant black paint, and shall be totally insulated with 100mm thick crown 150 grade 2" thick fibre glass pads and clad with 20 SWG aluminium sheet duly screwed/riveted. Hot water tanks shall be equipped with 4 Nos. 3 KW each, sets of Heating Elements of total 12 KW made out of heavy duty stainless steel 304 quality of each element will be of 18 inches long and mounted radially in sets with whirl mixing for efficient and arranged in sets of required capacity. The hot water storage tank should be tested at 5 Kg/ cm ² .				
d)		Main electrical control panel, made out of 16 SWG, CRC sheet with Powder coated, incoming isolator switch. H.R.C. fuses Ammeter, Volt meter, Selector switches etc., (A) suitable for fully automatic operation of Electrical generator with low water level cut off, high temperature cut off, high pressure safety cut off, thermostatic cut off for individual sets, earth leakage protection device etc., complete including the Cables and(B) with DTC controls with necessary contactors, relays for automatic circulation of Pumps, with change over for Pumps complete for above including all necessary Control, power cables as per requirement.				
		(Complete set comprising of a, b,c & d)	Set	1	4 00 000	4 00 000
10		CENTRALIZED DRINKING WATER SYSTEM AS PER FOLLOWING SPECIFICATION				
		Supply, installation, testing and commissioning of R.O. Plant capacity of 300 LPH (Complete system to be compact type, skid-mounted / cabinet enclosed, as per detailed shop drawings to be approved) for the following parameters and consisting of (but not limited to) the following main components:-				
		(i) Inlet Quantity : As per Detailing				
		(ii) Output Quantity : 300 LPH				
		(iii) Inlet TDS : 500 PPM				
		(iv) Outlet TDS : 75 PPM				
		(v) Inlet Hardness : 200 PPM)				
		(vi) Outlet Hardness : 50 PPM)				
a)		Raw Water pumps of horizontal, centrifugal type suitable for a flow rate of 600 LPH at 25m head. The Pump construction shall be of SS-304 & impeller shall be also SS-304. The motor shall be TEFC suitable for a supply of 415V/3-phase/50Hz supply. The pump shall be supplied complete with base channel coupling foundations, bolts, pressure gauge at inlet and outlet of each pump. -- 2 Nos.				
b)		Activated Carbon Filter (Manual type) for online installation before the Micron Filters) suitable for a flow rate of 600 LPH. The material of construction shall be composite FRP. The unit shall be supplied complete with multi-port valves, inlet and outlet branches removal caps of replacement of elements inlet and outlet pressure indicators. -- 1 Set				
c)		Dosing System for Antiscalant , SMBS & PH consisting of one HDPE tank of 100 litre capacity with a positive displacement diaphragm dosing pump having variable flowrate of 0-6 LPH. The motor shall be suitable for operation at 240V/single phase/50Hz supply. the pump shall be supplied complete with necessary polypropylene piping, valves, strainers & injection fittings. -- 3 Set.				
d)		Micron cartridge filter suitable for a flowrate of 600 LPH to achieve particle filtration of less than 5 microns. The unit shall be supplied complete with inlet and outlet branches removal cap for replacement of element, inlet and outlet pressure indicators. (One for the pressure treatment & other for CIP system) MOC: Polypropylene -- 2 sets				

e)		R.O High Pressure feed pumps of vertical, multistage centrifugal type suitable for a flowrate of 600 LPH @ 80 mtr Head (or as per deisgn calcaultion) at 8 Kg/sq.cm. The pump construction shall be of SS-304 & impeller shall be also SS-304. The motor shall be of TEFC suitable for a supply of 415V/3 phase/50 Hz supply. the pump shall be supplied complete with base channel coupling foundation, bolt, pressure gauge at inlet and outlet of each pump. - 2 Nos.				
f)		R.O. modules made out of Spiral Wound Thin Film composite suitable to withstand pressure of 20kg/sq.cm. Suitable BSPT/NPT connections shall be used for connecting feed & reject ends. the modules shall be supplied complete with all necessary instrumentation, valves for sampling, drain, reject & permeate, epoxy-coated structural steel bases and supports, as per following system capacity requirements:				
		(i) Total net treated water output of system = 300 LPH				
		(ii) System recovery = 50 - 60 %				
		(iii) Filtration area per membrane = 85 sq.ft.				
		(iv) Number of membranes = Min 2 Nos.				
g)		Clean in place pump of horizontal end suction suitable for a flow rate of 600 LPH at required head. The pump construction shall be of stainless steel SS-304. The motor shall be TEFC suitable for a supply of 415V/3 phase/50Hz supply. The pump shall be supplied complete with base channel, coupling, foundation bolts, pressure gauge at inlet & outlet of the pump. -- 1 Set				
h)		Clean in place pump of horizontal end suction suitable for a flow rate of 600 LPH at required head. The pump construction shall be of stainless steel SS-304 with 100 Ltr HDPE tank. The motor shall be TEFC suitable for a supply of 415V/3 phase/50Hz supply. The pump shall be supplied complete with base channel, coupling, foundation bolts, pressure gauge at inlet & outlet of the pump. -- 1 Set				
i)		Centralised PLC control panel along with touch-screen digital display board along with all digital sensors for TDS & Flow, made out of CRCA sheet min. 2mm thick having main contactors for all pumps (listed above) including SPP, 3 phase thermal overload relay. The control panel for monitoring and control of P.O. system shall include all required signal lamps, HRC fuses, Annunciation box with Hooter. All control and power cabling along with double earthing between the panel shall be included in the scope of supply of the contractor. An emergency stop push button shall be provided in the panel. The MCC panel shall have the following interlocks:-				
		High Pressure Pump unit trip in case of Low suction pressure.				
		High Pressure Pump unit trip in case of High discharge pressure.				
		Special anti-scalant dosing pump trips in case high pressure pump trips and vice versa.				
		High Pressure pump trip in case of high conductivity in permeate.				
		SHC dosing pump trips incase high pressure pump trips and vice versa.				
		In all above cases Annunciator box indicates nature of malfunctioning.				
		The System should display the TDS of Raw Water & R.O. Water, Flow Rate of Inlet, Outlet & Reject Water simultaneously.				
j)		Instrumentation mounted in R.O. system/panel as follows:-				
		Digital Flow meters to measure and control the flow of feed/product/reject stream. -- 3 Nos.				
		Pressure Gauges made out of SS316 (glycerine filled) of pricol/equivalent make. -- 5 Nos.				
		Digital Conductivity probes for conductivity display -- 1 Nos.				

		Pressure Switches to control pressure and given High/Low pressure trip. (Danfoss/Switzer/Square D make) -- 4 Nos.				
		Level switches to control water level in the output storage tank and soft Water Tank. -- 2 Nos. 1 Nos.				
		ORP with dump valve. -- 1 Set				
k)		First fill of all chemicals and lubricants to commission and operate the plants. --1 Lot				
l)		All interconnecting piping work with valves:-				
		Low Pressure Side till R.O. feed water pump. Piping shall be of extra strong PVC and all valves shall be of extra strong PVC and all valves shall be PVC ball valves. -- 1 Lot				
		High Pressure side piping from the R.O. high pressure pumps to the reject stream control valves shall be of SS - 304 using all SS fittings ball valves of suitable pressure rating shall be used till 25 mm size, above 25 mm, flanged globe/ wafer butterfly valves in SS construction shall be used. Rejects pressure control valves shall be globe valve and feed flow control valve shall be of SS-304. -- Lot				
		Complete S.S. treated water storage tank of capacity 600 Litres including all inlet/outlet connections, accessories, valves, double seal manhole covers, insulation etc. The tank must be ozone resistant and to be used as ozone contact tank. Fabrication to be done as per approved shop drawing.				
		(for above from "A" to "l" complete)	Set	1	5 00 000	5 00 000
8		COOLING WATER SYSTEM				
		Supply, Installation, Testing and Commissioning of Water Chiller System complete in all respects having following technical & operational Parameters, for cooled water production :-				
		Flow rate of outlet cooled water : 300 LPH				
		Cooling Capacity : 5 TR				
		Refrigerant = R 22				
		Power = 3 Ph/440 V / 50 Hz				
		MOC : MS Powder Coated				
		Pump = 300 LPH				
		Storage Tank Capacity = 150 Liter with S.S. Float valve				
		Water Temperature Inlet = 35 + 5 C				
		Outlet Temperature = 18 + 3 C	Set	1	3 50 000	3 50 000
		TOTAL C/O TO SUMMARY				21 15 332
VIII		STP WORKS				
1		Designing, Preparation of Shop Drawings, Supplying, Erection, Testing, Commissioning of all Mechanical, Electrical, MS prefabricated tanks and other components including getting approval of successful test results from approved authorised lab, Pollution & Environmental Authorities, and Operating & Maintaining upto successful commissioning of 8 weeks, for 90 m3/day capacity Sewage Treatment Plant based on MBBR technology, considering that the treated effluent recycle for flushing,soft water & landscape complete in all respects on a Turnkey Basis, comprising Technical Conditions, Design data, Technical Specifications, Data, Drawings and Annexures- I, II & III and any other documents attached with this Estimate.	Set	1	45 00 000	45 00 000
		TOTAL C/O TO SUMMARY				45 00 000

CULTURAL AND INFORMATION CENTRE AT JABALPUR, MADHYA PRADESH

COST SUMMARY: FIRE FIGHTING SERVICES

S.NO.	DESCRIPTION	AMOUNT
IA	FIRE FIGHTING SYSTEM (UAAD/ MP SOR ITEMS)	5,876,207
IB	FIRE FIGHTING SYSTEM (NON UAAD/ NON SOR ITEMS)	1,659,838
II A	FIRE PUMPS AND ACCESSORIES (UAAD/MP SOR ITEMS)	110,483
II B	FIRE PUMPS AND ACCESSORIES (NON UAAD/ NON SOR ITEMS)	6,041,473
	TOTAL	13,688,001

PROJECT: CULTURAL AND INFORMATION CENTRE AT JABALPUR, MADHYA PRADESH**SUBJECT: TENDER FOR FIRE FIGHTING SERVICES****BILL OF QUANTITIES**

S.NO.	REF CODE UAAD /SOR - 2014 MPPWD	ITEM DESCRIPTION	UNIT	QTY.	RATE (Rs.)	AMOUNT (Rs.)
IA. FIRE FIGHTING SYSTEM (UAAD/ MP SOR ITEMS)						
1	SOR 26.1	Providing, Fixing, Testing and Commissioning of 'C' class heavy duty MS Pipe conforming to IS 1239/3589 including all fittings like elbows, tees, flanges, tapers, jointing with nuts bolts, gaskets and welding etc. underground including excavation & providing cement concrete blocks as supports, at prescribed intervals and anticorrosive treatment with coaltar/asphalt tape as per IS 10221, with 4 mm thick fiber reinforced tape and 12 mm overlap and refilling the trench etc. of following sizes complete as directed by the Engineer-In-Charge. (Underground pipe)				
1.1		80 mm dia	R.M.	150	839.70	1 25 955
1.3		150 mm dia	R.M.	500	1,734.30	8 67 150
-						
2	UAAD 7.1	Providing laying and jointing of galvanised Iron (MS) Pipes with specials (such as bends, elbows, tees etc) class light, medium & heavy including testing of joints, cost of pipes, specials and jointing materials all complete. Pipes and sockets conforming to IS-1239/2004 Part-I & Part- II (Heavy class).				
2.1		250mm dia	R.M.	10	2,193.30	21 933.00
2.2		200mm dia	R.M.	10	1,758.60	17 586.00
2.3		150mm dia	R.M.	1 000	1,323.90	13 23 900.00
2.4		100mm dia	R.M.	350	889.20	3 11 220.00
2.5		80mm dia	R.M.	410	620.10	2 54 241.00
2.6		65mm dia	R.M.	320	507.60	1 62 432.00
2.7		50mm dia	R.M.	350	385.20	1 34 820.00
2.8		40mm dia	R.M.	400	281.70	1 12 680.00
2.9		32mm dia	R.M.	400	238.50	95 400.00
2.10		25mm dia	R.M.	1 850	185.40	3 42 990.00
-						
3	UAAD 7.2	Labour for laying and jointing of galvanised Iron (MS) pipes with specials (such as bends, elbows, tees etc) class light, medium & heavy including testing of joints and cost of jointing materials but excluding cost of pipes & specials.				
3.1		250mm dia	R.M.	10	116.10	1 161.00
3.2		200mm dia	R.M.	10	100.80	1 008.00
3.3		150mm dia	R.M.	1 000	85.50	85 500.00
3.4		100mm dia	R.M.	350	70.20	24 570.00
3.5		80mm dia	R.M.	410	54.90	22 509.00
3.6		65mm dia	R.M.	320	38.70	12 384.00
3.7		50mm dia	R.M.	350	27.90	9 765.00
3.8		40mm dia	R.M.	400	16.20	6 480.00
3.9		32mm dia	R.M.	400	13.50	5 400.00
3.10		25mm dia	R.M.	1 850	11.70	21 645.00
-						
4	UAAD 6.1	Providing & fixing of Cast iron double flanged PN 1.6 sluice valves as per I.S.:14846-2000 fitted with cast iron cap including jointing & testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete				
-						
4.1		200mm dia	Each	3	10,266.30	30 798.90
4.2		150mm dia	Each	6	5,773.50	34 641.00
4.3		100mm dia	Each	2	3,703.50	7 407.00
4.4		80mm dia	Each	4	2,808.90	11 235.60

5	UAAD 6.2	Fixing including Jointing of Cast iron double flanged PN 1.6 sluice valves fitted with cast iron cap testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete (only valve to be supplied by the department free of cost). [conform to IS 2685 : 1971]			-	
5.1		200mm dia	Each	3	477.90	1 433.70
5.2		150mm dia	Each	6	258.30	1 549.80
5.3		100mm dia	Each	2	224.10	448.20
5.4		80mm dia	Each	4	133.20	532.80
					-	
6	UAAD 6.4a)	Providing & fixing cast iron double flanged single door reflux (non return) valves including jointing & testing with cost of jointing material such as bolts, nuts and rubber insertion all complete as per IS :5312 (Part I)			-	
					-	
6.1		200mm dia	Each	1	6,932.70	6 932.70
6.2		150mm dia	Each	8	3,857.40	30 859.20
6.3		100mm dia	Each	4	2,362.50	9 450.00
					-	
7	UAAD 6.5	Labour for laying and fixing of Cast Iron Double Flanged reflux (non return) valves including jointing & testing but without cost and jointing materials.			-	
7.1		200mm dia	Each	1	111.60	111.60
7.2		150mm dia	Each	8	71.10	568.80
7.3		100mm dia	Each	4	47.70	190.80
					-	
8	UAAD 6.6	Providing & fixing cast iron butterfly valves including jointing & testing with cost of jointing material such as bolts, nuts and rubber insertion all complete as per IS :13095-1991			-	
8.1		150mm dia	Each	12	4,182.30	50 187.60
8.2		100mm dia	Each	3	2,765.70	8 297.10
8.3		80mm dia	Each	13	2,184.30	28 395.90
					-	
9	UAAD 6.7	Labour for laying and fixing of Cast Iron butterfly valves including jointing & testing but without cost and jointing materials			-	
9.1		150mm dia	Each	12	71.10	853.20
9.2		100mm dia	Each	3	47.70	143.10
9.3		80mm dia	Each	13	38.70	503.10
					-	
10	UAAD 23.18	Providing and fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete :			-	
10.1	23.18.3	25 mm nominal bore	Each	20	380.70	7 614.00
10.2	Derived	50 mm nominal bore	Each	7	405.00	2 835.00
					-	
11	UAAD 6.8	Providing & fixing cast iron single air valves, small orifice with screwed end as per IS : 14845-2000 including jointing & testing with cost of jointing material and rubber insertion all complete as per IS :13095-1991			-	
					-	
11.1		25 mm dia	Each	5	686.70	3 433.50
					-	
12	SOR 26.4	Providing and fixing single headed hydrant valve with instantaneous Gunmetal couplings of 63 mm dia with cast iron wheel ISI marked conforming to I.S:5290 Type-A with blank gunmetal cap and chain as required	Each	18	7,600.50	1 36 809.00
					-	
13	SOR 26.5	Providing and fixing single headed External hydrant valve with 1 No. 63 mm dia instantaneous FM Gunmetal couplings and cast iron wheel ISI marked conforming to I.S:5290 Type-A with blank gunmetal cap and chain as required	Each	11	7,600.50	83 605.50
					-	

14	SOR 26.16	Providing and fixing 2-way FBC of C.I. body with 2 nos gunmetal male instantaneous inlet couplings complete with cap and chain as required. For 150 mm dia MS Pipe connection,conforming to IS: 904 as required.	Each	1	8,536.50	8 536.50
					-	
15	SOR 26.16	Providing and fixing 4-way FBC of C.I. body with 4 nos gunmetal male instantaneous inlet couplings complete with cap and chain as required. For 150 mm dia MS Pipe connection,conforming to IS: 904 as required.	Each	2	12,752.10	25 504.20
					-	
16	SOR 26.14	Providing and fixing 63 mm gunmetal branch pipe with 20 mm (nominal internal diameter) size gunmetal nozzle conforming to IS: 903, suitable for instaneous connection to interconnect hose pipe coupling as required .	Each	29	2,258.10	65 484.90
					-	
17	SOR 26.12	Supplying and fixing first- aid fire hose reel with MS Construction spray painted in post office red, conforming to IS 884 with upto date ammendments, complete with following as required.				
		a)20/30/40 m long, 20 mm (nominal internal dia) water hose thermoplastic (textile reinforced) type-2 as per IS 12585				
		b)20 mm (nominal internal) dia gun metal globe valve and nozzle				
		c)Drum and Brackets for fixing the equipments on wall				
		d)Connections from riser with 40 mm dia stop valve (gunmetal) and M.S. Pipe	Each	18	5,457.60	98 236.80
					-	
18	SOR 26.11	Supplying and fixing 63 mm dia, 15 mtr long RRL hose pipe with 63 mm dia male and female gunmetal couplings duly binded with G.I. wire, rivets etc. conforming to IS 636 (Type A) as required.	Each	58	6,369.30	3 69 419.40
					-	
19	SOR 26.18	Providing, Fixing, Testing and commissoning 15 mm size quartzoid bulb type sprinklers, of rating 68 deg C. pendent with required accessories	Each	565	463.50	2 61 877.50
					-	
20	SOR 26.20	Providing, Fixing, Testing and commissoning of installation control valve of Cast iron body and brass/ bronze working parts comprising of water motor alarm, bronze seat clapper, and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Wet riser/Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS Pipe of required size, flanges, orifice plate, gasket etc. of size 150 mm dia and obtaining NOC from local bodies etc. required.	Each	5	38,250.00	1 91 250.00
					-	
21	UAAD 15.5	Supplying and Fixing of Fire Extinguisher /Refills as per IS specification				
	2	ABC Type duly refilled and ready to used	Each	18	4,601.70	82 830.60
	3	Water CO2 type duly refilled and ready to used	Each	36	7,209.00	2 59 524.00
					-	
22	DSR 18.35	Constructing masonry Chamber 120x120x100 cm, inside with 75 class designation brick work in cement mortar 1:5 (1 cement : 5 fine sand) for sluice valve, with C.I.surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) necessary excavation 150 mm foundation concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.	Each	2	13,774.86	27 549.72

23.1	UAAD 10.4	Providing and fixing 1mm thick M.S. sheet sliding-shutters with frame and diagonal braces of 40x40x6mm angle iron, 3mm M.S. gusset plates at the junction and corners 25mm dia pulley, 40x40x6mm angle and T-iron guide at the top and bottom respectively including applying a priming coat of approved steel primer..			-	
			Sqm	18	2,378.70	42 816.60
23.2	10.4.1	Labour rate for item no. 10.4	Sqm	18	430.20	7 743.60
24	SOR 26.20	Providing and fixing Flow switches 100/150 mm dia M.S. Pipe			3,173.40	
			Each	5		15 867.00
		TOTAL C/O TO SUMMARY				58 76 207

IB.		FIRE FIGHTING SYSTEM (NON UAAD/ NON SOR ITEMS)				
1	MR	Providing and fixing standard fire mans axe with heavy duty insulated rubber handle as per IS: 926 with clamps.	Each	18	490.00	8 820.00
2	MR	Providing, Fixing, Testing and commissoning 15 mm size quartzoid bulb type sprinklers, of rating 68 deg C. upright with required accessories	Each	722	380.00	2 74 360.00
3	MR	Providing, Fixing, Testing and commissoning 15 mm size quartzoid bulb type sprinklers, of rating 68 deg C. sidewall with required accessories	Each	722	440.00	3 17 680.00
4	MR	9 litres capacity water type extinguishers with CO ₂ gas cartridge with fixing hangers, hose, brackets, screws to required size etc., complete as per IS:15683 -Wall mounted type.	Each	18	3,200.00	57 600.00
5	MR	Providing and fixing flanged flexible connectors in SS 304 braiding, of rating PN 1.6 or equivalent, to provide stress relief for suction/delivery of pumps, complete with standard flanges, nuts, bolts etc.				
5.1		100mm	Each	2	4,500.00	9 000.00
5.2		150mm	Each	6	5,000.00	30 000.00
5.3		200mm	Each	4	6,500.00	26 000.00

6	MR	Providing, fixing & pressure testing of flexible tubes (equivalent to Schedule 40 pipe) for connecting pendant sprinklers to branch lines, complete with all necessary accessories, reducers, O-rings, nipples etc. of approved specifications & make, complete with supporting structural arrangements in the false ceiling/slab as per instructions of the engineer-in-charge, for the below lengths, as per the recommended lengths.				
6.1		For 700mm Length	Each	155	745.00	1 15 475.00
6.2		For 1000mm Length	Each	340	770.00	2 61 800.00
6.3		For 1500mm Length	Each	70	895.00	62 650.00
7	MR	Providing and fixing electrical Monitor Modules to monitor the waterflow devices/flowswitches with built-in identification system indicating switches/waterflow detectors of 15-32v DC operating voltage to be installed as per manufacturer specifications in an accessible location as per site, complete, excluding wiring to Annunciation Panel, with UL/CE/LPCB approval. (Panel to be compatible with the BMS system).	Each	5	2,561.11	12 805.54
8	MR	Providing and fixing electrical Fault-isolation Modules to protect the system against wire to wire short circuits on loops, to be installed at the rate of every 5 nos. monitor modules complete as per manufacturer specifications and in an accessible location as per site, excluding wiring to Annunciation Panel, with UL/CE/LPCB approval.	Each	3	2,378.17	7 134.51
9	MR	Providing & fixing M.S. structural work fabricated from standard section e.g. M.S rounds bar, angles, channels, plates including cutting to size,drilling,welding fixing and welding to insert plates in RCC structural members as recommended size of fasteners to RCC slab as directed by engineer-in-charge including cutting and making good the walls, ceilings and floors (for pipe structural supports, U clamps etc.)	Kg	1000	90.00	90 000.00
10	MR	Extra over on above sprinkler item for providing chrome finished Rosette plate with twin - piece recessed escutcheon plate, UL Listed / FM Approved, suitable for 15 mm size sprinklers.	Each	565	135.00	76 275.00
11	MR	Providing and fixing fire brigade suction hose coupling (draw out connection) with nut for female coupling as per I.S:902-1974 complete with 150mm dia. suction pipe and foot valve (To be connected to static tank)	Each	1	12,043.72	12 043.72
12	MR	Providing and fixing external fire hose box, wall mounting or free standing type, made out of Mild Steel 18 SWG sheet, of approved colour of 30"x24"x10" size to accommodate two 15m length of delivery hoses and a branch pipes with glass fronted double door with lock and keys and break glass recess for keys to be enameled paint with baking process, all complete. (The sample to be approved before installations).	Each	11	7,270.00	79 970.00
13	MR	Providing, Fixing, Testing and Commissioning of, NB of 15 mm dia, GM Water Curtain Nozzle, maximum working pressure of 12.3 kg / cm ² (175 PSI) (HD Make) complete as per instructions of the Engineer-In-Charge	Each	1	292.70	292.70

14	MR	Providing, Fixing, Testing and Commissioning of Deluge Valve with Electrical operated Trim Set with solenoid valve and switches, Gong valve, Drain valve, Test assembly, 150 mm dia isolation valve with bypass including actuation & control panel, control cable from deluge valve to solenoid switch 2 Core x 1.5 Sq. mm., UL Listed / FM Approved, complete with drain cock arrangement and with all accessories, welded or screwed as required including cutting holes and chases in brick or RCC walls and making good complete as per approved model.				
		80 mm dia	Each	1	51,770.96	51 770.96
15	MR	Providing,fixing and testing of 150mm dia alarm check valve (FxF) with ACV trim set to water motor alarm/gong, retard chamber, UL Listed/FM approved, complete with drain cock arrangement and with all accessories, welded or screwed as required including cutting holes and chased in brick or RCC walls and making good complete as per approved model.	Each	3	4,280.69	12 842.07
16	MR	Providing and fixing intelligent-type Sprinkler Annunciation Panel for minimum 100 Zones , compatible for seamless integration with waterflow devices, monitor & control modules and BMS systems (programmable outputs), with LCD type display & LED indication for all zones, complete with internal sounder, alarm/fault indications & standby 24v lead acid batteries with charger.	Each	1	153,318.00	1 53 318.00
TOTAL C/O TO SUMMARY						16 59 838
IIA.	FIRE PUMPS AND ACCESSORIES (UAAD/MP SOR ITEMS)					
1	Pressure Vessel for Fire Pump					
SOR 26.17		Providing and Fixing air vessel made of 250 mm dia, 8 mm thick MS Sheet, 1200 mm in height with air release valve on top and flanged connection to riser, drain arrangement with 25 mm dia Gunmetal wheel valve, with required accessories, pressure gauge and painting with synthetic enamel paint of approved shade as required.	Each	3	10,570.20	31 710.61
2	SOR 26.9	Providing, Installation, Testing and Commissioning stainless steel strainer fabricated out of 1.6 mm thick stainless steel sheet with 3 mm dia holes with stainless steel flange.			-	
2.1	Derived	200 mm dia	Each	2	9,672.30	19 344.60
2.2	Derived	150 mm dia	Each	1	7,820.10	7 820.10
3	SOR 26.21	Providing and fixing pressure transducer (dial type pressure gauge with isolation cock) in MS Pipe line (dial diameter 100 mm pressure range 0-10 kg/cm) suitable for 12 Volts /24 DC including connection etc. as required.	Each	22	1,359.00	29 898.00
4	SOR 26.19	Providing and fixing pressure switch in the M.S. Pipe line including connection etc. as required.	Each	6	1,338.30	8 029.80
5	UAAD 11.8	Supplying and laying of 25 mm X 6 mm GI strip at 0.5 metre below ground level as strip earth electrode including soldering etc. as required.	Metre	20	58.50	1 170.00
6	UAAD 11.15	Supplying and laying of 25 mm X 4 mm GI strip on surface or in recessed/concealed for connection etc. as required.	Metre	10	96.30	963.00
7	UAAD 14.1	Supply of XLPE Insulated power cable (conforming IS-7098) 1100 Volt grade/Heavy duty power cable conforming to IS 1554-1100 Volts grade , 2 core /3½ core/4 core ISI MARKED with Alu. Stranded /solid conductor			-	
		ARMoured 2 Core 2.5 Sq. MM. (Heavy duty)	Metre	20	92.70	1 854.00

		ARMOURED 4 Core 6.0 Sq. MM. (Heavy duty)	Metre	20	151.20	3 024.00
8		Laying of one number PVC insulated and PVC sheated power cable of 1.1 kv grade of size not exceeding 25 sq. mm. direct in ground including excavation, sand cushioning, protective covering and refilling the pit etc. as required.	Metre	30	222.30	6 669.00
		TOTAL C/O TO SUMMARY				1 10 483
IIB.		FIRE PUMPS AND ACCESSORIES (NON UAAD/ NON SOR ITEMS)				
1		Fire Pumps & Accessories				
		Supplying, installation, testing & commissioning of electric driven fire pumps suitable for automatic operation consisting of the following (as per specification).				
		Horizontal split casing single/ multistage, single/ multioutlet pumping set complete with bronze impeller with C.I. body, SS shaft and sleeve and connected by a flexible coupling to a totally enclosed fan cooled squirrel cage induction motor Mounted on common bed plate of fabricated mild steel channel with cushy foot mounting with all pump accessories complete as per specification including pressure gauges, circulatory relief valve, mechanical seal, lubricated grease bearing, gun metal isolation valves etc.				
		Motor to be suitable for 415V, 50Hz, AC supply of required H.P (or as per pump efficiency) rating for the above pumps. Motor shall accept +/- 10% variation in voltage and +/- 3% variation in frequency.				
		Suitable reinforcement cement concrete pump foundation of 1:2:4 ratio (1 cement: 2 fine aggregate: 4 coarse sand) complete as per requirements including foundation bolts, washers as required. foundation shall be finished with a coat of neat cement with 50x50x3 mm thick M.S. angle edging and foundation shall be painted with enamel paint.				
(A)		Main fire Pump				
		Type : Horizontal Split casing centrifugal suctiontype				
		Speed (rpm) : 1450				
		Capacity : 2280 lpm				
		Head : 70 M	Each	1	1,209,270.60	12 09 270.60
(B)		Jockey Pump				
		Type : Vertical mounted centrifugal End suction type.				
		Speed (rpm) : 2900				
		Capacity : 180 LPM				
		Head : 70 M	Each	2	128,346.37	2 56 692.73
(C)		Sprinkler Pump				
		Type : Horizontal Split casing centrifugal suction type.				
		Speed (rpm) : 1450				
		Capacity : 2280 LPM				
		Head : 70 M	Each	2	1,209,270.60	24 18 541.20
(D)		Water curtain pump				
		Type : Horizontal Split casing centrifugal suction type.				
		Speed (rpm) : 1450				
		Capacity : 180 LPM				
		Head : 35 M	Each	1	99,322.33	99 322.33
2		Diesel Engine Driven Fire Pump				

		Supply, Installation, Testing and Commissioning of diesel engine driven stand by pump suitable for automatic operation consisting of the following (as per specification)				
		Horizontal split casing single/ multistage, single/ multioutlet pumping set with CI body, bronze impeller, SS Shaft and sleeve and mechanical seal and connected by means of a flexible coupling to a water cooled diesel engine developing required BHP for the above pump mounted on common bed plate of fabricated mild steel channel with cushy foot mounting with all pump accessories, circulatory relief valve etc, diesel engine starting panel for starting of the lead acid 24V, 180 AH (including one spare battery) and battery charger as per specification. Rate shall include fittings of exhaust pipe as per separate items, with muffler, day oil tank of 990 ltrs capacity with fire resistance glass type fuel indicator pipe, first charge, and hand pump set, with secondary container arrangement including all internal cabling/piping as required for commissioning. Fuel tank shall be of 4mm thick sheet, factory made and shall have indication of low fuel switch, fuel level indicator, shut off nozzle and audible alarm in engine panel. Batteries of same needs to be auto charged through electrical panel as well by introducing battery charger and necessary arrangement for cut of same battery charger supply when engine is started and necessary data for health of battery shall be displayed on electrical panel.				
		Type : Horizontal Split casing centrifugal suctiontype				
		Capacity : 2280 lpm				
		Head : 70 M				
		RPM : 1450				
		Mover :				
		Material of Construction:				
		Shaft & Sleeve : S.S.				
		Impeller : Bronze				
		Bearing : Grease, lubricated				
		Seal - Mechanical seal.	Each	1	1,429,194.47	14 29 194.47
3		Providing & fixing 150 mm M.S. class 'B' exhaust pipe for above Diesel Engine as per CPCB guidelines including all fittings, accessories clamps/structural steel supports. The pipe shall be insulated with 50 mm mineral wool insulation of density 100 kg/cm2 with 24 swg aluminium cladding complete with all M.S. supports/ hangers duly painted with two coat of primer and synthetic enamel paint of approved shade etc. as required to complete the job in all respect.	Metre	30	1,927.00	57 810.00
4		Panel for Fire Pumps				
		Fabricating, supplying, installation, testing & commissioning of totally enclosed cubicle type fire pump control panel free standing, floor mounted, compartmentalised, sectionalised, dust ,dump and vermin proof with suitable natural ventilation arrangement,front and rear accessible,lockable power cum control panel, fabricated from 1.6/2 mm thick MS sheet (to give IP 42 protection) seven tank powder coated with RAL7035 colour shade, heavy 4 strip sleeved Electrolytic grade aluminium bus bar, bus bar supports, inter connecting from bus bars to out going switches/ MCCBs including earthing the board suitable to accommodate the following including numbering etc. as required.				
		INCOMING:				
		a) 600amp. TP +NL M.C.C.B. with rotary handle of breaking capacity 36KA				
		b) One-Digital voltmeter with phase selection switch				
		b) One-Digital Ammeter with phase selection switch				

		c) 3 Phase indicating lamps with SP MCB--3 Nos and 700 AMP AL Bus bar.				
		d) Dual supply with on load changeover of required capacity				
		OUTGOING				
		b) Two - 320 Amp. TP + NL M.C.C.B. with rotary handle of breaking capacity 35KA				
		c) Three - 100 Amp.TP +NL M.C.C.B. with rotary handle of breaking capacity 35KA				
		d) Two Fully Automatatic Star-Delta starters suitable for 150 KW Pump Motor with over load relay timer push buttons and Auto/Manual selector switch and single phase preventer relay.				
		e) Two Fully Automatic star delta Starter suitable for Jockey Pump Motor 25 KW with over load relay, timer push buttons and Auto/Manual selector switch and single phase preventer relay.				
		f) Four panel type Digital Amp. meters one for each motor with ASS. CTS etc.				
		g) Four sets of On/Off - neon indicating lamp.				
		h) Auxillary potential free contact to be provided for each pump set for sending data to BMS station for status only.				
		i) 1 set of Automatic Trip unit of suitable rating operating at 12/24V DC for Fully Automatic Diesel engine starting system complete with battery charger, 8 window annunciator, indicating lights, transformer, rectifier, timer, voltmeter ammeter, selector switches, push buttons, auxiliary relay etc. complete as required as per NBC rules				
		j) All interconnecting power & control wires/cables suitable size within the panel .				
		(All for above from item (a) to (i) complete set). (The shop drawing to be prepared and approved before fabrication)	Set	1	464,600.00	4 64 600.00
5		Providing and fixing FRLS heavy duty copper armored cables 1.1 KVA grade including necessary support clamps at ceiling level and connection legs and double compression glands,complete in all respects.				
	a)	Control cable 6 core 2.5 Sq.mm	Metre	20	541.61	10 832.15
	b)	Control cable 1 core 1.5 Sq.mm	Metre	200	476.05	95 209.55
		TOTAL C/O TO SUMMARY				6041473.019

INTERNAL ELECTRICAL ESTIMATE OF CULTURAL & INFORMATION CENTRE AT JABALPUR			
SUMMARY SHEET			
SUB HEAD	DESCRIPTION	AMOUNT (DSR Items) (In Rs.)	AMOUNT (NS Items) (In Rs.)
1	CIRCUIT CUM POINT WIRING	6,057,680.40	214,023.00
2	MAIN DISTRIBUTION BOARDS, SUB DISTRIBUTION BOARDS & DISTRIBUTION BOARDS	523,238.40	
3	SUPPLYING AND FIXING OF LIGHT FIXTURE AND FAN	120,512.70	4,874,972.00
4	STAGE FURNISHING		1,301,500.00
5	STRUCTURED CABLING SYSTEM PASSIVE (LAN AND CCTV)	425,016.00	90,625.00
6	LOCAL AREA NETWORK (LAN)		1,548,126.00
7	IP-PBX SYSTEM		907,430.00
8	FIRE DETECTION AND ALARM SYSTEM - ANALOG ADDRESSABLE		8,141,673.00
9	IP CCTV SYSTEM		4,399,781.00
A	TOTAL (in Rs.)	7,126,447.50	21,478,130.00
B	GRAND TOTAL (in Rs.)	28,604,577.50	

INTERNAL ELECTRICAL ESTIMATE							
S.N.		SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
1.00			CIRCUIT CUM POINT WIRING				
1.01		2	Point wiring (excluding metallic switch box & sheet but including switches, sockets, lamp holders/ceiling roses etc) with 1.5 Sq. mm. PVC insulated cable FR with copper multi strand conductor ISI marked in Concealed rigid steel conduit ISI Marked of suitable size and 1.5 Sq. mm. PVC insulated copper earth continuity conductor of green colour inside conduit including painting, etc. as required as per specification for :-				
	i	2.01	Light Point/Fan Points (Using Modular Accessories).				
		a	Short point	Each	1050	512.10	537,705.00
		b	Medium point	Each	400	1,004.40	401,760.00
		c	Long point	Each	350	1,594.80	558,180.00
						-	
	ii	2.02	3 Pin 6 Amp socket outlet on Separate Board (Using Modular Accessories).				
		a	Short point Each	Each	40	614.70	24,588.00
		b	Medium point Each	Each	20	1,132.20	22,644.00
		c	Long point Each	Each	20	1,763.10	35,262.00
						-	
	iii	2.03	Call Bell / Buzzer Points (Using Modular Accessories).				
		a	Short point Each	Each	2	500.40	1,000.80
		b	Medium point Each	Each	2	948.60	1,897.20
		c	Long point Each	Each	2	1,488.60	2,977.20
						-	
1.02		7.1	Point wiring (excluding metallic switch box & sheet) for 3 Pin 16 Amp. Socket Outlet Point with 4 Sq. mm. PVC insulated cable FR with copper multi strand conductor ISI marked in Concealed rigid Steel Conduit ISI Marked of suitable size including painting etc. with 16 Amp. Switch & Socket / S.S.Combined 6/16 Amp. of ISI Marked and 4 Sq. mm. PVC insulated copper earth continuity conductor of green colour inside conduit as per specification for :-				
	i		On Separate Board (Using Modular Accessories).				
		(a)	Short Point	Each	10	855.00	8,550.00
		(b)	Medium Point	Each	50	1,480.50	74,025.00
		(c)	Long Point	Each	70	2,213.10	154,917.00
		(d)	Extra Long –I	Each	60	3,137.40	188,244.00
		(e)	Extra Long –II	Each	40	4,160.70	166,428.00
		(f)	Extra Long –III	Each	10	5,349.60	53,496.00
						-	
1.03		13	Supplying and fixing rigid steel conduit ISI marked along with the accessories in concealed system including cutting the wall and plastering & repainting the wall with matching colour to bring in its original condition as required				
						-	
	i	13.1	H.G. Conduit 20 mm, wall thickness-1.6mm	Metre	1500	104.40	156,600.00
	ii	13.2	H.G. Conduit 25 mm, wall thickness-1.6mm	Metre	1800	123.30	221,940.00
	iii	13.3	H.G. Conduit 32 mm, wall thickness-1.6mm	Metre	150	178.20	26,730.00
						-	

1.04		16	Supplying and fixing PVC conduit ISI marked along with the accessories in concealed system etc. as required			-	
						-	
	i	16.1	PVC . Conduit 20 mm (HMS)	Metre	100	54.90	5,490.00
	ii	16.2	PVC . Conduit 25 mm (HMS)	Metre	200	64.80	12,960.00
	iii	16.3	PVC . Conduit 32 mm (HMS)	Metre	100	97.20	9,720.00
						-	
1.05		18.02	Supplying and fixing of approved make modular type metal box with modular frame/ base plate and cover plate including fixing in concealed / surface excluding switch,socket etc. as required for:-			-	
						-	
	i	18.2.1	1 Or 2 Module	Each	50	140.40	7,020.00
	ii	18.2.2	3 Module	Each	250	187.20	46,800.00
	iii	18.2.3	4 Module	Each	40	212.40	8,496.00
	iv	18.2.4	6 Module	Each	15	293.40	4,401.00
	v	18.2.5	8 / 9 Module	Each	20	360.00	7,200.00
	vi	18.2.6	12 Module	Each	5	438.30	2,191.50
						-	
1.06		29.31	Supplying and fixing of approved make step type Modular electronic Fan regulator including connection etc. as required on existing board			-	
	i	29.31.2	100 Watt (2 module)	Each	4	620.10	2,480.40
						-	
1.07		29.3	Supplying and fixing as per specification Call bell / buzzer of approved make with necessary materials complete.			-	
	i	29.3.1	Buzzer	Each	6	52.20	313.20
						-	
1.08		21	Wiring for sub-mains with PVC insulated cable FR with copper multi strand conductor ISI marked in recessed / concealed rigid steel ISI marked conduit of suitable size(Conduit included) including accessories long neck threaded type, connection painting etc ,as required as per specification			-	
						-	
		21.2	3 WIRE SUB MAIN			-	
	i	21.2.2	4.0 sq mm cable in 25 mm conduit	Meter	1800	233.10	419,580.00
	ii	21.2.3	6.0 sq mm cable in 25 mm conduit	Meter	500	275.40	137,700.00
						-	
						-	
1.09		CPWD DSR 2016 (1.7)	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed steel conduit as required			-	
						-	
	i.	1.7.1	2x 1.5 sqmm+ 1x 1.5 sqmm earth wire	Mtr.	2000	162.90	325,800.00
	ii.	1.7.2	2x 2.5 sqmm+ 1x 2.5 sqmm earth wire	Mtr.	7700	185.40	1,427,580.00
	iii	1.7.3	2x 4 sqmm+ 1x 4 sqmm earth wire	Mtr.	250	213.30	53,325.00
	iv	1.7.4	2x 6 sqmm+ 1x 6 sqmm earth wire	Mtr.	200	291.60	58,320.00
	v	1.7.8	4x 4 sqmm+ 2x 4 sqmm earth wire	Mtr.	800	336.60	269,280.00
	vi	1.7.9	4x 6 sqmm+ 2x 6 sqmm earth wire	Mtr.	900	466.20	419,580.00
	vii	1.7.10	4x 10 sqmm+ 2x 6 sqmm earth wire	Mtr.	200	587.70	117,540.00
						-	

1.10	32.5	Providing and fixing circular/Hexagonal cast iron or M.S.sheet box for ceiling fan clamp of internal dia 140mm, 73mm height, top lid of 1.5mm thick M.S. sheet with its top surface hacked for proper bonding, top lid shall be screwed into the cast iron/M.S. sheet box by mean of 3.3mm dia. round headed screws, one lock at the corners. Clamp shall be made of 12mm dia M.S. bar bent to shape as per standard drawing.	Each	4	126.00	504.00
					-	
1.11	DSR 2016 (15.1)	Supplying, installation, testing and commissioning of passive infrared (PIR) technology based occupancy sensor having high performance, non regulating programmable type, suitablefor connected load upto 10 A, for mounting height up to 2.8 meter and for 5 meter diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	Each	14	2,873.70	40,231.80
					-	
1.12	CPWD DSR 2016 (15.2)	Supplying, installation, testing and commissioning of passive infrared (PIR) technology based occupancy sensor with day light dimming (Lighting level shall be regulated as per availability of natural day light in an area along with occupancy detection) having high performance, regulating programmable type, suitablefor connected load upto 10 A, for mounting height up to 2.8 meter and for 5 meter diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required.	Each	11	4,020.30	44,223.30
					-	
		SUB TOTAL			-	6,057,680.40
					-	
					-	
2.00		MAIN DISTRIBUTION BOARDS, SUB DISTRIBUTION BOARDS & DISTRIBUTION BOARDS (DSR Items)			-	
					-	
2.01	27.7	Supply of approved make powder coated sheet steel encloser SPN MCB DB inclusive of Bus bar, Neutral bar, Earth bar & two earth terminals etc. complete as per IS:13032(exclusive of MCB & isolator)-			-	
					-	
	i	27.7.5 8 way Double Door IP 43 protection	Each	22	1,330.20	29,264.40
	ii	27.7.6 12 way Double Door IP 43 protection	Each	12	1,614.60	19,375.20
					-	
					-	
2.02	27.8	Supplying of approved make TPN MCB DB Metal Double Door IP 43 protection with provision for FP MCB/Isolator/RCCB/RCBO as incomer and SP MCBs as outgoing inclusive of Bus bar, Neutral bar, Earth bar & two earth terminals etc. complete as per IS:13032(exclusive of MCB & isolator):			-	
					-	
	i	27.8.2 4 way (8+12)	Each	14	2,664.90	37,308.60
	ii	27.8.3 6 way (8+18)	Each	14	3,285.00	45,990.00
	iii	27.8.4 8 way (8+24)	Each	4	3,941.10	15,764.40
	iv	27.8.5 12 way (8+36)	Each	2	5,896.80	11,793.60
					-	
					-	

2.03		CPWD DSR 2016 (2.1)	Supplying & fixing 5 amps to 32 amps rating 240 /415 volts C series, Miniature Circuit Breaker suitable for inductive loads of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.			-	
		2.10.1	Single Pole	Each	516	155.70	80,341.20
						-	
2.04		27.15	Supplying and installing of RCBOs (Residual current circuit breaker with overload and short circuit protection) ISI marked complete as per I.S. standard confirming to IEC:61009-2-1 & IS:12640-2:2001,240/415V 50 Hz with 10 kA short circuit withstand capacity for earth leakage, overload & short circuit protection including connection in existing enclosure in approved manner as per specification.			-	
	a	27.15.1	DP(4 module)			-	
						-	
	i	27.15.1.5	2 pole 6 to 25 Amps, 100 mA sensitivity	Each	22	3,364.20	74,012.40
	ii	27.15.1.7	2 pole 40 Amps, 100 mA sensitivity	Each	12	3,724.20	44,690.40
						-	
	b	27.15.2	FP(8 module)			-	
						-	
	i	27.15.2.6	4 pole 25-32 Amps, 100/300 mA sensitivity	Each	15	4,054.50	60,817.50
	ii	27.15.2.7	4 pole 40 Amps, 100/300 mA sensitivity	Each	5	4,176.90	20,884.50
	iii	27.15.2.8	4 pole 63 Amps, 100/300 mA sensitivity	Each	14	4,734.90	66,288.60
						-	
2.05		27.12	Supplying & fixing of approved make Industrial type metal plug & socket DBs (without MCB) SPN sheet encloser (dust protected) inclusive of 2 pole and earth metal plug and socket and space to incorporate SP MCB complete as per specification as required.			-	
	i	27.12.2	20 Amps	Each	17	982.80	16,707.60
						-	
			SUB TOTAL			-	523,238.40
						-	
3.00			SUPPLYING AND FIXING OF LIGHT FIXTURE AND FAN			-	
						-	
3.01		30.1	Supplying, erection and testing of approved make electric Ceiling fan of double ball bearing complete with standard down rod, canopy, hanging shackle, Aluminium blades, without regulator, A.C. 230-250 volts including connections with all necessary material complete of approved as required confirming to IS :374/1979 with up to date ammendments.			-	
	i	30.1.1	Ceiling Fan (5 star & ISI)-1200 mm Sweep	Each	4	2,048.40	8,193.60
						-	
3.02		30.6	Supplying, erecting and testing of approved make Exhaust Fan heavy duty with mounting frame, blades AC 230-250 complete connection and including, frame bolt/ Anchor hole fastners etc. complete finished of approved as required.			-	
						-	
		30.6.1	300mm sweep 900 RPM	Each	4	2,626.20	10,504.80
						-	
3.03		32.1	Erection of exhaust fan on existing hole / wall bracketfan/cabin fan in position with required PVC cable, rawl bolts etc. complete including connections and making wall surface good.	Each	4	111.60	446.40
						-	

3.04		32.27	Supply and fixing of GI sheet 24 SWG Exhaust fan Louvers including grouting bolt, nut, & finishing etc on existing hole to complete the job as mentioned below :-			-	
	i	32.27.1	Sweep 300mm	Each	4	675.00	2,700.00
						-	
3.05		32.4	Fixing of Fluorescent Tube recessed / concealed mounting Fitting in existing recesses with necessary material including connection with 3 core flexible wire etc. complete as required.	Each	263	96.30	25,326.90
						-	
3.06		CPWD DSR (1.35)	Installation, testing and commissioning of wall bracket /ceiling fittings of all sizes and shapes containing upto two GLS/CFL/ LED lamps per fitting, complete with all accessories including connections etc. as required.	Each	1405	52.20	73,341.00
						-	
			SUB TOTAL			-	120,512.70
4.00			STAGE FURNISHING			-	
						-	
5.00			STRUCTURED CABLING SYSTEM PASSIVE (LAN AND CCTV)			-	
						-	
5.01		38.09	Supply, Installation testing and commissioning RJ - 45 Computer Jack cat 6 with shutter Modular (1Module)	Each	120	441.90	53,028.00
						-	
5.02		38.11	Suppling and drawing 4 pair shielded, 0.5 mm PVC. Insulated copper conductor un-armoured Cat-6 computer cable FR in existing surface / concealed ,steel / PVC. Conduit/Casing-NCapping as required.	Per Mtr.	6100	41.40	252,540.00
						-	
5.03		38.12	Supply, Installation testing and commissioning of patch cord as mentioned below :-			-	
						-	
	i	38.12.1	CAT 6 RJ45 Patch Cord F/UTP 1 Mtr.	Each	120	366.30	43,956.00
	ii	38.12.3	CAT 6 RJ45 Patch Cord F/UTP 3 Mtr.	Each	50	526.50	26,325.00
						-	
5.04		38.13	Supply, Installation testing and commissioning of 19" Modular Patch - 1 U Patch Panel 24, RJ 45 Cat-6 connector	Each	5	9,833.40	49,167.00
						-	
			SUB TOTAL			-	425,016.00
						-	

INTERNAL ELECTRICAL ESTIMATE

S.N.	Description	Unit	Qty	Rate	Amount
1.0	CIRCUIT CUM POINT WIRING (NON DSR ITEMS)				
1.01	Supplying the following 1100V grade XLPE Insulated Copper Conductor Armoured cables, overall PVC sheathed 1.1 KV grade cables conforming to relevant IS code and technical specifications.				
	i 12C x 2.5 sq.mm. Cu.. ARM. XLPE cable	RM	25	129.00	3,225.00
	ii 4C x 25 sq.mm. Cu.. ARM. XLPE cable	RM	60	872.00	52,320.00
	iii 4C x 16 sq.mm. Cu.. ARM. XLPE cable	RM	150	519.00	77,850.00
1.02	Supplying and fixing 63 A, 415 V, TP weather proof type industrial socket outlet (IP66), with 4 pole and earth, plug top alongwith 63 A, TP+E Controller, in PVC enclosure, on surface or in recess, cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	2	16869.00	33,738.00
1.03	Supplying and fixing 63 A, 220 V, DP weather proof type industrial socket outlet (IP66), with 2 pole and earth, plug top alongwith 63 A, DP Controller, in PVC enclosure, on surface or in recess, cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	3	15630.00	46,890.00
	SUB TOTAL (NON DSR ITEMS)				214,023.00
2.0	DISTRIBUTION BOARDS (NON DSR ITEMS)				

3.0	SUPPLY OF LIGHT FIXTURES (NON DSR ITEMS)						
3.01	Supplying of following fans & Light fittings with starter, control gears, lamps holder, transformer etc. as called for and flexible wires as required for fixing including providing of Lamps as required.						
i.	1 x 12 watt recess mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BZSLO 12W WH PRO)	Each	576	1422.00	819,072.00		
ii	1 x 15 watt recess mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BZSLO 15W WH PRO)	Each	82	1459.00	119,638.00		
iii	1 x 18 watt surface mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BGSLO SLEEK 18WH RD)	Each	85	1301.00	110,585.00		
iv	1 x 40 watt surface mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BIPC 40W PC)	Each	178	2788.00	496,264.00		
v	Supply, fixing, Testing & Commissioning of Recess mounted 12W LED Step light, Luminaire made of die cast aluminium alloy with non corrosive SS fasteners, Non yellowing UV stabilized translucent polycarbonate diffuser, Silicon gasket, Industrial plastic Installation housing for preparing the recess opening in the wall / stairs, Protection class IP 65 The Light shall be fixed with proper nut/screw. The job includes cost of labour, Civil work and petty material required to complete the job to the entire satisfaction of EIC of the work.(The Light shall be Eq. to KLite cat no. 2741).	Each	101	3150.00	318,150.00		
vi	2 x 18 watt surface mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BLRB 2X18W CW)	Each	85	1998.00	169,830.00		
vii	30 watt recess mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BZRSQ 30W WH XE)	Each	54	3159.00	170,586.00		
viii	16 watt LED Track light complete with all accessories as required. (Eq. to Bajaj cat. no. ALPHA 16W LEDI)	Each	36	3903.00	140,508.00		

ix	1 x 30 watt Pendant type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BXTAP 30WH)	Each	41	3717.00	152,397.00
x	1 x 32 watt Pendant type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BCDLR 32WH)	Each	268	1765.00	473,020.00
xi	1 x 120 watt LED Flood light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BJFL 120W LEDI)	Each	2	13009.00	26,018.00
xii	1 x 10 watt surface mounting type LED Bulk Head light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BIBWP 10W LED)	Each	78	1533.00	119,574.00
xiii	1 x 10 watt surface mounting type LED light fixture complete with all accessories as required. (Eq. to Bajaj cat. no. BCLSB 10 NW)	Each	30	427.00	12,810.00
xiv	5W / Mtr surface mounting type LED Strip light and 25 W IP20 LED strip driver complete with all accessories as required. (Eq. to Bajaj cat. no. 112502 + 112514)	Set (5Mtr)	40	1928.00	77,120.00
xv	1000W, 240 Volt, PAR Sealed Beam Light with CRC Sheet Metal and aluminum die casting, mat black color, yoke & clamp.	No.	12	5,200.00	62,400.00
xvi	1000W Halogen Fresnel light consisting of 1000W Halogen Bipin T- 11 lamp, 150mm dia imported Fresnel lens, Imported socket, bottom sliding knob, yoke, colour frame & suitable clamp.	No.	10	15,500.00	155,000.00
xvii	750 / 575W Profile Spot Light with Voltage: 220v/50Hz, Lamp: 220v HPL 750W / 575W G9.5 Base, Color Temperature: 3200k, Optional Degree: 19°/26°/36°/50°, Weight: 6kg, Size: 53x26x28cm.	No.	6	29,500.00	177,000.00
xviii	1000W Halogen Plano convex spot light complete with 1000 W Halogen Bipin T-11 lamp, spherical anodized reflector, imported socket, 150 mm dia plan convex lens, bottom sliding knob, yoke, color frame & suitable clamp.	No.	2	14,500.00	29,000.00
xix	LED PAR: 54 x 3W (12R +18G + 12B + 12W), 15°/30°/45°/60° LED PAR having life of 30,000 Hrs & delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light programs. Standard Accessories: Barndoor	No.	16	24,000.00	384,000.00

xx	<p>LED Long BAR Light with Electrical: Voltage: AC100~240V... 50/60Hz, Rated Power: 360W, LED: Total LED: 80pcs (20R+20G+20W), Beam Angle: 10°、 15°、 30°. Functions: RGBW color mixing / Custom programs / Strobe / white Balance / RGB to White / RGB Calibration / Dimmer / Fan speed control / Color macros, Operation : DMX512: 3CHS / 4CHS / 5CHS / 10CHS / 12CHS / 16CHS / 30CHS / 40CHS / 60CHS.</p>	No.	6	42,000.00	252,000.00
xxi	<p>Lighting Console with Internal Flash Drive, similar in functionality to a hard disk but faster and more rugged. Provides enough storage for:- The entire Fixture Library of more than 3,000 files, Over a hundred show files, Removable external Memory Stick, Cache the entire Fixture library of more than 3,000 files, Improved method of Fixture selection for Patching, New Locate Fixture button, Fixture Selects (selecting the top row of faders), 2048 Channels, 240 Intelligent Fixtures, 240 Dimmer Control Channels, Theatrical Plotting and Playback functions, Shape Generator for instant creation of patterns and effects, 15 Playback Masters controlling 450 memories, chases or cue lists, MIDI and Bass, Mid, Treble sound to light triggers, Color VGA output fitted as standard.</p>	No.	1	410,000.00	410,000.00

xxii	12CHx4KW Electronic Dimmer with Dual DMX signals input and can work simultaneously, Fade accuracy: 4096 (16 bit) , Integrative design, light weight, easy for maintenance, Independent dimming, Soft and hard patch for optional, English menu, LCD display, user-friendly interface, Response time: quick, normal or slow, helping prolong lamp's life, 50 backup cues, run both manually and automatically, Status selectable when no DMX signal, 3 working modes for each channel: normal, fix and switch, 5 User-selectable curves: linear, square, s-curve, extraction or user-defined, Very low interference, Over load and Neutral-lost warning system force to limit output, Each dimmer output can be set as range of 110 to 250VAC Technical parameter, Voltage: 160Vac~240 Vac, Frequency: 45Hz~65Hz, Fade accuracy: 4096 (16 bit), Auto voltage compensation: effective with a 10% voltage variation input, output variation 1%, Power Consumption: 60W, Output: 4KW for 24 channel, Signal: DMX-512.	NOS	1	140,000.00	140,000.00
xxiii	SPLITTER DMX Splitter with one DMX input and 6 buffered outputs and 3 pin / 5 pin XLR connectors.	NOS	1	35,000.00	35,000.00
xxiv	Inter connection wiring for Dimmer to Control Room with required connectors.	No.	1	25,000.00	25,000.00
	SUB TOTAL				4,874,972.00
4.00	STAGE FURNISHING				
i	MAIN CURTAIN made out of FR velvet curtain cloth with horizontal sliding arrangement complete with fixing rails, brackets, sliding arrangement & motorised operation complete with runners, master runners, pullies, 3mm steel wire rope, 1 HP motor (Crompton) 2nos. air breaker contactors (L&T/SIEMENS) , 2nos. micro switches for auto stop, 3 nos push buttons for forward, reverse and stop positions. The curtain should be draped to half area when in closed position. Minimum overlap at centre should be 900mm and should be stitched in double gathering. Appx. Size:- 10000 x 7000	No.	1	255,000.00	255,000.00

ii	REAR CURTAIN made out of glazed FR cotton curtain cloth with horizontal sliding arrangement complete with fixing rails, brackets, sliding arrangements & motorised operation complete with runners, master runners, pullies, 3mm steel wire rope, 1HP motor (Crompton) 2nos. air breaker contactors (L&T/SIEMENS), 2 nos. micro switches for auto stop, 3nos. push buttons for forward, reverse and stop positions. The curtain should be draped to half area when in closed position. Minimum overlap at centre should be 900mm and should be stitched in double gathering. Appx. Size:- 8000 x 7000	No.	1	210,000.00	210,000.00
iii	FRONT FRILL :- Providing and fixing valance made out of FR velvet cloth to be installed above the stage on 25mm dia GI pipe with the 300% gathering of Size. Size:- 10000 x 1200	No.	1	32,000.00	32,000.00
iv	FRILL :- Providing and fixing average frills made out of double gathering FR black glazed velvet cloth to be installed above the stage on 25mm dia GI pipe in front of main curtain. Size:- 9000 x 1200	Nos.	4	30,000.00	120,000.00
v	CYCLORAMA CURTAIN :- Providing and fixing cyclorama curtain cum screen in plastic perforated material. The screen to be fixed on tubular frame made out of 35mm / 25 mm dia MS pipe complete with brackets, hooks etc as required. Appx. Size:- 7000 x 6000	No.	1	125,000.00	125,000.00
vi	M.S. Pipe Ladders to be provided on sides of the Stage to be fixed on the existing GI pipe or top grid for fixing of side lights. Made of 50mm x 25mm MS pipe.	Nos.	4	8,000.00	32,000.00
vii	50mm dia B class GI Pipe to be hung from existing grid or roof structure for side wings, lighting bars.	Mtrs	50	1200.00	60,000.00

	viii	MS suspension grid - Providing and fixing MS angle rafters above stage area of stage at 1200x600mm centers with 2 x 40x40x5mm thick MS angle runners & 25x12x12mm thick studs as MS spacers fixed @ 600mm c/c sandwiched between the MS angle runners so as to maintain 12mm gap between MS Angles. The Grid so formed to be suspended from bottom of the roof structure by means of 35 x 5mm thick MS flat suspenders / fixed to the wall / fixed to Proscenium with MS cleats and dash fasteners at 1200mm centre to the Grid including painting. Approx Area :- 55 sq.mt	sq.mt	55	4,500.00	247,500.00
	ix	Manual Hosting System for Set Scenery/ Frill Bar with pullies master pulley with 6mm wire rope for each pulley 8 mm wire rope master pulley, frame clamps nut bolt complete in all respects.	Nos.	2	110,000.00	220,000.00
		SUB TOTAL				1,301,500.00
5.00		STRUCTURED CABLING SYSTEM PASSIVE (LAN AND CCTV)				
	i	Supply , Installtion , Testing and comissioning of 1, 2 and 4 port face plate white for I/O fixing at user side as per specification and as required.	Nos	50	154.00	7,700.00
	ii	Supply , Installtion , Testing and comissioning of 42 U (600W/1000D) floor mount rack with fans , 2 cable managers , satationary shelf , 2 Nos of hardware pkts as per specification and as required.	Nos	1	60825.00	60,825.00
	iii	Supply , Installtion , Testing and comissioning of 15U wall mount rack with fans , 2 cable managers , satationary shelf , 2 Nos of hardware pkts as per specification and as required.	Nos	2	11050.00	22,100.00
		SUB TOTAL				90,625.00
6.00		LOCAL AREA NETWORK (LAN)				

	i	Supply, Installation, Testing & Commissioning of Core Switch with switching capacity of 800Gbps, forwarding performance of 600Mpps with 24x 1/10G SFP+ ports plus 4x 40G QSFP+ ports from day 1, dual hot swappable internal power supply, with 2 slots for addition of 40G and 1/10G Cards 60K IPv6 routes and 48K IPv6 multicast routes. Should support advance layer 3 (RIPng, OSPF, BGP and MPLS) with 1 year support as per specification and as required.	Nos	1	998570.00	998,570.00
	ii	Supply, Installation, Testing & Commissioning of 24 Port POE+ Access Switches with switching capacity of 260Gbps, forwarding performance 200Mpps, having 24 x 10/100/1000BASE-T PoE-plus(RJ45) with minimum PoE budget of 370W and 4x 10G SFP+ uplink ports, should have separate Stacking ports with min 128Gbps stacking bandwidth stackable up to minimum 9 units. Should support min 2GB internal DRAM, 2GB internal Flash memory, 30K MAC address, 2K IPv6 Multicast Routes, Should have RIPng from day 1 and support OSPF, BFD and VRRP with 1 year support as per specification and as required.	Nos	2	274778.00	549,556.00
	SUB TOTAL					1,548,126.00
7.00	IP-PBX SYSTEM					
	i	Supply, Installation, Testing & Commissioning of of IP Based voice Communication System with 04 Port Voicemail ,04 Port FXS ,04 Port FXO ,1 PRI Trunk lines (30 Ch) Circuit with CLIP Facility ,50 IP users License ,01 Nos. IP Operator Console,100 Party Conference ,Speed Dial, Music on Hold , Internal/ External ring difference ,Call Barring, Call Pickup, - Redundant server in active-Active mode as per specification and as required.	Nos	1	795934.00	795,934.00
	ii	Supply, Installation, Testing & Commissioning of of Type 1 IP Phone . Graphic LCD display with backlight 3 user accounts with multi-line appearance keys Local and company-wide phone directories as per specification and as required.	Nos	2	11548.00	23,096.00
	iii	Supply, Installation, Testing & Commissioning of of Type 2 IP Phone 1 VoIP account , Full duplex speaker phone, IPV6, 2xLAN, PoE as per specification and as required.	Nos	13	6800.00	88,400.00

		SUB TOTAL				907,430.00
8.00		FIRE DETECTION AND ALARM SYSTEM - ANALOG ADDRESSABLE				
		Design, Supply, installation, testing & commissioning of Fire Detection & Alarm system as per local fire norms & NBC / NFPA Codes:				
		FIRE DETECTION SYSTEM				
	i	PHOTOTHERMAL (MULTITECH) DETECTOR				
		Supply, installing, testing & commissioning of UL listed Intelligent Addressable Multi-Criteria smoke cum Heat detector, optical type with blinking LED and standard base, being capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable. complete with base as per specification and as required.				
	a	Below False Ceiling	Nos.	184	4950.00	910,800.00
	b	Above False Ceiling	Nos.	162	4950.00	801,900.00
	ii	Supply, installing, testing & commissioning of UL listed Intelligent Addressable Rate of Rise Heat detectors with blinking LED and standard base, being capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable as per specification and as required.	Nos.	136	4950.00	673,200.00
	iii	Supply, installing, testing & commissioning of RESPONSE INDICATOR as per specification and as required.	Nos.	320	125.00	40,000.00
	iv	MANUAL CALL POINT				
		Supply, installing, testing & commissioning of UL Listed Intelligent Addressable Double action manual pull station, capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable, complete as required.and as per specifications as per specification and as required.	Nos.	31	5555.00	172,205.00
	v	FAULT ISOLATOR				
		Supply, installing, testing and commissioning of UL Listed Addressable Fault Isolator module complete as required for determining the short in a circuit and separating the segment having the short capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable, complete as required. (Base Model also acceptable) as per specification and as required.	Nos.	31	4888.00	151,528.00

vi	MONITOR MODULES				
	Supply, Installation, testing and commissioning of UL Listed Addressable Monitor module complete as required for monitoring flow switches/ interface with any third party equipment capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable, complete as required.and as per specification and as required.				
	Hooters Circuit	Nos	31	5555.00	172,205.00
vii	CONTROL MODULES				
	Supply, installing, testing and commissioning of UL Listed Addressable control module complete as required for switching ON of smoke extraction fans / Pressurisation Fans etc. and switching off AHU' s, capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable, complete as required.and as per specification and as required.				
	Sprinkler flow switches	Nos.	27	5666.00	152,982.00
viii	BEAM DETECTOR				
	Supply, installing, testing and commissioning of UL Listed Addressable Beam detector with 4 manual & 2 sensitivity settings. Address Switch to programme the detectors, complete as required UL Listed as per specification and as required.	Nos	3	70000.00	210,000.00
ix	hooter cum strobe				
	Supply, Installation, Testing and Commissioning of UL Listed Fire Alarm Hooter (sound output of minimum 90 dB upto a distance of 30 meters) cum Strobe (Selectable 15, 30, 75, or 110 cd), made Addressable with the help of Intelligent Addressable Signal Module (cost of the Module to be included), capable of being addressed electronically. Manual Addressing (Dip/ Rotary Switches) not acceptable, with seperate power supply arrangement complete as per specification and as required.	Nos.	31	4500.00	139,500.00
x	FIRE ALARM CONTROL PANEL				

		Supply, installing, testing and commissioning ofUL listed micro processor based 2 wire fault tolerant loop, of following loop capacity (each loop accessing minimum 125 detectors and 125 modules) fire alarm/detection and voice evacuation control panel with Minimum 960 Character LCD Display with sufficient panel enclosure and cabinet size to accomodate Integrated voice evacuation unit for automated messaging. The panel shall have control and display switches for 54 speaker zones. The panel shall be able to give location of all fire/fault conditions of addressable units via the address codes and shall have zone indication display LEDs on the main panel using the mountable LED strips on the panel. Further, the panel must be able to automatically switch ON /OFFrespective control module when ever any alarm is triggered. The panel shall have rectifier, Loop cards, L C D unit to indicate Fire/Fault Signal with address and analog output, external/inbuilt printer to log all fire or fault events complete in all respects. The panel shall have a built in power supply and battery charger along with maintenance free 24 AH, 2 x 12 volt SMF Lead acid batteries capable of running for a minimum of 8 hours with battery charger complete as required. The panel should have a plug in Microphone for important manual messaging if required as per specification and as required.				
		6 Loop (each loop consist of 125 detector & 125 devices)	Nos.	1	785850.00	785,850.00
	xi	REPEATER PANEL				
		Supply, installing, testing and commissioning of Repeater panel with minimum 6 inch / 640 character LCD Display complete with accessories as per specification and as required.	No.	1	195529.00	195,529.00
	xii	SPEAKERS				
		Supply, installing, testing and commissioning ofUL Listed 2W Ceiling Mounted speaker with capacity to have 1/4,1/2,1 and 2 watt tapping, working at 83dB compatible with amplifier complete as per specification and as required.				
		Ceiling Mounted Speakers	Nos.	113	2500.00	282,500.00
		Wall Mount Speakers	Nos.	35	3500.00	122,500.00
	xiii	PA CONTROLLER				

		SITC of 8 zone IP based, digital Voice Alarm controller expandable upto 128 zones. The voice alarm controller should be able to connect directly over 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 as per specification and as required. : <ul style="list-style-type: none"> . 255 Priorities . Time schedule broadcasts . Capable of amplifier redundancy . 4 trigger inputs/outputs 	Nos	1	349953.00	349,953.00
	xvi	DIGITAL AMPLIFIERS				
		SITC of 1X500 W Class-D Amplifier with 1 independent channel and can provide automatic re-settable overcurrent, overload, overheating, overvoltage, under-voltage and DC protection as per specification and as required.				
		500 Watts	Nos	2	236968.00	473,936.00
	xv	PAGING STATION				
		SITC of IP based Networkable touch screen paging station for selection of zones, supervision of system status, setting of scheduled broadcasts with the following functions: <ul style="list-style-type: none"> . Built-in monitoring loudspeaker . Detachable goose-neck microphone . LCD touchscreen display . Audio input 	Nos.	1	85877.00	85,877.00
	xvi	Supply, installing, testing and commissioning of 2 way communication Fire Fighter's Telephone Jack as per specification and as required.	Nos	27	10500.00	283,500.00
	xvii	Supply, installing, testing and commissioning of 2 way communication Fire Fighter's Handset as per specification and as required.	Nos	4	26500.00	106,000.00

	xviii	Supply, Installation, Testing and Commissioning of the GUI based main network Fire Detection, Digital PAVA and 2 way communication common software which must be capable of graphically representing each facility being monitored with floor plans and icons depicting the actual locations of the various systems; and / or sensors' locations. The GUI software shall be located in control room on the ground floor and shall monitor all the Floor Fire Detection, Digital PAVA and 2 way communication panel connected with each other. The software shall provide the facility to Monitor, Control all the Digital PAVA as well as 2 way communication from main control room using voice signals over Fire Network along with the Fire detection signal. (UL 9th Edition Approved and NFPA compliant) complete as required. The cost will also include the latest PC with the following configuration: as per specification and as required.	Nos	1	350508.00	350,508.00
	xix	Supply & laying of Fire Survival Armoured cable (HPSR) High Performance Silica Rubber, size 1.5 sq mm x 2 core Copper, as per BS 7629 code, LPCB certified, 950°C rating for three hours for fire alarm system	RM	11700	126.00	1,474,200.00
	xx	Supply, Installation, Testing and Commissioning of 42U rack for mounting all the above equipments as per specification and as required.	Nos	1	58500.00	58,500.00
	xxi	2 core twin twisted 48/0.2 ATC, Multi strand, over all armoured speaker cable as specified in the Tender as per specification and as required.	RM	1350	110.00	148,500.00
		SUB TOTAL				8,141,673.00
9.00		IP CCTV SYSTEM				
	i	Supply, Installation, Testing & Commissioning of 42 U Network Rack with 19" PDU 6 points 5 amp , Stationary shelf, Mounting Hardware (pac. Of 10) , Cable manager Horizontal 1U , Fan 230 vac 90 cfm top mounted as per specification and as required.	Nos	1	60824.00	60,824.00

ii	Supply, installation, testing and commissioning of UL Listed , ONVIF Compliant 1/3" CMOS, IP Vari Focal Dome Camera , Full, HD 3 MP , 2.8-12 mm Motorized Varifocal Lens, 30 FPS , Triple Stream with Edge Based Analytics , True Day/Night with IR Cut Filter with auto switch , Shutter Speed 1/5s ~ 1/20,000 s, IR Illuminator 30 Meter Min Effective Range, 120DB Wide Dynamic Range, Alarm 1/1, Audio 1/1, SD Card, H.265, H264 Compression, PoE, IP66 , Vandal Proof IK10 etc. as per specification and as required.	Nos	52	42750.00	2,223,000.00
iii	Supply, installation, testing and commissioning of UL Listed , ONVIF Compliant 1/3" CMOS, IP Vari Focal Bullet Camera , Full, HD 3 MP Resolution , 2.8-12 mm Motorized Varifocal Lens , 30 FPS , Triple Stream with Edge Based Analytics , True Day/Night with IR Cut Filter with auto switch , Shutter Speed 1/5s ~ 1/20,000 s, IR Illuminator 30 Meter Min Effective Range, 120DB Wide Dynamic Range, Alarm 1/1, Audio 1/1, SD Card, H.265, H264 Compression, PoE, IP66 etc. as per specification and as required.	Nos	7	48581.00	340,067.00
iv	Supply, installation, Testing and Commissioning of Open Platform ONVIF Compliant Network Video Recorder, Intel based, Full Rack, RAID 0/1/5/10, @ 2M/30FPS, 1*2.5" SATA + 4 * 3.5" SATA, Throughput: 160 Mbps. HDMI slot Total capacity: 16 TB per box. Includes 64CH VMS License. as per specification and as required.	Nos	1	685780.00	685,780.00
v	Supply, installation, testing and commissioning of UL Listed , ONVIF Compliant 1/3" IR PTZ Speed Dome Camera 2MP @ 30fps / Full HD 2MP @ 60fps, Triple Streams, IR Distance 100m, Edge Analytics, 120DB Wide Dynamic Range, H.265, H264 Compression, IP66 Motorized Lens 4.5-135mm 30x Optical zoom Audio in/out 1/1, Alarm in/out 2/1, MicroSD slot, IP66 etc. as per specification and as required.	Nos	2	227540.00	455,080.00
vi	Supply, Installation, Testing & Commissioning of USB / Networked PTZ Keyboard as per specification and as required.	Nos	1	85026.00	85,026.00
vii	Supply, Installation, Testing & Commissioning of 4TB HD as per specification and as required.	Nos	8	15250.00	122,000.00

viii	Supply, Installation, Testing and Commissioning of Full HD 65" LED Professional Display Panel as per specification and as required.	Nos.	2	65325.00	130,650.00
ix	Supply, Installation, Testing and Commissioning of Workstation PC: Intel(R) Core(TM) i7-3770 Processor (8M Cache, up to 3.90 GHz); Memory: 4GB, NON-ECC, 1600MHZ; RAM: 4GB (1x4GB) Non-ECC DDR3 1600MHz SDRAM Memory; Keyboard: 12 function keys; Chassis: Tower/Workstation; DVD: 8X Slimline DVD+/-RW, Data Only; 20" TFT Monitor; Dual Graphics Card; Network interface card: Integrated Intel(R) 82579LM Gigabit1 Ethernet LAN 10/100/1000; Hard disk: 250GB, 7200 RPM 3.5" SATA 6Gb/s Hard Drive; Operating system: Windows 7 Professional 64 Bit. as per specification and as required.	Nos.	1	90210.00	90,210.00
x	Supply, Installation, Testing & Commissioning of Access Switch 24 port 10/100/1000BASE-T PoE-plus,as per specification and as required.	Nos.	3	69048.00	207,144.00
SUB TOTAL					4,399,781.00

EXTERNAL ELECTRICAL ESTIMATE OF CONVENTIONAL CENTRE AT JABALPUR			
SUMMARY SHEET			
SUB HEAD	DESCRIPTION	AMOUNT (DSR Items) (In Rs.)	AMOUNT (NS Items) (In Rs.)
1	SUB STATION EQUIPMENT	236,693.87	10,739,972.00
2	LT BUS DUCT		275,000.00
3	DG SETS		7,569,072.00
4	HT/LT CABLE	4,331,174.40	461,160.00
5	EARTHING AND MISCELLANEOUS ITEMS	1,686,073.50	247,702.00
6	UPS		729,000.00
7	LIGHTNING PROTECTION SYSTEM	682,159.50	
8	STREET LIGHTING		3,963,707.00
8	STAGE LIGHTING		2,374,300.00
A	TOTAL (in Rs.)	6,936,101.27	26,359,913.00
B	GRAND TOTAL (in Rs.)	33,296,014.27	

EXTERNAL ELECTRICAL ESTIMATE							
S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount	
1.0		SUB STATION EQUIPMENT					
1.01		33 KV 4 POLE STRUCTURE					
i	42.3	Supply of steel tubular pole swaged type as per IS:2713-1980 Complete with base plate and top Canopy					
	42.3.24	410 SP-71 - 13.00 metre	Each	4	32,711.40	130,845.60	
					-		
ii	42.6	Supplying and drawing of stranded Aluminium Conductor Steel Reinforced (ACSR) conforming to IS:398-1976 of approved make, stringing, making off complete with binding at existing insulator, jointing, jumpering, tearing off, connecting etc. as required and clearing of obstacles (if any) etc.					
	42.6.3	ACSR 0.05 sq inch (55 Sq.mm Al. EQ.) - (Rabbit)	Km	0.04	44,218.80	1,768.75	
					-		
iii	42.9	Supplying and drawing guard wire/earth wire/bearer wire 18.62 mm ² (4.87mm. Dia / 6swg) G.I. including stringing, binding at existing insulators or brackets, jointing, jumpering, connecting & cradle etc. as required and clearing of obstacles (if any)	Km	0.02	15,478.20	309.56	
					-		
iv	42.1	Supplying and drawing G.I. bearer wire 7/1.6mm including stringing, binding at existing brackets / pole, etc. for cable support in air as required and clearing of obstacles (if any)	Mtr	20	15.30	306.00	
					-		
v	42.14	Erection of RS Joist pole / 'H' Beam / steel tubular / steel rail pole of length exceeding 10 metres but not exceeding 13 metres in cement concrete M-10 (1 cement:3 core sand: 6 graded stone aggregate 40mm nominal size) base, foundation, muffing including excavation and back refilling etc. as required.	Each	4	3,624.30	14,497.20	
					-		
vi	42.2	Supplying and erection of stay set complete (Galvanized) 19mm. Dia x 1.8 metre long stay rod anchor plate of size 300 mm x 300 mm x7.5mm, thimble, stay clamps, turn buckle (19mm dia x 600mm),7/4.00mm dia G.I. Stay wire etc. in cement concrete M-10 (1 Cement : 3 Coarse sand : 6 graded stone aggregate 40mm nominal size) foundation including excavation and refilling etc. as required.	Each	4	3,515.40	14,061.60	
					-		
vii	42.32	Supplying and erection of Aluminium Knob / bobin with nut, bolts & straps etc. as required.	Each	3	83.70	251.10	
					-		

S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
viii	42.36	Supply, fabrication and erection of Angle/Chanel/Flat iron fitting for over head line & sub-station etc such as 'D' bracket, cross arms, top clamp, 'V' cross arms, Back/Support clamps or other similar work etc. including nut bolts of required size, making holes, fabrication, welding, cutting, etc. and painting with one coat of red oxide paint & two coat of aluminium paint as required as per specification.	Kg	0.05	7,289.10	364.46
					-	
ix	42.37	Labour charges for erection of Angle/Chanel/Flat iron fitting for over head line & sub-station etc such as 'D' bracket, cross arms, top clamp, 'V' cross arms, Back/Support clamps or other similar work etc. including nut bolts of required size, as required as per specification.	Kg	100	6.30	630.00
					-	
x	42.4	Supplying and erection of 33kV Porcelain pin insulator complete with long steel head G.I. pin, nut, washer etc. as required.	Each	6	452.70	2,716.20
					-	
xi	42.42	Supplying and erection of a set of four 11kV porcelain disc insulators for 33kV overhead lines with galvanized insulator fittings, ball and socket type, and complete with galvanized strain clamp, bolts, nuts, washers etc. as required.	Each	3	1,609.20	4,827.60
					-	
xii	42.55	Supplying and erection of single piece non-linear resistor polymer type lightning arrestor (Set of 3 Nos.) for 3 wire, 33kV overhead lines/ sub-station with rated voltage of 27kV (rms) with a nominal discharge current rating of 10 KA and complete with galvanized clamping arrangement, G.I. bolts, nuts, washer etc. as required.	Set	1	32,405.40	32,405.40
					-	
xiii	42.56	Supplying installing, testing & commissioning of outdoor H.T., AB switch assembly set gang operated with brass contact parts, including required GI pipe operating rod, handle & locking arrangement on On-Off position conforming to IS complete with required material and installing on existing DP structure to complete the job as required as per specification.(Set of 3 nos.)			-	
					-	
	42.56.2	33kV, 600A.	Set	1	19,161.90	19,161.90
					-	
xiv	42.57	Supplying installing, testing & commissioning D.O. fuse assembly with brass part contact for 33 or 11/0.4 KV DP Structure set of 3 Nos. with fuse barrel i/c required fuse element & other materials as per specification on existing D.P. structure as required.			-	
					-	
	42.57.2	33kV	Set	1	13,036.50	13,036.50
					-	

S.N.		SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
	xv	42.61	Supply & fixing anti climbing device with 2 ply G.I. barbed wire 1 Kg. per pole complete as per specification.	Each	4	113.40	453.60
						-	
	xvi	42.62	Supply, laying and fixing of G.I. earth coil of 4mm dia G.I. wire having 120 turns of nearly 50mm dia. and 3 mt. long tail in existing pit duly earthed with pole etc complete as required as per specification. Each	Each	4	198.00	792.00
						-	
	xvii	42.63	Supplying and fixing 33/11/0.4 KV enamel coated dangerboard size 200x250mm with clamp on existing HT/LT structure / poles.	Each	2	133.20	266.40
			SUB TOTAL				236,693.87
2.0			LT BUS DUCT				
3.0			DG SET				
4.0			11KV / LT CABLE				
4.00		41.1	Supply of XLPE Insulated power cable (confirming IS-7098 Part-I) 1100 Volt grade, 1 core /2 core /3½ core/4 core ISI MARKED with Alu. Stranded /solid conductor				
4.01	i	41.1.6	ARMOURED 3 Core				
	b	41.1.6.2	10 Sq.mm	Metre	1800	135.90	244,620.00
						-	
4.02		41.1.8	3½ CORE ARMOURED				
						-	
	i	41.1.8.2	35 Sq.mm	Metre	200	279.90	55,980.00
	ii	41.1.8.3	50 Sq.mm	Metre	400	360.90	144,360.00
	iii	41.1.8.4	70 Sq.mm	Metre	50	484.20	24,210.00
	iv	41.1.8.6	120 Sq.mm.	Metre	200	761.40	152,280.00
	v	41.1.8.7	150 Sq.mm.	Metre	300	902.70	270,810.00
	vi	41.1.8.8	185 Sq.mm.	Metre	500	1,116.00	558,000.00
	vii	41.1.8.10	300 Sq.mm.	Metre	1000	1,718.10	1,718,100.00
						-	
4.03		41.1.10	4 CORE ARMOURED				
	i	41.1.10.3	16 Sq.mm.	Metre	1200	177.30	212,760.00
	ii	41.1.10.4	25 Sq.mm	Metre	400	244.80	97,920.00
						-	
4.04		41.5	Supplying and fixing heavy duty cable gland for P.V.C. insulated armoured cable with brass washer, Rubber ring complete erected with cable and lead connection etc. as per specification complete.				
						-	
	i	41.5.2	Gland Size 22mm suitable for cable 2/3, 3½, 2/4 x 10 Sq.mm or 2x 16 Sq.mm	Each	10	41.40	414.00
	ii	41.5.3	Gland size 28mm for 3/4 x 16 Sq.mm	Each	24	63.00	1,512.00
	iii	41.5.4	Gland size 32mm for 2/3, 3½, 4 x 25 Sq.mm OR 2/3, 3½ x 35 Sq.mm OR 2/3 x 50 Sq.mm.	Each	20	72.00	1,440.00

S.N.		SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
	iv	41.5.5	Gland size 38mm 3½ x 70 Sq.mm, 3x95 Sq.mm	Each	2	103.50	207.00
	v	41.5.6	Gland Size 45mm 3/3½ x 120 Sq.mm, 3½ x 95 Sq.mm 3 x 150 Sq.mm.	Each	6	123.30	739.80
	vi	41.5.7	Gland Size 50 mm 3½ x 150 Sq.mm, 3 x 185 Sq.mm	Each	6	159.30	955.80
	vii	41.5.8	Gland Size 57mm 3 x 225 Sq.mm, 3 ½ x 185 Sq.mm	Each	10	219.60	2,196.00
	viii	41.5.9	Gland Size 70mm 3 x 240 Sq.mm, 3½ x 300 Sq.mm	Each	28	299.70	8,391.60
						-	
4.05		41.7	Supplying and fixing cramping type Alum. lugs as per I.S.S. Specification suitable for following size of cable with Alu. /Copper solid/stranded conductor evenly cramped with high/pressure tool and connected to switch gear/Bus/M.C.C.B./ M.C.B. etc. as required complete.			-	
						-	
	i	41.7.1	6mm to 16 Sq.mm	Each	96	1.80	172.80
	ii	41.7.2	25 Sq.mm	Each	40	3.60	144.00
	iii	41.7.3	35 Sq.mm	Each	12	4.50	54.00
	iv	41.7.4	50 Sq.mm	Each	24	7.20	172.80
	v	41.7.5	70 Sq.mm	Each	12	9.90	118.80
	vi	41.7.6	95 Sq.mm.	Each	10	14.40	144.00
	vii	41.7.7	120 Sq.mm.	Each	18	18.90	340.20
	viii	41.7.8	150 Sq.mm.	Each	46	27.00	1,242.00
	ix	41.7.9	180 Sq.mm	Each	30	36.00	1,080.00
	x	41.7.11	300 Sq.mm.	Each	84	64.80	5,443.20
						-	
4.06		41.10	Providing & Making cable end termination with HEAT SHRINKABLE jointing kit complete with all accessories including lugs suitable for 33 kV/11 kV 3 core XLPE alum. conductor cable as required as per specification and as per accepted standard including connection testing complete.			-	
	i	41.10.2	Heat shrinkable joint,kit 33 kV XLPE, 3 Core			-	
						-	
4.07		41.10.2.1	Heat shr.jointg. kit 33 kV XLPE cable O.D. termination			-	
						-	
	i	c.	3 x 185-240 sq.mm.	Each	2	28,203.30	56,406.60
						-	
4.08		41.10.2.2	Heat shr.jointg. kit 33 kV XLPE cable I.D. termination			-	
		c.	3 x 185-240 sq.mm. Each 24135	Each	4	21,721.50	86,886.00
						-	
4.09		41.10.2.3	Heat shr.jointg. kit 33 kV XLPE cable Straight Joint			-	
		c.	3 x 185-240 sq.mm.	Each	1	72,951.30	72,951.30
						-	
4.10		41.11	Supply and making cable straight joint / end termination with HEAT SHRINKABLE jointing kit complete with all accessories including lugs suitable for 1.1 kV XLPE/HD alum. conductor cable as required as per specification and as per accepted standard including connection testing complete for (I.D./O.D.) termination.			-	
						-	

S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount	
4.11	41.11.4	Heat shr.jointg. kit 1.1 kV XLPE/HD cable I.D./O.D. end termination.			-		
	c.	185-300 sqmm 4 core	Each	5	2,416.50	12,082.50	
4.12	41.12	Supplying & installing G.I. Pipe for protection of underground cable fixed on wall/support/in trench/fixd between two rigid existing support of wall/beam for erection of ceiling Fan/down rod for stiff pendent for light luminaries /fan/protective for earthing, lightening conductor down strip/overhead service line/for submersible cable or centrifugal pump for water supply with necessary iron clamp coupler, bend, tee, elbow, nuts and bolts etc. complete in an approved manner as required to complete excluding cost of excavation/ dismantling & other finished masonry Item complete.			-		
	i	41.12.1	For 'B' Class pipe ISI Marked (IS-1161-68)		-		
	ii	41.12.1.10	150.00mm	Metre	50	1,577.70	78,885.00
4.13	41.15	Laying of one number armoured / unarmoured power cable 1.1kV grade of size not exceeding 25 Sq.mm direct in ground including excavation in all soil / murrum / soft rock, sand cushioning, protective covering and refilling the pit etc. as required.	Metre	600	181.80	109,080.00	
4.14	41.16	Laying of one number armoured / unarmoured power cable 1.1.kV grade of size exceeding 25Sq.mm but not exceeding 120 Sq.mm direct in ground including excavation in all soil / murrum / soft rock, sand cushioning, protective covering and refilling the pit etc. as required.	Metre	600	189.90	113,940.00	
4.15	41.17	Laying of one number armoured / unarmoured cable 1.1.kV grade of size exceeding 120 Sq mm but not exceeding 400 Sq.mm direct in ground including excavation in all soil / murrum / soft rock, and sand cushioning, protective covering and refilling the pit etc. as required.	Metre	1000	206.10	206,100.00	
4.16	41.19	Laying of one number additional armoured / unarmoured power cable 1.1kV grade of size exceeding 25 Sq.mm but not exceeding 120 Sq.mm direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the pit etc. as required.	Metre	100	108.00	10,800.00	
4.17	41.20	Laying of one number additional armoured / unarmoured power cable 1.1kV grade of size exceeding 120 Sq mm but not exceeding 400 Sq mm direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the pit etc. as required.	Metre	200	124.20	24,840.00	

S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
					-	
4.18	41.22	Laying of one number armoured / unarmoured power cable 1.1 kV grade of size exceeding 25 Sq.mm but not exceeding 400 Sq mm in the existing RCC Hume /Stone ware/G.I. Pipe/ surface in existing trench as required.	Metre	400	38.70	15,480.00
					-	
4.19	41.23	Laying of one number armoured / unarmoured power cable 1.1 kV grade of size not exceeding 25 Sq.mm in the existing masonry open duct as required.	Metre	50	18.00	900.00
					-	
4.20	41.24	Laying of one number armoured / unarmoured power cable 1.1kV grade of size exceeding 25Sq.mm but not exceeding 400 Sq.mm in the existing masonry open duct as required.	Metre	600	38.70	23,220.00
					-	
4.21	CPWD DSR (8.5.2)	Laying of one number XLPE power cable of 33 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.	Metre	50	270.90	13,545.00
					-	
	a	Above 120 sq. mm and upto 400 sq. mm			-	
					-	
4.22	41.53	Supply & Fixing Cable Route Marker round / square size 100mm, 5mm. Thick, G.I. Plate duly bolted/welded on 35mm x 35mm x 5mm angle iron 60cm long including excavation, grouting in cement concrete 1:2:4 (1cement and 2 coarse sand :4 graded stone aggregate 20mm nominal size) foundation of size 20cm x 20cm x 30cm duly embedded in ground 30cm depth or as required.	Each	10	225.00	2,250.00
					-	
		SUB TOTAL (DSR Items)				4,331,174.40

S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
5.0		EARTHING AND MISCELLANEOUS ITEMS. (DSR Items)				
5.01	37.3	Earthing with G.I. Earth plate 600mm X 600mm X 6mm thick including accessories and providing masonry encloser in cement mortor, cover plate having locking arrangement on the top and G.I. watering pipe 20mm dia 2.7 Metre long etc. (but without charcoal or coke and salt) complete as required.	Each	22	2,655.90	58,429.80
					-	
5.02	37.4	Earthing with Copper Earth plate 600mm X 600mm X 3mm thick including accessories and providing masonry encloser in cement mortor, cover plate having locking arrangement on the top and G.I. watering pipe 20mm dia 2.7 Metre long etc. (but without charcoal or coke and salt) complete as required.	Each	27	7,211.70	194,715.90
					-	
5.03	37.5.2	Add Extra for using salt and charcoal / coke for G.I. Plate or Copper plate earth electrode as required including excavation in hard rock and refilling the pit with black soil.	Each	53	3,017.70	159,938.10
					-	
5.04	37.6	Supplying and laying 8 SWG (4 mm) copper wire at 0.5 Metre below ground level as conductor earth electrode including soldering etc. as required.	Metre	100	76.50	7,650.00
					-	
5.05	37.7	Supplying and laying 6SWG (5.6mm) G.I. wire at 0.5 Metre below ground level as conductor earth electrode including soldering etc. as required.	Metre	1200	20.70	24,840.00
					-	
5.06	37.9	Supplying and laying 25mm X 6mm G.I. strip at 0.5 Metre below ground level as strip earth electrode including soldering etc. as required.	Metre	800	101.70	81,360.00
					-	
5.07	37.14	Providing & fixing 25mm X 5mm copper strip on surface or recessed for connection etc. as required.	Metre	350	727.20	254,520.00
					-	
5.08	37.15	Providing and fixing 25mm X 4mm G.I. strip on surface or in recessed/concealed for connection etc. as required.	Metre	400	110.70	44,280.00
					-	
5.09	37.16	Providing and fixing 6 SWG (5.6mm) G.I. wire on surface or in recessed/concealed for loop earthing as required.	Metre	200	17.10	3,420.00
					-	
5.10	37.18	Supplying and laying 50mm X 6mm G.I. strip at 0.5 metre below ground level / surface as strip earth electrode including jointing etc. as required.	Metre	300	85.50	25,650.00
					-	
5.11	41.14	Supplying and installing Double wall corrugated pipes (DWC) of HDPE (IS 14930 Part II -marked) for cable laid under ground with necessary material and at required depth upto 90cm. below road/ground surface, including excavation, back filling with excavated material, ramming and making the surface good.				
					-	

S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount	
					-		
	i	41.14.2	63.00mm outside dia.	Metre	100	162.00	16,200.00
	ii	41.14.3	90.00mm outside dia.	Metre	200	209.70	41,940.00
	iii	41.14.6	180.00mm outside dia.	Metre	20	370.80	7,416.00
	v	41.14.7	210.00mm outside dia.	Metre	20	498.60	9,972.00
					-		
5.12	41.54	Supply and erection of hot dip G.I. cable tray perforation not more than 17.5% for specific dimensions along with tees, bends.. The cable tray shall be hang from ceiling/ fixed to wall with necessary angle/flat iron / hanging rod, for ceiling suspensions, clamps, anchor fastner, nuts, bolts, washers, not mor than 1.5 mtr. apart complete as per specification to complete the job. The tray shall be as follows :-			-		
	i	41.54.2	150 x 50 mm x 1.6mm thick	Per Mtr	200	514.80	102,960.00
	ii	41.54.3	300 x 50 mm x 1.6mm thick	Per Mtr	300	759.60	227,880.00
	iii	41.54.4	450 x 50 mm x 2 mm thick	Per Mtr	200	1,166.40	233,280.00
	iv	41.54.5	600 x 50 mm 2 mm thick	Per Mtr	100	1,442.70	144,270.00
					-		
5.13	42.71	Supplying & fixing of Fire Extinguisher/Refills as per IS specification			-		
					-		
	i	42.71.1	ABC type duly refilled 6 Kg & ready to use	Each	6	3,254.40	19,526.40
					-		
5.14	42.71.5	4 buckets set with sand, self supported M.S.stand i/c shed duly painted with red colour as per IS.	Each	2	3,966.30	7,932.60	
					-		
5.15	42.72	Supply of Rubber mat 2 x 1.0Mtr, 1100V Tested each	Mtr	12	1,423.80	17,085.60	
					-		
5.16	42.74	Supply of Hand Gloves 33KV Tested	Pair	2	844.20	1,688.40	
					-		
5.17	42.77	Supply of First Aid Box complete with medicine & bandage as per specification.	Set	1	508.50	508.50	
					-		
5.18	42.78	Supply of shock instruction chart duly framed with glass, as reqd.	Each	2	305.10	610.20	
					-		
		SUB TOTAL			-	1,686,073.50	
					-		
6.0		UPS			-		
					-		
7.0		LIGHTNING PROTECTION SYSTEM			-		
					-		
7.01	37.19	Providing and fixing of lightning conductor finial made of 25mm dia 300mm long copper tube having single prong at top with 85 mm dia 3 mm thick copper base plate including holes complete as required.	Each	4	2,233.80	8,935.20	
					-		

S.N.	SOR MP PWD 2014 Item Code	Description	Unit	Total Qty	Rate	Amount
7.02	37.22	Rivetting / Sweating and soldering of copper / G.I. Tape (with another copper / G.I. Tape, base of finial or any other metallic object) as required.	Each	17	102.60	1,744.20
					-	
7.03	37.23	Providing and fixing copper tape 20mm X 3mm thick on parapet and surface of wall of lightening conductor as required (for Horizontal runs)	Mtr	1100	331.20	364,320.00
					-	
7.04	37.24	Providing and fixing copper tape 20mm X 3mm thick on parapet and surface of wall of lightening conductor as required (for Vertical runs)	Mtr	600	369.90	221,940.00
					-	
7.05	37.29	Providing and fixing " Testing Joint" made by 20mm X 3mm thick copper strip 125mm long with 4 Nos of tinned Brass bolts, Nut, check nuts and spring washers etc. complete as required .	Each	17	258.30	4,391.10
					-	
7.06	37.31	Providing and laying copper tape 32mm X 6mm thick for earth electrode directly in ground as required	Mtr.	70	1,154.70	80,829.00
		SUB TOTAL				682,159.50
8.0		STREET LIGHTING				

EXTERNAL ELECTRICAL ESTIMATE OF CONVENTIAL CENTRE						
AT						
JABALPUR						
S.N.		Description	Unit	Qty	Rate	Amount
1.0		SUB STATION EQUIPMENT (Non DSR Items)				
1.01		33 KV 4 POLE STRUCTURE				
1.02		33kV HT METER				
	i	Supplying, erection, testing and commissioning of 33 KV, 3 phase, 50 Hz. CT, PT Cubical with meter as per electricity board requiremnt including caliberation of the same and handing over to the Electricity board complete as required.	Set	1	183,425.00	183,425.00
1.03		33KV SINGLE BOARDS HT PANEL (IN SUBSTATION)				
		Supplying, erection, testing and commissioning of 630A, 33KV, 3 phase, 50 Hz. metal clad, dead front, single Board,VCB Panel, 1000MVA repturing capacity having one incoming and outgoing as per specification and requirement.	Set	1	942,294.00	942,294.00
1.04		TRANSFORMER.				
		Supplying, Receiving, erection, testing and commissioning of 1600kVA, 33kV/ 415V, 3 phase, 4 wire 50 Hz. Oil Type copper wound Transformer for outdoor duty with + 10 % to - 15% steps of 1.25% On load Tap Changer with with cable box at primary and secondary end shall be connected through Bus trunking with Winding Temperature Indicator, Oil temperature indicator and Buchholz relay, restricted earth fault CT, MOG with contact and wiring upto Marshal Box complete as per specification etc. as required.	Set	1	2,420,420.00	2,420,420.00
1.05		LT PANEL Cum. SYC. PANEL, MAIN DISTRIBUTION BOARDS AND SUB DISTRIBUTION BOARDS				
1.05.1		MAIN LT PANELS				
		Supplying, installation, testing and commissioning of 415V, 3 Phase, 50 Hz., 4 wire system, sheet steel clad, dust and vermin proof cubical and Indoor type floor mounted, free standing extendible type Main LT Panel with IP - 42 protection, compartmentalized design and fabricated out of 2 mm / 1.6 mm CRCA sheet steel complete with Aluminium Bus bars, Electrical interlocks as per the various status of all the equipments indicated on the drawings. Providing & Fixing of base plate / channel, P/F the following Switchgears, complete with earth Bus bar throughout the length of the panel, terminal arrangement for Incomings / Outgoings cables and also outgoing terminations for various sizes of cables, The incoming and outgoing feeders shall be accommodated in a modular multi-tier arrangement, adequate size bus duct/cable alley, Sign writing, Painting, Earthing, Numbering, Danger plate etc. complete as required as per specifications and drawing.(LT Panel shall be extendable type)				

S.N.	Description	Unit	Qty	Rate	Amount
i.	MAIN LT PANEL				
	INCOMING:				
	1 no. 2500A 415V, 4P 50kA EDO ACB with Microprocessor based release having O/L, S/C/ , E/F, RPR , O/V, U/V Protection and ON /OFF/TRIP Indications with MCB.				
	2 nos. 800A 415V, 4P 50kA EDO ACB with Microprocessor based release having O/L, S/C/ , E/F, RPR , O/V, U/V Protection and ON /OFF/TRIP Indications with MCB.				
	3 nos. Digital type Multifunction Meters to show (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with cast resin CTs.and communication port.				
	3 Set of LED phase indicating lamps with MCB protection.				
	3 nos. Trip Circuit Supervision relays.				
	1 nos. 25kVAR capacitor bank with 63A TP isolator, with one set of indicating Lights.				
	1 no. Dual source electronic type Auto matic power factor correction relay.				
	2 nos. TPN surge protection device of Class 1 & 2.				
	1 no. Restricted earth fault relays.				
	BUSBARS:				
	1 Set of TPN aluminium bus bar of minimum of 3000 A capacity with heat shrinkable coloured sleeves and i/c DMC/SMC bus bars supports at required intervals complete for cross section, size supports & their spacing etc, for withstanding fault level of 50 KA for 1 Sec.				
	1 Set of TPN aluminium bus bar of minimum of 1000 A capacity with heat shrinkable coloured sleeves and i/c DMC/SMC bus bars supports at required intervals complete for cross section, size supports & their spacing etc, for withstanding fault level of 50 KA for 1 Sec.				
	Electrical Interlocking between all incomers and Bus Couplers through PLC .				
	BUS COUPLER :				
	1 no. 800A 415V, 4P 50kA EDO ACB with inbuilt O/L, S/C Protection and ON /OFF/TRIP Indications with MCB.				
a.	OUTGOING FROM BUSBAR SECTION - 1				
	2 nos. 400A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	1 no. 250A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	1 no. 160A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	2 nos. 125A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				

S.N.	Description	Unit	Qty	Rate	Amount
b.	OUTGOING FROM BUSBAR SECTION - 2				
	2 nos. 630A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	2 nos. 500A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	2 nos. 400A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	1 no. 320A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	2 nos. 200A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	7 nos. 125A 415V, TP+Neutral Link MCCB of 50kA with Microprocessor release, O/L and S/C protection and a set of CT's., Multi Function meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with communication port.				
	The synchronising of the DG Set shall be obtained through the DG Set controller however the interlocking in the panel and the load mangement of the DG Set shall be Achieved through a Micro PLC installed in the LT Panel with manual overriding facility , The panel shall be complete with the Battery charger of the each DG Set and the DC supply / UPS for the relay , protection and PLC.	Set	1	3,170,550.00	3,170,550.00
1.05.2	CAP. PANEL				
i	CAP. PANEL (375 kVAR)				
	INCOMER				
	1 no. 630A 415V, TP+N 50kA MCCB having O/L, S/C/ , E/F, O/V, U/V Protection and ON /OFF/TRIP Indications with a set of CT's., Multi Function meter (V+A+Hz.) with communication port.				
	BUSBARS:				
	1 Set of TPN aluminium bus bar of minimum of 800A capacity with heat shrinkable coloured sleeves and i/c DMC/SMC bus bars supports at required intervals complete for cross section, size supports & their spacing etc, for withstanding fault level of 50KA for 1 Sec.				
	OUTGOING				
	5 nos. 50kVAR capacitor bank with 125A TP MCCB of 25kA and Contactor, one set of indicating Lights and Push Buttons.				
	3 nos. 25kVAR capacitor bank with 63A TP MCCB of 25kA and Contactor, one set of indicating Lights and Push Buttons.				

S.N.	Description	Unit	Qty	Rate	Amount
	2 nos. 12.5kVAR capacitor bank with 40A TP MCCB of 25kA and Contactor, one set of indicating Lights and Push Buttons.				
	2 nos. 10kVAR capacitor bank with 32A TP MCCB of 25kA and Contactor, one set of indicating Lights and Push Buttons.				
	1 no. 5kVAR capacitor bank with 16A TP MCCB of 25kA and Contactor, one set of indicating Lights and Push Buttons.	Set	1	487,715.00	487,715.00
1.05.3	MAIN DISTRIBUTION BOARD				
	Supplying, fixing, testing and commissioning of 415V, 3 Phase, 50 Hz., 4 wire system, sheet steel clad, dust and vermin proof cubical and indoor type floor mounted, free standing Main Distribution Board with IP - 42 protection, compartmentalized design and fabricated out of 2 mm / 1.6 mm CRCA sheet steel complete with Aluminium Bus bars, Providing & Fixing of base plate / channel, P/F the following Switchgears, complete with earth Bus bar throughout the length of the panel, terminal arrangement for Incomings / Outgoings cables and also outgoing terminations for various sizes of cables, The incoming and outgoing feeders shall be accommodated in a modular multi-tier arrangement, adequate size bus duct/cable alley, Sign writing, Painting, Earthing, Numbering, Danger plate etc. complete as required as per specifications and drawing.				
	i MDB AHU				
	INCOMER :				
	1 no. 320A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 300/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	400A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	3 nos. 125A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.				
	3 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	179,975.00	179,975.00
	ii MDB LIFT				
	INCOMER :				
	1 no. 160A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 150/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	200A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	10 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	174,168.00	174,168.00
	iii MDB EQUIPMENTS AT TERRACE				

S.N.	Description	Unit	Qty	Rate	Amount
	INCOMER :				
	1 no. 200A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 200/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	300A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	6 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	168,360.00	168,360.00
iv	MDB POWER				
	INCOMER :				
	1 no. 200A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 200/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	300A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	5 nos. 100A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.				
	5 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.				
	6 nos. 63A, 415V, Ics=10kA, 4P MCB.	Set	1	185,783.00	185,783.00
v	MDB LIGHT				
	INCOMER :				
	1 no. 125A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 150/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	200A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	14 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	220,628.00	220,628.00
vi	MDB EMERGENCY				
	INCOMER :				
	1 no. 125A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 150/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	200A TPN bus bars of Cu. alloy.				
	OUT GOING:				

S.N.	Description	Unit	Qty	Rate	Amount
	11 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	185,783.00	185,783.00
vii	MDB AUDITORIUM				
	INCOMER :				
	1 no. 250A, 415V, Ics=35kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 250/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	300A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	2 nos. 200A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.				
	1 no. 125A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.				
	5 nos. 25-63A, 415V, Ics=25kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	174,168.00	174,168.00
viii	SDB LIGHT- 1,2 & 3				
	INCOMER :				
	1 no. 63A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 60/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	5 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	3	121,900.00	365,700.00
ix	SDB LIGHT-4				
	INCOMER :				
	1 no. 63A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 60/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	6 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	124,258.00	124,258.00
x	SDB POWER - 1,2,3 & 4				
	INCOMER :				
	1 no. 100A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				

S.N.	Description	Unit	Qty	Rate	Amount
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 100/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	5 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	4	114,943.00	459,772.00
xi	SDB EMERGENCY- 1 & 3				
	INCOMER :				
	1 no. 63A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 60/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of Cu. alloy.				
	OUT GOING:				
	5 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	2	114,943.00	229,886.00
xii	SDB EMERGENCY- 2				
	INCOMER :				
	1 no. 63A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 60/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of Cu. alloy.				
	OUT GOING:				
	7 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	134,665.00	134,665.00
xiii	SDB EMERGENCY- 4				
	INCOMER :				
	1 no. 125A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 150/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	200A TPN bus bars of Cu. alloy.				
	OUT GOING:				
	15 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	206,713.00	206,713.00
xiv	SDB AHU-1				
	INCOMER :				
	1 no. 63A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				

S.N.	Description	Unit	Qty	Rate	Amount
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 60/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	5 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	125,408.00	125,408.00
xv	SDB AHU-2				
	INCOMER :				
	1 no. 160A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 150/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	200A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	7 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	171,868.00	171,868.00
xvi	SDB AHU-3				
	INCOMER :				
	1 no. 125A, 415V, Ics=25kA, 4P MCCB with thermal magnetic trip unit.				
	1 no. Digital multifunction meter (V, A, kWh, KVAh, KW, KVA, KVAR, PF, Hz.) with a set of cast resin CTs 150/5A and communication port.				
	1 set of Phase indicating lamp with MCB				
	BUS BARS:				
	150A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	6 nos. 25-63A, 415V, Ics=16kA, TP +Neutral Link MCCB with thermal magnetic trip unit.	Set	1	141,623.00	141,623.00
1.05.4	2500A 4P ACB Near Transformer.				
	Supplying, fixing in position, testing and commissioning of IP-55, M.V. cubical type totally enclosed dust, dump and vermin proof 2500A, 4P 415 volts fixed type ACB with inbuilt protection in weather proof enclosure for outdoor duty connection with suitable capacity aluminium strips/rods, connection of incoming and outgoing cables with thimbles, indication lamps, powder coated complete as required.	1	Set	286,810.00	286,810.00
	SUB TOTAL				10,739,972.00
2.00	LT BUS DUCT				
	Supply, delivery, erection testing and commissioning of sandwich type 415 V, 3 Phase, 4 wire, Aluminium Bustrunking with IP - 65 protection, design and fabricated out of 2 mm / 1.6 mm CRCA sheet steel complete including bends, flexible, end connections and earth bus etc. complete as required				

S.N.	Description	Unit	Qty	Rate	Amount
i	2500A of 50 kA.	Mtr	5	55,000.00	275,000.00
	SUB TOTAL				275,000.00
3.00	DG SET				
3.01	Providing ,Installing and commissioning of Silent type Diesel generator set along with having Prime Power rating of 500 kVA ,415 volt at 1500 Rpm,0.8 lagging power factor at 415 v suitable for 50 Hz, 3 phase system & 0.85 load factor and consisting of following				
a	Diesel Engine				
	Diesel Engine 4 stroke water cooled ,Electric start of suitable BHP AT 1500 RPM suitable for above output of alternator at 40 degree c,50 % RH & at 1000 meter MSL and conforming to BS 5514,BS 649,IS 10000,Capable of taking 10 % overloading for one hour after 12 hour of continuous operation. The engine will be fitted complete with all required accessories				
b	Engine mounted instrument panel fitted with and having digital display for following				
i	Start -stop switch with Key				
ii	water temperature indication				
iii	Lubrication oil pressure indication				
iv	Lubrication oil temperature indication				
v	Battery Charging Indication				
vi	RPM Indication				
vii	Over speed indication				
viii	Low Lub. Oil trip indication				
ix	Engine Hours indication				
c	Alternator				
	Synchronous alternator rated at 500 KVA,415 volts at 1500 Rpm ,3 Phase 50 Hz,AC supply with 0.8 Lagging power factor at 40 Degree C,50 % RH & at 1000 Metre MSL.The alternator shall be having SPDP enclosure,Brushless,Continous duty, Self excited and self regulated through AVR conforming to IS: 4722/BS 2613 suitable for tropical condition and with class-F/H insulation				
d	Base Frame &Foundation				
	Both the engine and alternator shall be mounted on suitable Base frame made up of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendation of manufacturer				
e	Exhaust System				
	Dry exhaust manifold with hospital exhaust silencer and catalytic convertor				
f	Starting System				
	12V/24V DC Starting system comprising of starter motors : Voltage Regulator and arrangement of for initial excitation complete with suitable nos of batteries(25 Plates,180 Amp. Hours Capacity Lead acid type)as required as per specification				
g	Acoustic and weather proof enclosure with arrangement fresh air intake for cooling of the engine & alternator,extraction,discharging hot air in to the atmosphere as per specification	Set	2	3239347.00	6,478,694.00

S.N.	Description	Unit	Qty	Rate	Amount
3.02	Supply, fixing and commissioning 990 ltrs capacity 16 SWG MS steel, Diesel oil Tank with manhole, PVC gauge, inlet and outlet connections with gate valve, drain plug, piping between tank and engine vent etc. mounted on suitable MS staging to maintain gravity flow of diesel oil FRLSom tank to DG set including painting etc. as required.	Each	2	50609.00	101,218.00
3.03	Supplying and fixing exhaust gas piping of following dia welded black MS,B class pipe conforming to IS :3589 cut to required lengths and installed with necessary Bends ,support and clamps, and anti-vibration mounting, insulation of exhaust system with mineral wool/Rockwool,50mm thick wire mesh & aluminium cladding etc as required as per specification				
	i 1x250mm dia Class - B MS pipe.	Mtr.	40	22864.00	914,560.00
3.04	Supply, fixing testing and commissioning of 25 mm dia. Class C, MS pipe with welded joints.	Mtr.	50	508.00	25,400.00
3.05	Designing, Supplying, Fabricating and installation of MS fabricated support for silencer complete with welding, grouting and painting etc. including providing the suitable support on DG set side and other side complete as per the instruction of the Engineer in charge / Architect	Kg	400	123.00	49,200.00
SUB TOTAL (NON DSR Items)					7,569,072.00
4.0	HT/LT CABLE				
4.01	Supplying the following 1100V grade XLPE Insulated Copper Conductor Armoured cables, overall PVC sheathed 1.1 KV grade cables conforming to relevant IS code and technical specifications.				
	i 12C x 2.5 sq.mm. Cu.. ARM. XLPE cable	RM	150	300.00	45,000.00
	ii 4C x 25 sq.mm. Cu.. ARM. XLPE cable	RM	70	872.00	61,040.00
	iii 4C x 16 sq.mm. Cu.. ARM. XLPE cable	RM	350	519.00	181,650.00
4.02	Supply of approved High-Tension XLPE cable (conforming IS-7098/II/85) as per ISI standard 3 core Armoured with Alu. Solid/stranded conductor ISI MARKED as required				
	i 3 CORE 185 Sq. mm XLPE CABLE 33 KV GRADE	RM	110	1577	173,470.00
SUB TOTAL					461,160.00
5.0	EARTHING AND MISCELLANEOUS ITEMS				

S.N.	Description	Unit	Qty	Rate	Amount	
5.01	Constructing brick masonry manhole in mortar 1:4 (1 cement : 4 coarse sand) R.C.C. top slab with 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement:4 coarse sand:8 graded stone aggregate 20 mm nominal size) finished with floating coat of neat cement and making channels in cement concrete 1:2:4: (1 cement:2 coarse sand:4 graded stone aggregate 20mm nominal size) finished with floating coat of neat cement complete as per stadard design :-					
	i	Inside size 30 x 30 cm and 45 cm deep incuding SFRC cover with frame (Heavy duty) with FPS brick class desination 75.	Set	10	3809	38,090.00
	ii	Inside size 45 x 45 cm and 60 cm deep incuding SFRC Cover with frame (Heavy duty) with FPS brick class desination 75.	Set	12	5316	63,792.00
5.02	Constructing brick masonry closed cable treanches with F.P.S. bricks of class deignation 75 in cement mortor 1:4(1 cement : 4 coarse sand) including earth excavation 10 cm thick concrete 1:5:10 (1 cement : 5 course sand : 10 graded stone aggregate 40 mm nominal size) and 25 mm thick cement concrete 1:2:4 (1 cement : 2 sand : 4 graded stone aggregate 12.5 mm nominal size) for filling haunches including 12 mm cement plaster 1:4 (1 cement : 4 sand) with a Rainforced RCC removable cover in panels of 450mm wide complete with floating coat of neat cement inside the treanch including the MS angle cable support (size 50mm x 6mm) as per the drawing in following sizes :-					
	i	750mm wide x 900mm depth	Mtr	10	14,582.00	145,820.00
	SUB TOTAL				247,702.00	
6.00	UPS					
6.01	Supply Installation, testing & Commissioning of microprocessor based 20 kVA UPS, with IGBT based Rectifier and Inverter or 6Pulse Rectifier with 5th Harmonic Filter along with ACTIVE Filter (Vendor to Define Rating of Active Filter with specifications). UPS Should be True Online Double Conversion (VFI as per IEC62040-3). 3Phase input & 3 Phase output each comprising of the following.					
	i.	THD(i) shall be less than 5% @ 100% load.				
	ii.	Input power factor shall be more than 0.98. from 50% to 100% load				
	iii.	Shall have Soft start Facility for Compatibility with Generators				
	iv.	Inverter capability to supply 150% load for 30 sec.				

S.N.	Description	Unit	Qty	Rate	Amount
v.	Shall not allow deep discharge of the battery. There should be a external MCCB available with UV trip coils. The MCCB should disconnect itself in case of UV or emergency conditions.				
vi.	Shall have inbuilt SNMP, Modbus Cards installed for monitoring on BMS.				
vii.	UPS to have inbuilt Static By-pass enabled	Set	2	247,500.00	495,000.00
6.02	Supply, fixing, testing and commissioning of battery Bank of 20KVA UPS at 0.80 output power factor strictly as per specification given in the document. Each individuals UPS of 20KVA shall have 15 min. battery back up. Battery Racks, Intercool & Inter Tier Connectors for the battery Banks, External MCCB with UV coils and UPS to Battery Cables for a distance of 20 mtrs.The battery shall comprise of 12 volt cell and size and combination of bank in terms of VAH shall be clearly mentioned with battery claculation with invertor efficiency as 0.94 or less, end of cell voltage shall be taken as 10.5 volts.	Set	2	76,500.00	153,000.00
6.03	Supplying, installation, testing and commissioning of accessories like Battery Rack, Interconnecting links, DC circuit breaker and cable between UPS & battery bank for above UPS.	Set	2	31500.00	63,000.00
6.04	Service Charges for Unloading, Shifting, Installation & Commissioning of above	Set	2	9000.00	18,000.00
	SUB TOTAL				729,000.00
7.00	LIGHTNING PROTECTION SYSTEM				
8.00	STREET LIGHTING				
8.01	Supplying, erection, testing and commissioning of steel pole of 3 meter height, coated with epoxy zinc phosphate primer and finished using environmentally stable polyurethane based paint with 6 Amp SP MCB C-Series and 32 Amp heavy duty connector etc. for making connections with suitable size of copper wire and thimbles / lugs in the connector box, base plate of 250mm x 250mm x 12mm thick, bolt size 4 nos M16 nut and bolt, bolt length 500mm. The pole shall be installed in cement concrete foundation (1:3:6) i.e. 1 cement, 3 coarse sand and 6 graded stone with the help of anchor bolts of 3/4" dia by laying iron bar mesh fabricated with 6mm dia iron bar, earthing of pole, connection etc. complete as required. (Eq to KLite cat no. KP 4772)	Nos.	49	15715	770,035.00
8.02	Supply, Erection, Testing & Commissioning Dual arm (1200mm) polar, street lighting luminaire, vertical entry type suitable for mounting on 60mm OD pipe/70mm square pipe/90mm square pipe Integrated with 2 nos of 60W LED Module Finished with pure polyester powder coated graphite grey / black. Prewired with LED driver and suitable for operation on 240V, 50Hz single phase ac supply LED Module : IP 67 (Eq tof KLite cat no. KP 5277).	Nos.	15	34287	514,305.00

S.N.	Description	Unit	Qty	Rate	Amount
8.03	Supply, Erection, Testing & Commissioning Single arm (1000mm) Mega polar, street lighting luminaire, vertical entry type suitable for mounting on 60mm OD pipe/70mm square pipe/90mm square pipe Integrated with 1 no. of 60W LED Module Finished with pure polyester powder coated graphite grey / black. Prewired with LED driver and suitable for operation on 240V, 50Hz single phase ac supply LED Module : IP 67 (Eq tof KLite cat no. KP 5280).	Nos.	34	19211	653,174.00
8.04	Supply, fixing, Testing & Commissioning of Surface mounted LED bollard 16W with IP 65 rating, Luminaire made of Hot dip galvanised with die-cast aluminium components and non corrosive SS fasteners, High efficiency translucent acrylic diffuser for glare free, uniform light distribution, EPDM gasket,GI mounting plate for bolting onto a foundation. Luminaire can be aligned on the mounting plate around 360°.The Light shall be fixed with proper nut/screw. The job includes cost of labour, Civil work and petty material required to complete the job to the entire satisfaction of EIC of the work.(The Light shall be Eq. to KLite cat no. KP 5291).	Nos.	31	7271	225,401.00
8.05	Supply, fixing, Testing & Commissioning of Surface mounted LED Shrub light 7W with IP 65 rating, Luminaire made of die cast aluminium alloy with non corrosive SS fasteners, Clear tempered safety glass diffuser retained by die cast aluminium frame, Swivel range of the luminaire in the horizontal axis +90°/-20°, Beam Angle 25°.The Light shall be fixed with proper nut/screw. The job includes cost of labour, Civil work and petty material required to complete the job to the entire satisfaction of EIC of the work.(The Light shall be Eq. to KLite cat no. 7052).	Nos.	4	4170	16,680.00
8.06	Supply, fixing, Testing & Commissioning of Inground LED light 14W with IP 67 rating, Luminaire made up of die-casting dark grey powder coated aluminium, corrosion resistance with low copper content, Hard chromeplated stainless steel 316 grade front ring, Silicone seal gasket. Stainless steel screws, Step tempered glass of 8mm thickness with static load resistance of 2578 kgs, Optical reflector efficiency >=85% . The Light shall be fixed with proper nut/screw. The job includes cost of labour, Civil work and petty material required to complete the job to the entire satisfaction of EIC of the work.(The Light shall be Eq. to KLite cat no. 4138).	Nos.	60	20733	1,243,980.00

S.N.	Description	Unit	Qty	Rate	Amount
8.07	Supply, fixing, Testing & Commissioning of 12W LED Linear wall washer light with High pressure aluminium die-cast and alloy body, anodised surface, Clear lines, corrosion resistant, High efficiency PMMA optical lens with tempered glass diffuser, effectively improves transmission of light, Heat sink design on the light body surface, increase the efficiency of heat-dissipation, Using silicone rubber leakproof structure design to ensure the high level of IP rating (IP 65), Luminaire provided with external driver, low voltage at 24Vdc assures safety. The Light shall be fixed with proper nut/screw. The job includes cost of labour, Civil work and petty material required to complete the job to the entire satisfaction of EIC of the work. (The Light shall be Eq. to KLite cat no. 3092).	Nos.	98	4623	453,054.00
8.08	Design, Manufacturing, supplying, fixing in position, testing and commissioning of the following front operated front access 2mm thick CRCA steel enclosure free standing, water, dust and vermin proof outdoor type Feeder pillars with IP-54 protection hinged and lockable doors complete with interconnections copper crimping lugs, brass glands bonding to earth and painting, suitable for use at 415 volts, 3 phase 4 wire 50 Hz system. The panels fault withstanding capacity shall be of 25 MVA at 415 volts. All live accessories part shall be shrouded and all equipment shall be finger touch proof. The bus bars shall be of colour coded with Heat shrinkable PVC insulated sleeves.				
	INCOMER :				
	1 no. 63A 415 Volts, TP+N MCCB 25kA with Thermal magnetic trip unit and ON, OFF, TRIP Indicating lamps.				
	1 Set of phase indicating lamp with MCB				
	1 no. 70A 415 Volts, 4P Contactor with time switch.				
	BUS BARS:				
	300 A TPN bus bars of aluminium alloy.				
	OUT GOING:				
	3 Nos. 16A 4P MCB of 10kA.				
	12 Nos. 16A DP MCB of 10kA.	Set	1	87,078.00	87,078.00
	SUB TOTAL				3,963,707.00
	STAGE LIGHTING				
1	1000W, 240 Volt, PAR Sealed Beam Light with CRC Sheet Metal and aluminum die casting, mat black color, yoke & clamp.	NOS	12	5 200	62,400
2	1000W Halogen Fresnel light consisting of 1000W Halogen Bipin T- 11 lamp, 150mm dia imported Fresnel lens, Imported socket, bottom sliding knob, yoke, colour frame & suitable clamp.	NOS	10	15 500	155,000
3	750 / 575W Profile Spot Light with Voltage: 220v/50Hz, Lamp: 220v HPL 750W / 575W G9.5 Base, Color Temperature: 3200k, Optional Degree: 19°/26°/36°/50°, Weight: 6kg, Size: 53×26×28cm.	NOS	6	29 500	177,000

S.N.	Description	Unit	Qty	Rate	Amount
4	1000W Halogen Plano convex spot light complete with 1000 W Halogen Bipin T-11 lamp, spherical anodized reflector, imported socket, 150 mm dia plan convex lens, bottom sliding knob, yoke, color frame & suitable clamp.	NOS	2	14 500	29,000
5	LED PAR: 54 x 3W (12R +18G + 12B + 12W), 15°/30°/45°/60° LED PAR having life of 30,000 Hrs & delivers 4200 Lumens. The fixture should have capability to work on standby mode, via DMX 512 or integrated sound – 2 light programs. Standard Accessories: Barndoor	NOS	16	24 000	384,000
6	LED Long BAR Light with Electrical: Voltage: AC100~240V... 50/60Hz, Rated Power: 360W, LED: Total LED: 80pcs (20R+20G+20W), Beam Angle: 10°、15°、30°. Functions: RGBW color mixing / Custom programs / Strobe / white Balance / RGB to White / RGB Calibration / Dimmer / Fan speed control / Color macros, Operation : DMX512: 3CHS / 4CHS / 5CHS / 10CHS / 12CHS / 16CHS / 30CHS / 40CHS / 60CHS.	NOS	6	42 000	252,000
7	Lighting Console with Internal Flash Drive, similar in functionality to a hard disk but faster and more rugged. Provides enough storage for:- The entire Fixture Library of more than 3,000 files, Over a hundred show files, Removable external Memory Stick, Cache the entire Fixture library of more than 3,000 files, Improved method of Fixture selection for Patching, New Locate Fixture button, Fixture Selects (selecting the top row of faders), 2048 Channels, 240 Intelligent Fixtures, 240 Dimmer Control Channels, Theatrical Plotting and Playback functions, Shape Generator for instant creation of patterns and effects, 15 Playback Masters controlling 450 memories, chases or cue lists, MIDI and Bass, Mid, Treble sound to light triggers, Color VGA output fitted as standard.	NOS	1	4 10 000	410,000

S.N.	Description	Unit	Qty	Rate	Amount
8	12CH×4KW Electronic Dimmer with Dual DMX signals input and can work simultaneously, Fade accuracy: 4096 (16 bit) , Integrative design, light weight, easy for maintenance, Independent dimming, Soft and hard patch for optional, English menu, LCD display, user-friendly interface, Response time: quick, normal or slow, helping prolong lamp's life, 50 backup cues, run both manually and automatically, Status selectable when no DMX signal, 3 working modes for each channel: normal, fix and switch, 5 User-selectable curves: linear, square, s-curve, extraction or user-defined, Very low interference, Over load and Neutral-lost warning system force to limit output, Each dimmer output can be set as range of 110 to 250VAC Technical parameter, Voltage: 160Vac~240 Vac, Frequency: 45Hz~65Hz, Fade accuracy: 4096 (16 bit), Auto voltage compensation: effective with a 10% voltage variation input, output variation 1%, Power Consumption: 60W, Output: 4KW for 24 channel, Signal: DMX-512.	NOS	1	1 40 000	140,000
9	SPLITTER DMX Splitter with one DMX input and 6 buffered outputs and 3 pin / 5 pin XLR connectors.	NOS	1	35 000	35,000
10	Inter connection wiring for Dimmer to Control Room with required connectors.	NOS	1	25 000	25,000
11	Light Point Wiring from Patch Panel/ Distribution Board to be provided near stage to various stage light fixtures with 2.5 Sq.mm 3 Core PVC Insulated and PVC Sheathed Cable (ISI Mark) including Cable Tray of suitable size for laying these wires on the tray including 20 amps metallic clad sockets/ 15 Amp Socket to direct points with box at top.	NOS	65	6 500	422,500
12	DMX Wiring Points	NOS	24	3 500	84,000
13	C Clamps & Safety Chains	NOS	58	2 800	162,400
14	SMOKE MACHINE 1500 W	NOS	1	36 000	36,000
	TOTAL				2,374,300

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HVAC WORKS						
SUMMARY						
#	DESCRIPTION		AMOUNT (INR)			
1	EQUIPMENT	Rs	22,677,950.00			
2	CHILLED WATER PIPING AND VALVES	Rs	4,247,866.00			
3	CONDENSER WATER PIPING AND VALVES	Rs	2,366,221.00			
4	AIR DISTRIBUTION	Rs	19,914,295.00			
5	THERMAL INSULATION	Rs	5,693,500.00			
6	ELECTRICAL	Rs	5,192,919.00			
	TOTAL	Rs	60,092,751.00			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.0	EQUIPMENT					
1.1	<u>WATER COOLED SCREW WATER CHILLER with VFD</u>					
	Supply,Installation,testing and commissioning of,Factory manufactured,and run tested,Screw type,Water cooled,vapour compression,liquid chilling package, complete in all respect,as required for successful commissioning and operation.					
	The chiller shall be complete with single/multiple,semi hermetic / hermetic,rotary single/ twin rotor, screw compressor with suction gas cooled motor.The motor shall be two pole,with inherent thermal overload protection in each phase.The motor shall be suitable for 3 Ph,415 +/-10% V,50 c/s AC supply.The compressor shall be directly coupled to motor.Capacity control shall be stepless,using slide valve / solenoid valve, with minimum capacity as 20% of rated cooling capacity.					
	The evaporator and water cooled condensor shall be of shell and tube type, cooler shall be flooded / DX type with adjustable refrigerant flow metering system design.The chiller shall be complete with all accessories as mentioned here-under:					
	Refrigerant piping, valves,oil separator					
	Unit mounted/stand alone,close transition, VFD starter with protections					
	Microprocessor based,BMS compatible control panel with open protocol					
	First charge of oil and refrigerant.Refrigerant acceptable shall be R - 134a					
	Vibration isolation pads , a pair of flow switch/Differential pressure switch.					
	Any terminal box for cable termination,if required.					
	All other details shall be as per NIT specifications.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Chillers of capacity 200 TR & above shall be AHRI certified The computerised selection in AHRI format , generated by the selection software for the duty and AHRI conditions should be enclosed with offer.					
	Duty conditions and minimum performance criteria are as under:					
	Minimum efficiency criterion at AHRI condition,AHRI 550/590-1998.					
	For (capacity < 150TR(350KW) : COP minimum : 4.70 @ AHRI Conditions					
	IPLV @ duty condition shall not be less than 5.49 at AHRI conditions					
	Actual capacity at duty conditions : As mentioned below.					
	Fluid:Water					
	Chilled water in : 56 Deg F , Chilled water out : 44 Deg F , Chiller Fouling factor : 0.00025 (Water Flow rate: 2 USGPM / TR)					
	Cooler Water pressure drop : 8 M wg (max)					
	Chiller to be selected and sized for : Condenser water in : 89 Deg F , Condenser water out : 99 Deg F , Fouling Factor : 0.00075 (Water flow rate : 3 USGPM/TR)					
	Condenser Water pressure drop:9.0 M wg,(max)					
	Design water pressure for both condensor and cooler Standard, (10 kg/sqcm).					
	Performance Testing at works- at four points namely 25% ,50%,75% & 100% load at site operating conditions,to verify the Full load power drawn (IKW/TR @ duty conditions mentioned above) & NPLV at reducing entering condensor water temperature.These tests may be conducted also at constant entering water temperature to verify the lowest capacity at which chiller operation is stable.					
	Chiller to conform to ARI 550/590 conditions as pre-requisite, but to be also tested for the constant and reducing condenser inlet and outlet temperature (site conditions : 89 Deg F inlet and 99 Deg F outlet for the specified kW/ TR at full load & NPLV at reducing condenser water entry temperature.					
	Provide adapter boxes with flexible copper wire / cables and suitable link for termination of aluminum cables					
	Flow switch and interconnecting cable between flow switch and chiller microprocessor shall be included					
	Chiller package (evaporator) should be factory insulated					
	Suitable vibration isolation pads shall be included in the cost					
	Chiller shall have modbus communication card to replicate all chiller parameter over BMS terminal.					
	IKW/TR @ duty condition shall not be more than 0.72					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Chilling machine as described above, with actual capacity of 150 TR- screw chiller at above duty parameters. (2W+1s)	No.	3	2,590,500.00	7,771,500.00	
1.2	PUMP SETS					
1.2.1	CONDENSER WATER PUMPS					
TYPE	End suction Vertical split casing / vertical inline pump					
	Supply, installation, testing and commissioning of split casing centrifugal pumps for condenser water recirculation , complete with TEFC squirrel cage motors. The motor selected shall be energy efficient having efficiency (Class I) at full load ranging between 91.5% to 94% in accordance with motor rating as per specification. The pump should be complete with the base plate, and all necessary accessories such as vibration isolators (spring mounted) , mechanical seals, gland drain connections mechanical coupling, coupling guards etc. Capacity of pump sets , nett head is as given below: All the pumps mentioned below shall be suitable for operation on 415+/- 15 % Volts , 50 Hz , 3 Phase AC power supply. & the minimum efficiency of pump shall be 75%					
3w+1s	450 USGPM * 28 M head, PN-16 rated ; Tentative motor rating : 12 kW / pump	No.	4	260,000.00	1,040,000.00	
1.2.2	PRIMARY VARIABLE PUMPING SYSTEM					
TYPE	Supply, installation, testing and commissioning of chilled water primary pump set each capable of delivering the specified flow rate comprising the following and complete as per specifications.					
	End suction centrifugal pumps complete with suitable HP, TEFC induction motor with class 'F' insulation operating on 415 + 10% volts, 3 phase, 50 cycles AC supply for each pump.					
3w+1s	1no. Primary variable controller to control following nos.. Pumps. Suitable to operate on Sensorless operation mode for pumps & should be capable to Modulate Bypass valve to confirm minimum flow requirement across evaporator ckt of chiller. Cost of control cabling shall be included.					
	3 Nos. adjustable Frequency drives integrated with pump . Motor monuted VFD shall be IP - 55 Rated and supplied along with DC Chokes for harmonics filtration. Integrated VFD shall be capable to operate on Sensorless Control application along with PVF controller.					
	DPT's at load/ Sensorless Control					
TYPE	Suction guide, Triple duty valve to be supplied by pump manufacturer for unit responsibility.					
	Water flow rate – 300 GPM ; Head – 30 mtr, PN-16 rated ; Motor rating 10 KW/PUMP (2w+1s)	No.	4	493,500.00	1,974,000.00	
	IN CASE OF PUMPS WITH DP SENSOR THAN COST OF DP SENSOR AND WIRING FRON DP SENSOR TO CONTOLLER SHALL BE INCLUDED IN BID.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.3	COOLING TOWERS					
	Supply, installation, testing & commissioning of Induced draft cooling towers (MULTIPLE CELLS BEYOND 200 TR CAPACITY) , in accordance with the specifications laid out earlier in this document under the related chapter and in accordance with BS4485. The cooling tower shall be of FRP construction, complete with sump and aluminum ladder, isolating switch and other accessories to make it fully operational and maintainable. The fan/fan motor shall be isolated from the cooling tower structure using spring isolators of suitable deflection properties.. The cooling tower model shall be selected to suit site conditions as mentioned below herein.					
	Duty conditions (Jabalpur) : Summer DB : 42.8 Deg C , Summer WB : 23.9 Deg C ; Monsoon DB : 33.9 Deg C , Monsoon WB :28.9 Deg C					
	Type of fan : Axial ,Type of motor : SPDP weather proof, 720 RPM fan.					
1.3.1	Water Flow rate : 450 USGPM , 2250000 BTU/hr (Actual Capacity)(Based on duty condition specified) & to be designed for an approach to wet bulb @ 3° C ; airside pressure drop @ ~ 100 mm. Entering water temperature :37.2 Deg C, Leaving water temperature : 31.6 deg C. (Cooling tower capacity shall be CTI approved)	No.	3	373,000.00	1,119,000.00	
1.4	AIR HANDLERS					
	Supply, Installation ,Testing and commissioning of sheet metal sectionalised construction Single/double skin AHU , each complete with sections and filters as detailed in the air handler schedule , and also complete with chilled water coils of copper tube and aluminum fins construction , as mentioned in the schedule of AHUs , BMS and VSD compatible squirrel cage induction motor , DIDW centrifugal fan , belt drive package and vibration isolation (spring mounted).					
	Include cost on account of all allied works such as Supply and Installation of 2 nos. 8 mm thick (150mmx150mm)Neoprene Rubber Waffle Type Pads sandwiched with 22G GI sheet in between to be installed between the RCC block and the Air Handling Unit base frame. The neoprene pads shall be in accordance with the manufacturer's instructions for the size and weight distribution of the equipment supported. Supply and Installation of additional Fire Resistant Fabric Flexible Connection to be installed outside between the Fans outlet and the ducting to provide flexibility of movement in case of a seismic event and to prevent transmission of vibration from the unit to the duct. The fabric should be of glassfiber with a silicon coating (Fire proof) and extruded metal flanges. The fabric should conform to BS 476 Part 7 Class 1 and NFPA 701.					
	Ceiling Suspended AHU					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.4.1	Double skin Ceiling suspended two pipe system (one coil) AHU 1000 CFM / 2.0 TR, DIDW fan forward curved centrifugal fan, 4 row deep chilled water coil , pre filter, 35 mm SP WG with three phase motor (VFD Compatible)	No.	1	31,000.00	31,000.00	
1.4.2	Double skin Ceiling suspended two pipe system (one coil) AHU 2000 CFM / 4.0 TR, DIDW fan forward curved centrifugal fan, 4 row deep chilled water coil , pre filter, 35 mm SP WG with three phase motor (VFD Compatible)	No.	2	40,000.00	80,000.00	
1.4.3	Double skin Ceiling suspended two pipe system (one coil) AHU 2200 CFM / 4.5 TR, DIDW fan forward curved centrifugal fan, 4 row deep chilled water coil , pre filter, 35 mm SP WG with three phase motor (VFD Compatible)	No.	1	44,000.00	44,000.00	
1.4.4	Double skin Ceiling suspended two pipe system (one coil) AHU 2500 CFM / 5.0 TR, DIDW fan forward curved centrifugal fan, 4 row deep chilled water coil , pre filter, 35 mm SP WG with three phase motor (VFD Compatible)	No.	2	46,500.00	93,000.00	
1.4.5	Double skin Ceiling suspended two pipe system (one coil) AHU 2800 CFM / 6.0 TR, DIDW fan forward curved centrifugal fan, 4 row deep chilled water coil , pre filter, 35 mm SP WG with three phase motor (VFD Compatible)	No.	1	53,000.00	53,000.00	
1.4.6	Double skin Ceiling suspended two pipe system (one coil) AHU 3000 CFM / 5.5 TR, DIDW fan forward curved centrifugal fan, 4 row deep chilled water coil , pre filter, 35 mm SP WG with three phase motor (VFD Compatible)	No.	1	54,000.00	54,000.00	
	Floor Mounted AHU					
1.4.7	Double skin floor mounted horizontal two pipe system (one coil)AHU 5000 CFM / 10 TR, DIDW fan forward / backward curved centrifugal fan, 4 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) & Thermal break profile .	No.	1	89,000.00	89,000.00	
1.4.8	Double skin floor mounted horizontal two pipe system (one coil)AHU 6000 CFM / 14.5 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 50 mm SP WG with three phase motor (VFD Compatible) , mixing box & Thermal break profile .	No.	1	142,000.00	142,000.00	
1.4.9	Double skin floor mounted horizontal two pipe system (one coil)AHU 8000 CFM / 18.0 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) & Thermal break profile .	No.	1	183,000.00	183,000.00	
1.4.10	Double skin floor mounted horizontal two pipe system (one coil)AHU 8000 CFM / 22.5 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 50 mm SP WG with three phase motor (VFD Compatible) , mixing box & Thermal break profile .	No.	1	183,000.00	183,000.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.4.11	Double skin floor mounted horizontal two pipe system (one coil)AHU 10000 CFM / 25.5 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 50 mm SP WG with three phase motor (VFD Compatible) , mixing box & Thermal break profile .	No.	4	211,000.00	844,000.00	
1.4.12	Double skin floor mounted horizontal two pipe system (one coil)AHU 11000 CFM / 27.5 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) mixing box & Thermal break profile .	No.	1	230,000.00	230,000.00	
1.4.13	Double skin floor mounted horizontal two pipe system (one coil)AHU 1600 CFM / 3.5 TR, DIDW fan forward / backward curved centrifugal fan, 4 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) & Thermal break profile .	No.	1	47,000.00	47,000.00	
1.4.14	Double skin floor mounted horizontal two pipe system (one coil)AHU 10000 CFM / 32.5 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 50 mm SP WG with three phase motor (VFD Compatible) mixing box & Thermal break profile .	No.	2	211,000.00	422,000.00	
1.4.15	Double skin floor mounted horizontal two pipe system (one coil)AHU 2000 CFM / 4.0 TR, DIDW fan forward / backward curved centrifugal fan, 4 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) mixing box & Thermal break profile .	No.	1	64,000.00	64,000.00	
1.4.16	Double skin floor mounted horizontal two pipe system (one coil)AHU 2000 CFM / 4.5 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) mixing box & Thermal break profile .	No.	2	64,000.00	128,000.00	
1.4.17	Double skin floor mounted horizontal two pipe system (one coil)AHU 17000 CFM / 42.0 TR, DIDW fan forward / backward curved centrifugal fan, 6 row deep chilled water coil , pre filter , 50 mm SP WG with three phase motor (VFD Compatible) mixing box & Thermal break profile .	No.	1	337,500.00	337,500.00	
1.4.18	Double skin floor mounted vertical two pipe system (one coil)AHU 3000 CFM / 9.0 TR, DIDW fan forward / backward curved centrifugal fan, 4 row deep chilled water coil , pre filter , 45 mm SP WG with three phase motor (VFD Compatible) & Thermal break profile .	No.	1	89,000.00	89,000.00	
1.5	MERV - 8 Filter for commissioning					
	Suppy, Installation of MERV -8 filter for commissioning of AHUs	Sqm	50	5,000.00	250,000.00	
1.6	Variable frequency drives.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Supply, Installation, Testing and commissioning of following HVAC dedicated VFDs with IP 20 enclosures, complying with the tender specifications and having: 1. Active harmonic filters and accessories, required to limit THDI & THDV to 5%. 2. built-in EMC Filters (electromagnetic compatibility filters) for VFDs for restriction of conducted emissions to comply with IEC61800-3 (unrestricted distribution):2004 Category C 3. Three-feedback PID controller having capability to simultaneously accept 3 feedback signals from temperature sensors or pressure sensors or CO2 sensors for process optimization and accordingly regulate the speed of the AHUs or pumps. 4. Provision for additional 3 PID controllers to control external devices such as chilled water modulating valve, fresh air damper, etc. thus reducing the number of I/Os in DDC Controllers & improving system reliability. 5. Automatic Energy Optimization / Load dependent flux optimization functionality for maximum energy savings. 6. MODBUS RTU as the communication protocol between BMS & VFDs.					
1.6.1	Supply, Install, test and commission Variable speed Drive package as described above and in specifications, suitable for for 0.75 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	1	15,000.00	15,000.00	
1.6.2	Supply, Install, test and commission Variable speed Drive package as described above and in specifications, suitable for for 1.1 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	2	20,000.00	40,000.00	
1.6.3	Supply, Install, test and commission Variable speed Drive package as described above and in specifications, suitable for for 1.5 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	7	20,000.00	140,000.00	
1.6.4	Supply, Install, test and commission Variable speed Drive package as described above and in specifications, suitable for for 3.0 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	5	27,000.00	135,000.00	
1.6.5	Supply, Install, test and commission Variable speed Drive package as described above and in specifications, suitable for for 4 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	3	29,000.00	87,000.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.6.6	Supply , Install, test and commission Variable speed Drive package as described above and in specifications , suitable for for 5.5 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	10	33,000.00	330,000.00	
1.6.7	Supply , Install, test and commission Variable speed Drive package as described above and in specifications , suitable for for 7.5 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS.	No.	3	37,500.00	112,500.00	
1.6.8	Supply , Install, test and commission Variable speed Drive package as described above and in specifications , suitable for for 7.5 kW motor rating as per the specifications(3 Phase variable frequency output for FAN These variable speed drives shall get the input from the BMS. (VFD with IP 65 protection)	No.	3	48,000.00	144,000.00	
1.7	FAN COIL UNITS (High static)					
	Supply, Installation , testing and commissioning of fan coil units of specified capacities and air flow as per the specifications , complete with auxillary drain pan. ESP shall be adequate to take 25 FT (equivalent) duct length.					
	Fan coil unit shall be supplied with approved make of factory fitted adequately sized insulated (with nitrile foam), insulated 2 nos. ball valves-one with Y strainer and the other without Y strainer complete with room thermostat for fan speed control, associated conduiting & wiring between the thermostat, Control Valve .etc.					
	Cost of fan coil unit shall be inclusive of approved make room thermostat (heatig and cooling, with fan speed control), and associated MS conduiting and wiring etc.between the thermostat and two way valve , for a standard length of approximately 7-10 M per fan coil unit.					
	Providing and fixing in position the following Fan Coil units complete with all valves and accessories as described above.					
1.7.1	2.0 TR nominal capacity (800 CFM)	No.				
1.8	FAN COIL UNITS (Standard)					
	Supply, installation testing and commissioning off fan coil units of specified capacities and air flow as per the specifications , complete with auxillary drain pan.					
	Fan coil unit shall be supplied with approved make of factory fitted adequately sized insulated (with nitrile foam), insulated 2 nos. ball valves-one with Y strainer and the other without Y strainer complete with room thermostat for fan speed control, associated conduiting & wiring between the thermostat, Control Valve .etc.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Cost of fan coil unit shall be inclusive of approved make room thermostat (heating and cooling, with fan speed control), and associated MS conduiting and wiring etc.between the thermostat and two way valve , for a standard length of approximately 7-10 M per fan coil unit.					
	Providing and fixing in position the following Fan Coil units complete with all valves and accessories as described above.					
1.8.1	1.5 TR nominal capacity (600 CFM)	No.	8	37,000.00	296,000.00	
1.9	Propeller fan					
	Supply,installation,testing and commissioning of Propeller fan of the following capacity of approved make and specification. Fan shall be supplied with aluminum gravity louver & bird screen.					
1.9.1	450 mm dia propeller fan , with single phase motor	No.	10	5,500.00	55,000.00	
1.10	Inline fan					
	Supply, installation, testing and commissioning of rectangular swing type Inline fan of the following capacity of approved make and specification.					
1.10.1	750 CFM, 20 mm SP WG with Single phase motor	No.	2	7,500.00	15,000.00	
1.10.2	900 CFM, 20 mm SP WG with Single phase motor	No.	2	9,600.00	19,200.00	
1.11	Dedicated Outdoor air tempering and Enthalpy recovery units					
	Supply, Installation, testing and commissioning of double skin blow through / draw through type, two tier DEDICATED OUTDOOR AIR HANDLING UNIT with supply, exhaust air fans, motors and drive sets, Enthalpy recovery dessicant coated wheel (Total Thermal Efficiency of enthalpy recovery unit >75%.) complete with all sections , BMS and VSD compatible squirrel cage induction motor (as per ASHRAE standard 90.1-2010 and high efficiency (EFF1). , DIDW centrifugal fan , belt drive package and vibration isolation (spring mounted). MERV-8 & MERV-13 filter all accessories for the following capacity . The unit shall be suitable for outdoor condition.					
	Supply air Section shall comprise of Fresh air inlet damper, Pre filter (MERV 8 & MERV-13) in supply air stream. Filters shall be sized for air velocity of 350 fpm.Supply air backward curved/plug fans shall be with efficiency >70%. Motor shall be VFD compatible . System shall be BMS compatible with open protocol communication port, so that complete data can be transported to remote IBMS console.					
	Return air stream shall comprise of Return air inlet damper, Pre filter (MERV 8) in return air stream. Filters shall be sized for air velocity of 500 fpm.Return air backward curved/plug fans shall be with efficiency >70%. Motor shall be VFD compatible					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Include cost on account of all allied works such as Supply and Installation of 2 nos. 8 mm thick (150mmx150mm)Neoprene Rubber Waffle Type Pads sandwiched with 22G GI sheet in between to be installed between the RCC block and the Air Handling Unit base frame. The neoprene pads shall be in accordance with the manufacturer's instructions for the size and weight distribution of the equipment supported. Supply and Installation of additional Fire Resistant Fabric Flexible Connection to be installed outside between the Fans outlet and the ducting to provide flexibility of movement in case of a seismic event and to prevent transmission of vibration from the unit to the duct. The fabric should be of glassfiber with a silicon coating (Fire proof) and extruded metal flanges. The fabric should conform to BS 476 Part 7 Class 1 and NFPA 701.					
	Duty conditions and design parameters are as under, and the The DOAS with enthalpy recovery system shall be designed for giving output of DBT=50 F, & gr/ lbs = 54 for Summer & Monsoon conditions of the geographical and ambient weather conditions of the project.					
1.11.1	Supply air quantity : 10000 CFM , 60 mm SP WG					
	Exhaust air quantity : 5700 CFM , 40 mm WG					
	Return air temp. ~ 26'C					
	Geographical Location and design ambient conditions of Jabalpur(MP)	Nos.	1	524,000.00	524,000.00	
1.11.2	Supply air quantity : 7500 CFM , 60 mm SP WG					
	Exhaust air quantity : 7500 CFM , 40 mm WG					
	Return air temp. ~ 26'C					
	Geographical Location and design ambient conditions of Jabalpur(MP)	Nos.	1	677,500.00	677,500.00	
1.12	Tube Axial Flow Fan					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
This note applies to the entire section of axial fans	Supply, Installation,testing and commissioning of approved make of AMCA certified for sound and air Long case Tube Axial fan complete with suitable motor (as the case may be, based on duty conditions and other requirements) , suitable for operating on 3 phase electric supply, 415+/-10% volts, 50 Hz cycles. The fan shall be complete with all accessories, including hanging arrangement suitable for wall mounted / ceiling suspended , Factory fabricated MS square flanges on suction & Discharge side OR factory fabricated inlet and outlet round to square cone (Bird screen to be installed on the open side of the Fan if it is not connected to either duct or Attenuator) ,installation including vibration isolation (Spring type), as specified in the ventilation fan schedule , for ventilation , smoke Spill or pressurization duty. The fan shall be supplied with a suitable 3 phase motor as mentioned in Ventilation Fan schedule. The motor shall be class F in case of Fresh Air / pressurisation and class-H incase of exhaust / smoke Spill duty. All ventilation Fans and fan motors shall be suitably rated to handle high temperature (250 Deg C, as per BS-7346 Part-2 : 1090)) of smoke (class -H), . Motor shall be VFD compatible. Sound lvl shall not be more than 78 DBA from 3.0 meter from fan for pollution ventilation fans and 90 DBA at 3 mtr for pressurization fans. (The sound level indicated is without sound attenuator)					
	1.12.1 Exhaust / Smoke Air Fans (EFF-1/IE2, Class-H motor, with minimum efficiency criterion as mentioned in Ventilation Fan Schedule (Basement Car Parking) with bird screen on the suction side. (Car Parking ventilation - Pollution ventilation)					
	1.12.1.1 Fan Tag No. - B1-NEF-1, 2 (fan with Duct sound attenuator)	Nos.	2	193,000.00	386,000.00	
	1.12.1.2 Fan Tag No. - B1-NEF-3,4 (fan with Duct sound attenuator)	Nos.	2	142,500.00	285,000.00	
	1.12.1.3 Fan Tag No. - B1-NEF-5 (fan with Duct sound attenuator)	Nos.	1	86,000.00	86,000.00	
	1.12.2 Smoke Extraction Air Fans (EFF-2/IE1, Class-H motor, with minimum efficiency criterion as mentioned in Ventilation Fan Schedule (Basement Car Parking) (without cone and square flange) but with bird screen on the suction side. (Car Parking ventilation - Incase of fire)					
	1.12.2.1 Fan Tag No. - B1-SEF-1	Nos.	1	254,000.00	254,000.00	
	1.12.2.2 Fan Tag No. - B1-SEF-2	Nos.	1	199,000.00	199,000.00	
	1.12.2.3 Fan Tag No. - SEF-3	Nos.	1	133,000.00	133,000.00	
1.12.2.4 Fan Tag No. - SEF-4	Nos.	1	57,000.00	57,000.00		
1.12.2.5 Fan Tag No. - SEF-5	Nos.	1	47,000.00	47,000.00		
1.12.2.6 Fan Tag No. - SEF-6, 7,8, 9	Nos.	4	87,000.00	348,000.00		

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.12.3	Replenishment Air Fans (EFF-2/IE1, Class-F motor, with minimum efficiency criterion as mentioned in Ventilation Fan Schedule (Basement Car Parking) (without cone and square flange) but with bird screen on the discharge side. (Car Parking ventilation - In case of fire)					
1.12.3.1	Fan Tag No. - RAF-1	Nos.	1	109,000.00	109,000.00	
1.12.3.2	Fan Tag No. - RAF-2	Nos.	1	48,500.00	48,500.00	
1.12.3.3	Fan Tag No. - RAF-3	Nos.	1	39,500.00	39,500.00	
1.12.3.4	Fan Tag No. - RAF-4, 5, 6, 7	Nos.	4	74,000.00	296,000.00	
1.12.4	Exhaust / Smoke Air Fans (EFF-2/IE1, Class-H motor, with minimum efficiency criterion as mentioned in Ventilation Fan Schedule (Services Room) (with Factory fabricated MS square flanges on suction & Discharge side OR factory made inlet and outlet cone depending on site condition) (services room ventilation)					
1.12.4.1	Fan tag no. - SERV-EAF- 01	Nos.	1	97,000.00	97,000.00	
1.12.4.2	Fan tag no. - SERV-EAF- 02, 03	Nos.	4	97,000.00	388,000.00	
1.12.4.3	Fan tag no. - SERV-EAF- 04	Nos.	1	83,500.00	83,500.00	
1.12.4.4	Fan tag no. - SERV-EAF- 05	Nos.	1	67,500.00	67,500.00	
1.12.5	Outside / Make-up Air Fans (EFF-2/IE1, Class-F motor, with minimum efficiency criterion as mentioned in Ventilation Fan Schedule (Services Room) (with Factory fabricated MS square flanges on suction & Discharge side OR factory made inlet and outlet cone depending on site condition) (services room ventilation)					
1.12.5.1	Fan tag no. - SERV-FAF- 01	Nos.	1	84,500.00	84,500.00	
1.12.5.2	Fan tag no. - SERV-FAF- 02, 03	Nos.	1	84,500.00	84,500.00	
1.12.5.3	Fan tag no. - SERV-FAF- 04	Nos.	1	74,500.00	74,500.00	
1.12.6	Pressurization Air Fans (EFF-2/IE1, Class-F motor, with minimum efficiency criterion as mentioned in Ventilation Fan Schedule (without cone and square flange) but with bird screen on the discharge side.					
1.12.6.1	Fan tag no. - PF- 01	Nos.	1	91,500.00	91,500.00	
1.12.6.2	Fan tag no. - PF- 02	Nos.	1	57,000.00	57,000.00	
1.12.6.3	Fan tag no. - PF- 03	Nos.	1	66,500.00	66,500.00	
1.12.6.4	Fan tag no. - PF- 04, 05	Nos.	2	66,500.00	133,000.00	
1.12.6.5	Fan tag no. - PF- 06, 07	Nos.	2	66,500.00	133,000.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
1.13	IAQ management system : Demand controlled ventilation package					
	Supply, installation, Testing & Commissioning of IAQ system for outdoor air areas, heavy gauge extruded aluminium of 1.5 mm nominal thickness complete with Zero leakage (aerofoil construction) extruded aluminium profile volume control damper, Rapid Average Pitot tube; Air Flow Straightner (Honey-comb Patterned) with Motorized Assembly for Dampers with programmable, DCV Controller combined with integrator for multiple (maximum 8) IAQ station-SA that Communicates on EIA-485 through modbus; differential pressure sensor; & step down transformer of 24V.IVAQ sytem shall provide signal to VSD of out side air handler. Cost of CO ₂ sensor,actuator shall be included, in the package. (Refer schematics and PID for better understanding of scope, integration and battery limits) . The Intergrators / Controllers shall be BMS compatible.					
	Refer schematics and notes in the relevant section of intent of specifications.					
1.13.1	Supply & exhaust air stream damper with AFMS	SqM	3.5	5,500.00	19,250.00	
1.13.2	Control panel / Integrator / circuit	Nos.	15	20,500.00	307,500.00	
1.13.3	Actuator	Nos.	15	16,000.00	240,000.00	
1.13.4	Supply, installation, testing and commissioning of armoured multistranded, shielded cable. FRLS- HF type					
1.13.5	CAT - 6 wire	RM	500	100.00	50,000.00	
1.13.6	2 Core 0.5 Sqmm	RM	600	80.00	48,000.00	
1.13.7	Supplying and laying of following sizes of MS conduit on surface/recess including cutting/filling chases along with conduit accessories etc. complete as required.					
1.13.8	25 mm dia	RM	500	80.00	40,000.00	
1.13.9	20mm dia.	RM	600	65.00	39,000.00	
1.13.10	Supplying and laying of Flexible MS Conduit along with accessories etc. complete as required.	RM	500	45.00	22,500.00	
1.14	CO sensors					
1.14.1	Supply,install,calibrate,test and commission, CO sensor to control speed (RPM) of ventilation fan for basement ventilation of approved make and specification	No.	8	10,000.00	80,000.00	
1.15	PLC Based control panel					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Supply,install,callibrate,test and commission PLC based control panel with logic controllers to control speed of jet fans, based on the schematic description provided.					
	Logic of PLC panel					
	PLC panel will received signal for 5-6 nos. CO-CO2 sensor.					
	PLC will provided signal (on / low or high speed / off) to the 2 to 4 nos. power panel for ventilation fans based on signal received from CO2 sensor . (inter connecting wiring and looping in power power panel shall be done by power panel supplier)					
	PLC Based control panel for ventilation fans .	No.	2	75,000.00	150,000.00	
1.16	Jet impulse fans					
	Design , Engineering, obtaining approval from consultant, intimating ITC of spec finalized in consultation with consultants, coordination in echnocal details before placing order, Supply, receiving, unloading, shifting to store, store in safe location, moving to location as in drawings, installation,testing and commissioning of impulse Jet vent fans (certified as tested for 250 Deg.C for 2 hours operation.) for pollution / Normal ventilation and Smoke Extraction application for car parking complete with upstream and downstream duct sound attenuators,complete fan assembly, including its powder coated casing,impeller and motor , with dual speed motor of the following capacity of approved make and specification. The Motor shall be suitable for 3 phase electric supply , DUAL SPEED run on the electrical power suitable for 50Hz. JET fan dia shall not be less than 355 mm . , and sound attenuators not less than 900 mm long. Cost for CFD analysis for pollution and smoke spill duty shall be included in the offer.					
	4500 CFM / 2250 CFM (Dual speed fans, as specified above)	No.	5	35,000.00	175,000.00	
	TOTAL CARRIED OVER TO SUMMARY (EQUIPMENT)				22,677,950.00	
2	PIPING					
2.1	AUTO AIR VENT WITH ISOLATING VALVES					
	Supply, installation ,testing and commissioning of Auto Air vents,at the highest points in the chilled water piping , as per approved makes and specifications.20 mm Dia Auto Air Vents, suitable with isolating ball valves, sockets, nipples etc.	Nos.	40	2,100.00	84,000.00	
2.2	Supply, installation ,testing and commissioning of 40 mm dia Isolation Ball valves with sockets, nipples etc. at the highest points (TERRACE) in the chilled water piping risers , as per approved makes and specifications.	Nos.	6	1,750.00	10,500.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
2.3	INSULATED CHILLED WATER PIPING					16.2 - DSR-2016
	Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping inside the building (with necessary clamps, vibration isolators and fittings but excluding valves, strainers, gauges etc.) duly insulated with following closed cell elastomeric nitrile rubber of minimum 45 Kg / m ³ density, thermal conductivity 0.037 W/MK or better at 20 deg mean temperature class 'O' insulation applied by suitable adhesive complete including repairing of damage to building etc. as per specifications and as required complete in all respect. Note:-The Pipes of sizes 150 mm & below shall be M.S. 'C' class as per IS : 1239 and pipes size above 150 mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35 mm thick M.S. Sheet for pipes upto 350 mm dia. and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.					
2.3.1.1	200 mm dia (32 mm thick insulation)	RM	100	3,158.00	315,800.00	
2.3.1.1	150 mm dia (32 mm thick insulation)	RM	130	2,195.00	285,350.00	
2.3.1.1	125 mm dia (32 mm thick insulation)	RM	150	1,927.00	289,050.00	
2.3.1.1	100 mm dia (32 mm thick insulation)	RM	100	1,538.00	153,800.00	
2.3.1.1	80 mm dia (32 mm thick insulation)	RM	150	1,129.00	169,350.00	
2.3.1.1	65 mm dia (32 mm thick insulation)	RM	300	927.00	278,100.00	
2.3.1.1	50 mm dia (32 mm thick insulation)	RM	225	793.00	178,425.00	
2.3.1.1	40 mm dia (32 mm thick insulation)	RM	50	632.00	31,600.00	
2.3.1.1	32 mm dia (19 mm thick insulation)	RM	325	508.00	165,100.00	
2.3.1.1	25 mm dia (19 mm thick insulation)	RM	400	417.00	166,800.00	
2.4	Providing and fixing & commissioning of BMS compatible, motorised butterfly valve (on-off type), 220 V / 24 V BMS compatible actuator, of PN 16 rating with necessary control wiring					
2.4.1	125 mm dia (Rating PN-16)	RM	3	60,000.00	180,000.00	
2.5	Providing and fixing in position the following insulated butterfly valves. (above 350 mm dia valve shall be gear operated) - PN-16 - as per specifications & of approved make.					16.7.1 - DSR-2016
2.5.1	200 mm dia (Rating PN-16)	Nos.	3	9,992.00	29,976.00	
2.5.2	150 mm dia (Rating PN-16)	Nos.	2	5,962.00	11,924.00	
2.5.3	125 mm dia (Rating PN-16)	Nos.	16	5,202.00	83,232.00	
2.5.4	100 mm dia (Rating PN-16)	Nos.	2	4,797.00	9,594.00	
2.5.5	80 mm dia (Rating PN-16)	Nos.	2	3,347.00	6,694.00	
2.5.6	65 mm dia (Rating PN-16)	Nos.	14	3,016.00	42,224.00	
2.5.7	50 mm dia (Rating PN-16)	Nos.	6	2,745.00	16,470.00	
2.5.8	40 mm dia (Rating PN-16)	Nos.	4	2,417.00	9,668.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
2.6	Providing and fixing in position the following insulated ball valves.(Rating PN-16) as per specifications & of approved make.					
2.6.1	32 mm dia	Nos.	30	1,050.00	31,500.00	
2.6.2	25 mm dia	Nos.	4	900.00	3,600.00	
2.7	Providing and fixing in position of approved make flow switch complete with sockets, nipples, interconnecting copper control wiring at the condenser and evaporator outlet of each chiller packaged machine.	Nos.	6	1,450.00	8,700.00	
2.8	Providing and fixing in position Thermowell suitable for BMS sensor for measuring line fluid pressure/temperature (Duty-Water), at the locations as approved in the shop drawings , and in accordance to the heat exchanger (coil/condenser/evaporator) hook-up details.	Nos.	150	300.00	45,000.00	
2.9	Providing digital thermometers suitable for binder test point.	Nos.	1	520.00	520.00	
2.10	Providing dial type pressure gauge suitable for binder test point.	Nos.	1	6,000.00	6,000.00	
2.11	Providing and fixing in position the industrial dial type pressure gauges with gun metal valves and isolation ball valve. (to be installed at all critical locations in the plant room.)	Nos.	40	876.00	35,040.00	16.8 - DSR-2016
2.12	Providing and fixing in position the mercury-in- glass industrial type thermometers with isolation ball valve. (to be installed at all critical locations in the plant room.)	Nos.	20	636.00	12,720.00	16.9 - DSR-2016
2.13	Providing and fixing in position the following manual insulated balancing valves as per the specifications & of approved make.					16.7.2 - DSR-2016
	Insulated manual balancing valves as per the specifications & shall be of the approved make, and the contractor shall submit a report of TAB of the same in form of a computer print-out, based on the approved P&I diagram of the chilled water piping network.					
	Supply,installtion,test,adjust and commissioning of the following insulated manual insulated balancing valves ,and submit the TAB report.for the following valves.					
2.13.1	125 mm dia (Rating PN-16)	Nos.	3	16,747.00	50,241.00	
2.14	PIBCV valve for AHU & FCU - Modulating type -as per specifications & of approved make.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Providing and fixing of BMS compatible, insulated, pressure independent balancing cum control valve with propotionate thermostat for AHU / FCU having two way modulating control function, self balancing type,24 /230 V actuator, software preset balancing and automatic control valve function with measuring nipples and shuf off function of PN 16 rating (Insulation of valve shall be done at site with nitrile rubber Class O material)					
	Size of Valve to be selected for flow rate as per manufacturers guidelines & selection chart.					
2.14.1	80mm dia	Nos.	1	47,000.00	47,000.00	
2.14.2	65mm dia	Nos.	7	29,500.00	206,500.00	
2.14.3	50mm dia	Nos.	3	28,500.00	85,500.00	
2.14.4	40mm dia	Nos.	2	26,000.00	52,000.00	
2.14.5	32mm dia	Nos.	11	24,500.00	269,500.00	
2.14.6	25mm dia	Nos.	10	23,000.00	230,000.00	
2.15	Y- STRAINERS					
	Providing and fixing in position the following Insulated Y-Strainers (Rating - PN-16) as per specifications & of approved make.					
2.15.1	125mm dia	Nos.	4	19,000.00	76,000.00	
2.15.2	80mm dia	Nos.	1	8,000.00	8,000.00	
2.15.3	65mm dia	Nos.	7	5,900.00	41,300.00	
2.15.4	50mm dia	Nos.	3	5,000.00	15,000.00	
2.15.5	40mm dia	Nos.	2	4,000.00	8,000.00	
2.15.6	32mm dia	Nos.	11	4,000.00	44,000.00	
2.15.7	25mm dia	Nos.	2	4,000.00	8,000.00	
2.16	CONDENSATE DRAIN PIPE					
	Providing and fixing and in position the following UPVC pipes for condensate drain , cut to required length and installed with all fittings.(bends, reducers, tees etc.)					
	Drain pipes shall be insulated with 9 mm thick Nitrile foam insulation in tubing form as per specifications detailed earlier in the relevant section.					
2.16.1	65mm dia	RM	50	350.00	17,500.00	
2.16.2	50mm dia	RM	50	300.00	15,000.00	
2.16.3	40mm dia	RM	40	250.00	10,000.00	
2.16.4	30mm dia	RM	75	200.00	15,000.00	
2.16.5	25 mm dia	RM	250	150.00	37,500.00	
2.17	EXPANSION TANK					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Supply, Installation, Testing and commissioning of INSULATED PRESSURISED WATER EXPANSION TANK suitable for total volume of water in chilled water circuit along with necessary accessories such as pumps (1working +1standby) 2 No. pressure switches, 2 No. connections to chilled water pump header etc in order to keep chilled water system under pressure and to prevent entrapment of pressure and to prevent entrapment of air in the system. The tank shall be pre charged steel expansion tank with replaceable heavy duty butyl rubber bladder. The tank shall have 50 MM system connection and 20 mm drain and charging valve connection to facilitate the on site charging of the tank to meet system requirement. The tank shall be fitted with lifting rings and a floor mounting skirt for vertical installation. The tank must be constructed in accordance with section VIII of the IS Boiler and pressure vessel code and stamped 125 PSI working pressure. The complete system shall be sourced from single manufacturer and supplied and installed with all accessories and safety fixtures required for proper functioning of the complete hydronic system.					
	Chilled water closed vessel pressurized expansion tank as described above duly insulated with 50 mm thick EPS insulating material and clad with aluminum Sheet (20G) as specified and as mentioned in the drawings and specifications.					
	1500 Ltr. closed vessel Expansion Tank duly insulated and with all accessories.	No.	1	275,500.00	275,500.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
2.18	AIR SEPARATOR					
	Supply,installation,testing and commissioning of Centrifugal type air seperator complete with flanged connection and as per the specifications as detailed earlier in the relevant section of specifications , and duly insulated with 50 mm thick EPS insulated material and cladded with aluminum sheet of specified thickness.					
	200 mm Dia Air Separator , duly insulated.(for chilled water circuit)	No.	1	57,000.00	57,000.00	
2.19	CHECK VALVES					16.7.3 - DSR-2016
	Providing and fixing in position the following insulated check valves as per the specifications.(Rating PN-16)					
2.19.1	125 mm dia	No	4	4,647.00	18,588.00	
	TOTAL CARRIED OVER TO SUMMARY [Chilled water piping , valves and accessories (Including Insulation)]				4,247,866.00	
3	CONDENSER WATER PIPING AND VALVES					
3.1	Condenser water piping					
	Providing and fixing in position the following MS Heavy class Condenser water piping , cut to required length , and installed with welded joints , including all necessary fittings such as elbows , tees , etc.and conforming to the specifications as detailed in the relevant chapter in the document.Pipes will be accepted in order of preference (Factory fabricated / Fabricated out of 6mm thick plates duly rolled in a workshop and welded : for pipes beyond 350mm dia)					
	Condenser water pipes shall be finished with a fire proof protective coating (Star bond)					
	All pipe fitting shall be ready made (forged fitting) Fittings not available readymade shall be factory fabricated.					
3.1.1	250mm dia	RM	500	2,600.00	1,300,000.00	
3.1.2	150mm dia	RM	120	1,600.00	192,000.00	
3.1.3	80mm dia	RM	15	750.00	11,250.00	
3.1.4	50 mm dia	RM	30	475.00	14,250.00	
3.1.5	32 mm dia	RM	30	270.00	8,100.00	
3.2	Motorised BUTTERFLY VALVES					16.11.3 - DSR-2016
	Providing and fixing in position the following motorised butterfly valves.(Rating PN-16)					
3.2.1	150mm dia	No.	9	28,292.00	254,628.00	
3.3	BUTTERFLY VALVES					16.11.1 - DSR-2016
	Providing and fixing in position the following butterfly valves.(Rating PN-16)					
3.3.1	150mm dia	No.	11	5,323.00	58,553.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
3.3.2	80mm dia	No.	3	2,972.00	8,916.00	
3.3.3	50 mm dia	No.	6	2,404.00	14,424.00	
3.4	Providing and fixing in position the following ball valves.(Rating PN-16)					
3.4.1	32 mmdia	No.	6	1,050.00	6,300.00	
3.5	BALANCING VALVES					
	Providing and fixing in position the following balancing valves as per the specifications.					
	Insulated Digital manual balancing valves as per the specifications. shall be of the approved make, and the contractor shall submit a report of TAB of the same in form of a computer print-out, based on the approved P&I diagram of the chilled water piping network.					
	Supply,installation,test,adjust and commissioning of the following insulated digital manual butterfly valves ,and submit the TAB report.for the following valves.					
3.5.1	150mm dia	No	6	23,200.00	139,200.00	
3.6	CHECK VALVES					16.11.2 - DSR-2016
	Providing and fixing in position the following check valves as per the specifications.(Rating PN-16)					
3.6.1	150 mm dia	No	4	5,200.00	20,800.00	
3.7	FLEXIBLE PIPE CONNECTORS					
	Providing and fixing in position the following Flexible connection on pipes with guide bolts.(Rating PN-16)					
3.7.1	150 mm dia	No	14	9,050.00	126,700.00	
3.7.2	125 mm dia	No	14	8,050.00	112,700.00	
3.8	Y strainer					
	Providing and fixing in position the following Y-stariner (Rating PN-16)					
3.8.1	150 mm dia	No	4	24,600.00	98,400.00	
	TOTAL CARRIED TO SUMMARY (Condenser water Piping , valves and accessories)				2,366,221.00	
4	AIR DISTRIBUTION					
4.1	Factory fabricated duct					16.12.1 - DSR-2016

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.					
4.1.1	0-1000 mm GSS (24G)	SqM	4500	665.00	2,992,500.00	
4.1.2	1001 - 1800 mm GSS (22G)	SqM	5000	814.00	4,070,000.00	
4.1.3	1801-2100 mm GSS (20 G)	SqM	1200	913.00	1,095,600.00	
4.1.4	2101 mm & above (18 G)	SqM	100	1,150.00	115,000.00	
4.2	Site fabricated duct					16.12.2 - DSR-2016
	Supply, installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.					
4.2.1	0.63mm (24 gauge) GSS	SqM	1800	567.00	1,020,600.00	
4.2.2	0.8 mm (22 gauge) GSS	SqM	1200	676.00	811,200.00	
4.2.3	1.0mm (20 gauge) GSS	SqM	600	885.00	531,000.00	
4.2.4	1.25mm (18 gauge) GSS	SqM	200	994.00	198,800.00	
4.3	Supply, and Installation of Fire proof double canvas connection of fire treated material on AHU , FCU, Axial Fan Inlet / outlet as per approved drawings.	SqM	150	1,500.00	225,000.00	
4.4	Supply, installation of flexible duct (insulated) , along with all clamping and supporting arrangement.					16.19 - DSR-2016
	All joints to be clamed & then jointed with 50mm wide adhesive tape.					
	The length mentioned is in the fully expanded position.					
4.4.1	200 mm dia	RM	200	343.00	68,600.00	
4.4.2	250 mm dia	RM	100	360.00	36,000.00	
4.4.3	300 mm dia	RM	200	450.00	90,000.00	
4.5	COLLAR DAMPERS					
	Supply, Installation and Testing of multiblade type louver damper of galvanised steel sheet for collars to be provided with suitable links , levers and quadrants for manual control of volume of air flow and for proper balancing of air distribution as per approved shop floor drawings and specifications.	SqM	135	4,100.00	553,500.00	
4.6	BOX TYPE DUCT DAMPERS					16.13 - DSR-2016

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc., as per specifications	SqM	30	4,917.00	147,510.00	
4.7	CONTINUOUS / DISCRETE LINEAR GRILL (FIXED BAR)					16.16 - DSR-2016
	Supply,Installation,Testing and commissioning of single louvered continuous supply and return air linear grille as per approved colour , shop floor drawings & specifications. (General Detail drawing to be submitted for fixing of grill). Spacers between two louvers shall be black in colour.					
	Linear Fresh / exhaust air grills shall be extruded Aluminum construction with fixed horizontal bars of 0 ° or 15 ° inclination with one way deflection and flanges on all sides. The thickness of fixed bar louvers shall be 5 mm in front and the flange shall be 15/20 mm wide with round edges. The register shall be suitable for concealed fixing and horizontal bars of the register shall be mechanically crimped from the back to hold them. Spacers between two louvers shall be powder coated black in colour. Fixing arrangement of grills to be submitted for approval prior to installation.					
	Powder coated extruded aluminium grilles of approved shade and colour.	SqM	170	3,658.00	621,860.00	
4.8	AIR TRANSFER GRILL					
	Supply, Installation and Testing of air transfer grilles of approved make and colour.					
	Powder coated extruded aluminium air transfer grill	SqM	5	8,500.00	42,500.00	
4.9	SUPPLY AIR DIFFUSER					16.17 - DSR-2016
	Supply,Installation ,Testing and commissioning of square supply air diffusers as per approved shop floor drawings and colour . Each diffuser will be equipped with removable core and a black colour GI volume control damper which will be key operated.					
	Powder coated extruded aluminium supply air diffuser of approved colour and shade. (the area of diffuser shall be as pre neck size)	SqM	10	7,817.00	78,170.00	
4.10	RETURN AIR DIFFUSER					16.18 - DSR-2016
	Supply,Installation ,Testing and commissioning of square return air diffusers as per approved shop floor drawings and colour . Each diffuser will be equipped with removable core					
	Powder coated extruded aluminium return air diffuser of approved colour and shade.	SqM	10	5,057.00	50,570.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
4.11	FRESH AIR REGISTERS					
	Supply, Installation and Testing of fresh air louvers including the expanded wire mesh filter,volume control damper (all factory fabricated and assembled). The louvre shall be of extruded aluminum construction, and powder coated to the approved finish and colour ,	SqM	4	5,900.00	23,600.00	
4.12	EGG CRATE GRILL					
	Supply, Installation and Testing of Egg Crate grills for replenishment air outlets. The louvre shall be of extruded aluminum construction, and powder coated to the approved finish and colour ,	Sqm				
4.13	MOTORIZED FIRE AND SMOKE DAMPERS					16.2 - DSR-2016
	Supplying, Fixing,testing and commissioning of fire dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications.					
	Damper shall be supplied with factory fabricated TDF flanges with corner and clamp on fixing arrangement					
4.13.1	Bare Fire Dampers	SqM	35	6,393.00	223,755.00	
4.13.2	Control panel actuator , including Electrical,spring type actuator,remote indication of the fire damper position.	Nos.	70	5,944.00	416,080.00	
4.13.3	Interconnecting wiring for the fire alarm system with the AHU and the smoke dampers.	Lot	1	150,000.00	150,000.00	
4.14	Jet Nozzle					
	Supply, Installation and Testing of Eye ball type jet nozzle, extruded aluminum construction, and powder coated to the approved finish and colour ,	Sqm				
	150 mm dia (300 mm dia outer)	Nos.	10	1,470.00	14,700.00	
	200 mm dia (400 mm dia outer)	Nos.	10	2,200.00	22,000.00	
4.15	Supply,Installation ,Testing and commissioning of 3 - slot supply air diffusers as per approved shop drawings and colour . Each diffuser will be equipped with removable core and a aluminum volume control damper which will be key operated.					
	Powder coated extruded aluminium 3 - slot supply air diffuser of approved colour and shade.	SqM	5	10,000.00	50,000.00	
4.16	Supply,Installation ,Testing and commissioning of 3 - slot return air diffusers as per approved shop drawings and colour .					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Powder coated extruded aluminium 3 - slot return air diffuser of approved colour and shade.	SqM	5	6,150.00	30,750.00	
4.17	Provide and fixing of fire rated wrap over HVAC duct. (All fire rated duct shall be 1 guage higher from SMACNA) (as per fire guide line)	Sqm	1500	2,000.00	3,000,000.00	
4.18	Provide and fixing of fire sealent to seal the opening of HVAC service . (as per fire guide line)	Kg / Ltr	550	2,200.00	1,210,000.00	
4.19	Supply,Installation ,Testing and commissioning of staircase swirl diffuser as per approved shop drawings and colour .					
	Powder coated extruded aluminium 200X200 swirl diffuser	Nos	1000	1,500.00	1,500,000.00	
4.20	Supply,Installation,Testing and commissioning of storm proof extruded aluminum powder coated Fresh/exhaust air louver as per approved colour and shop drawings. The effective free area shall not be less than 70%.	SqM	30	5,900.00	177,000.00	
4.21	Supply, Installation and testing of GI constructed back draft damper with brass bushes in accordance with the approved shop drawings and specifications.	SqM	20	11,600.00	232,000.00	
4.22	Factory fabricated duct - Circular duct					
	Supply, installation, balancing and commissioning of pre-insulated spiral - rigid construction sheet metal ducts (CIRCULAR DUCT) in accordance with the approved makes / specification and shop drawings.					
	Supply, installation, balancing and commissioning of factory fabricated & factory internally insulated GSS Circular ducting complete with vanes,splitter dampers, fire retardant gaskets hanging arrangement including fully threaded GI rods , GI straps and GI "C" channels/ rolled steel wires or Gripple Wire Rope Hangers & Supports complete with end fixing, GI "C" channels etc. as approved clients/consultants in accordance with the approved shop drawings and specifications.Quoted price shall be inclusive of necessary scaffolding charges towards installation of supply/exhaust air ducts outside or within building wherever required.Insulation material shall be 13mm thick, Class "O" closed cell elastomeric insulation .					
	Ducts shall be factory powder coated of colour and shade as approved by the Architects for exposed spiral ducts. Quoted price shall be inclusive of powder coating.					
	Powder Coated-With 25 mm thick Fibreglass insulation					
4.22.1	300mm dia.	Rmt	10	2,000.00	20,000.00	
4.22.2	400mm dia.	Rmt	10	2,600.00	26,000.00	

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4.22.3	500mm dia.	Rmt	10	3,200.00	32,000.00	
4.22.4	600mm dia.	Rmt	10	3,800.00	38,000.00	
	TOTAL CARRIED TO SUMMARY (AIR DISTRIBUTION)				19,914,295.00	
5	INSULATION					
5.1	DUCT ACOUSTIC TREATMENT					
	Supply and Application of acoustic lining within the supply air duct with 15 mm thick open cell nitrile rubber (180-220 Kg/cum density) with UL approved as per specifications and drawings.					
5.1.1	15 mm thick	SqM	800	1,350.00	1,080,000.00	
5.2	DUCT LINE THERMAL INSULATION					16.23 - DSR-2016
	Supply and Application of external thermal insulation of ducting with approved make of nitrile rubber insulating material covered with factory reinforced UL approved Glass cloth class-O & as per specifications. OEM guide lines to be followed for installation.					
	MOCK UP OF DUCT INSULATION TO BE APPROVED BEFORE PROCEEDING.					
5.2.1	19 mm thick	SqM	4000	739.00	2,956,000.00	
5.2.2	13 mm thick	SqM	4000	405.00	1,620,000.00	
5.3	EXPOSED DUCT THERMAL INSULATION					
	Supply and Application of 50mm thick insulation of Expanded polysterene of density not less than 32 Kg/CuM with with 1 coat of Black Japan Paint, 2 coats of CPRX, EPS sections installed properly with PVC strap with GI L-corners at the edges of strap, sealing of all transverse & longitudinal joints with CPRX, 500 G transparent polythene sheet, 22G Chicken wire mesh tied neatly with GI wire , 2-layers of sand cement plaster each of 12mm thick at a ratio of 1:3 (Cement :Sand) ,finally paint with approved colour & shade for ducts exposed to atmosphere as per specifications detailed earlier.	SqM	50	750.00	37,500.00	
	TOTAL CARRIED TO SUMMARY (INSULATION)				5,693,500.00	
6	ELECTRICAL					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
6.1	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of following LT panels fabricated out of 14 gauge CRCA sheet steel in cubical formation with reinforcement of suitable size angle iron and channel T iron flats. All steel material used in the construction of panels shall undergo seven tank process before painting as per standards with 2 coats of red oxide primer and final approved shade of enamel paint. A solid busbar shall be provided at the bottom of the panel with two connecting eyes for termination. The boards shall be suitable for 415 volts, 50 Hz, 3 phase, 4 wire supply system. All the hardware used in the fabrication of the panel shall be galvanized with zinc passivation. The panel shall be compartmentalized to accommodate one feeder in each compartment. A vertical cable alley of suitable width shall be provided to serve on or two vertical feeder sections. Also the opening between the busbar chamber and the feeder section shall be shrouded with bakelite / hylam sheet with min.3 mm thickness. All starters, switchgears shall be as per type-2 coordination chart.					
	The panel shall be complete with DOL / SD starter as per kW rating of the serviced motor, Terminal block for power distribution, Contactor, over load relay with built in single phasing protection, Phase indicating lights and indicating light for ON status, Digital voltmeter and digital ammeter with selector switches, Time delay relay for delayed automatic restart of air handling unit motor, Wiring for microswitch for stopping the fan when fire damper closes, For on/off/remote and local operation, 3 pole single throw switch shall be provided in each AHU panel to facilitate override of the automatic operation, All starters shall be provided with suitable potential free contact for connections to the Building Automation System, 220 / 24 V Transformer (if required for the performance of the system) ..All panels shall be suitable to receive and process the signal from the PLC panel and fire zone panel/ zonal fire control module (as the case may be) Potential free NO-NC contact shall be provided in each panel. Inter connecting and looping shall also be done accordingly. The panel as described above shall be either wall mounted or floor mounted.					
	The panel drawing shall be approved before taking up the fabrication.					
	All panels shall have BMS compatibility with all necessities component.					
	BUS bar should be at the top of panel					
6.1.1	VENT- MCC-1					
	Incoming					
	1 no. 100 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Auto / Manual Switch					
	Bus Bars					
	150 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 13-18 A (with Digital ammeter with SS) (space for VFD with adequate ventilation system)					
	1 nos TP MPCB, 25-40 A (with Digital ammeter with SS) with DOL Starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	101,500.00	101,500.00	
6.1.2	VENT- MCC-2					
	Incoming					
	1 no. 100 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	150 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 9-14 A (with Digital ammeter with SS) (space for VFD with adequate ventilation system)					
	1 nos TP MPCB, 6-10 A (with Digital ammeter with SS) (space for VFD with adequate ventilation system)					
	1 nos TP MPCB, 20-25 A (with Digital ammeter with SS) with DOL Starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	106,000.00	106,000.00	
6.1.3	VENT- MCC-3,4,5-Plant Room / STP Room / Pump Room					
	Incoming					
	1 no. 63 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Bus Bars					
	100 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos 1P MPCB, 9-14 A (with Digital ammeter with SS) with DOL Starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	3	61,500.00	184,500.00	
6.1.4	VENT- MCC-6-LT Panel Room					
	Incoming / Outgoing					
	1 nos TP MPCB, 4-6.3 A (with Digital ammeter with SS) with DOL Starter					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	21,500.00	21,500.00	
6.1.5	AC-MCC- 01,07					
	Incoming / Outgoing					
	1 no. 6-10 amp TP MPCB with VSD ((space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	2	26,000.00	52,000.00	
6.1.6	AC-MCC- 02,04,06					
	Incoming / Outgoing					
	1 no. 2.5-4 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	3	26,000.00	78,000.00	
6.1.7	AC-MCC- 03					
	Incoming					
	1 no. 63 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	100 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 9-14 A (with Digital ammeter with SS) (space for VFD with adequate ventilation system)					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	76,500.00	76,500.00	
6.1.8	AC-MCC- 03A					
	Incoming					
	1 no. 100 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	150 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 20-25 A (with Digital ammeter with SS) with DOL starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	65,000.00	65,000.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
6.1.9	AC-MCC- 05					
	Incoming					
	1 no. 20 amp MCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	30 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 2.5-4A (with Digital ammeter with SS) (space for VFD with adequate ventilation system)					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	63,000.00	63,000.00	
6.1.10	AC-MCC- 08					
	Incoming / Outgoing					
	1 no. 9-14 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	27,000.00	27,000.00	
6.1.11	AC-MCC- 09					
	Incoming / Outgoing					
	1 no. 13-18 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Panel as described above and in drawings.	No.	1	27,500.00	27,500.00	
6.1.12	AC-MCC- 09A					
	Incoming					
	1 no. 50 amp MCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	75 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 6-10 A (with Digital ammeter with SS) with DOL starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	55,500.00	55,500.00	
6.1.13	AC-MCC- 10					
	Incoming / Outgoing					
	1 no. 6-10 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	26,000.00	26,000.00	
6.1.14	AC-MCC- 10A					
	Incoming					
	1 no. 32 amp MCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					

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	50 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	2 nos TP MPCB, 6-10 A (with Digital ammeter with SS) with DOL starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	55,000.00	55,000.00	
6.1.15	AC-MCC- 11					
	Incoming / Outgoing					
	1 no. 2.5-4 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	26,000.00	26,000.00	
6.1.16	AC-MCC- 12					
	Incoming / Outgoing					
	1 no. 6-10 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	26,000.00	26,000.00	
6.1.17	AC-MCC- 13					
	Incoming					
	1 no. 100 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	Bus Bars					
	150 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	4 no. 9-14 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	2 no. 6-10 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	1 nos 2.5-4 TP MPCB,(with Digital ammeter with SS) with DOL starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	163,000.00	163,000.00	
6.1.18	AC-MCC- 13A					
	Incoming					
	1 no. 100 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	150 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	8 nos 6-10 TP MPCB,(with Digital ammeter with SS) with DOL starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	164,500.00	164,500.00	
6.1.19	AC-MCC- 14,18,19,16					
	Incoming / Outgoing					
	1 no. 2.5-4 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	4	26,000.00	104,000.00	

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
6.1.20	AC-MCC- 17, 17A					
	Incoming / Outgoing					
	1 no. 2.5-4 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	2	26,000.00	52,000.00	
6.1.21	AC-MCC- 15					
	Incoming / Outgoing					
	1 no. 1.6-2.5 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	25,500.00	25,500.00	
6.1.22	AC-MCC- 20					
	Incoming					
	1 no. 63 amp MCCB					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	Digital voltmeter with SS with control fuses.					
	Digital ammeter with SS and CT's.					
	Auto / Manual Switch					
	Bus Bars					
	100 amp TPN Aluminum BB with heat shrinkable insulation colored sleeves.					
	Outgoings					
	1 no. 9-14 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					
	1 no. 6-10 amp TP MPCB with VSD (space for VFD with adequate ventilation system)					

**PROJECT: CULTURAL AND INFORMATION CENTRE AT JABALPUR, MP
ESTIMATE- HVAC SYSTEM**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	1 nos 2.5-4 TP MPCB,(with Digital ammeter with SS) with DOL starter					
	1 No. 6 amps DP MCB (single Phase) with step down transformer 220V to 24V (AC)					
	Panel as described above and in drawings.	No.	1	82,000.00	82,000.00	
6.1.23	AC-MCC- 21 - Chiller Plant					
	Incoming					
	1 no. 1000 amp 4P MDO ACB					
	0-500 volts digital voltmeter with SS with control fuses.					
	0-1000 amp digital ammeter with SS and 1000/5 CT's.					
	Phase indicating lights with control fuses.					
	Breaker ON/OFF/TRIP indicating lights.					
	KW, Hz and power factor meter					
	Bus Bars					
	1200 amp TPN Aluminum Bus Bar with heat shrinkable insulation colored sleeves.					
	Outgoings					
	Digital type Ammeter with inbuilt selector switch on each feeder					
	Breaker ON/OFF/TRIP indicating lights.					
	ON/OFF Push Button with indication lights on each feeder					
	Auto / Manual Switch for BMS integration on each feeder					
Chiller	3 nos. 250 amp, 4P MCCB, 35 KA					
CDWP	3 nos. 63 amp, 4P MCCB, 25 KA with operating handles Star-Delta starter (with OLP with SPPR etc.)					
PCHWP	3 nos. 63 amp, 4P MCCB, 25 KA with operating handles					
CT	3 nos. 50 amp, MCCB, with VSD (space for VFD with adequate ventilation system)					
	2 Nos, spare space					
	The base frame shall be 75 mm x 5 mm.					
	Panel as described above and in drawings.	No.	1	591,000.00	591,000.00	
6.2	Local Isolator box					
	Supplying, installation, testing and commissioning of Following isolator in weather proof, 16SWG CRCA sheet steel enclosure Powder coated					

**PROJECT: CULTURAL AND INFORMATION CENTRE AT JABALPUR, MP
ESTIMATE- HVAC SYSTEM**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
6.2.1	80 amp	No.	2	4,500.00	9,000.00	
6.2.2	63 amp	No.	2	3,700.00	7,400.00	
6.2.3	50 amp	No.	2	3,100.00	6,200.00	
	CABLING (POWER)					
6.2.4	Power Cabling and Earthing:					
	S/I/T/C of Aluminum conductor cables PVC insulated PVC sheathed , XLPE armoured cable of 1.1KV grade as may be applicable as per electric rules with identification tags , clamps , and saddles.					
6.2.4.1	3.5Cx185 Sqmm	RM	225	1,457.00	327,825.00	14.1.6.9 - MPSR-2014
6.2.4.2	3Cx16 Sqmm	RM	180	400.00	72,000.00	14.1.4.3 - MPSR-2014
6.2.4.3	3Cx10 Sqmm	RM	75	384.00	28,800.00	14.1.4.2 - MPSR-2014
6.2.4.4	3Cx06 Sqmm	RM	100	364.00	36,400.00	14.1.4.1 - MPSR-2014
6.2.4.5	3Cx04 Sqmm	RM	1000	350.00	350,000.00	
6.2.4.6	4Cx10 Sqmm	RM	1500	387.00	580,500.00	14.1.8.1 - MPSR-2014
6.2.5	Supply & laying of following grade with aluminium/Copper conductor armoured FIRE SURVIVAL cable with (EPR) Ethylene Propylene rubber insulation as per BS 7846:2009 & IEC-60502:2004 Part-1 (Armoured), Retain circuit integrity as per BS 6387 C.W.Z (armoured), BS-8491:2008, BS 8434-2: 2009 (armoured), (Resistance to fire at 950° C for 3 hours), as per specifications. Cost of termination glands and GI earthing (flats / strips / wires, as may be applicable as per electric rules : Earthing system shall comply to IS: 3043-1987.) , identification tags , clamps , and saddles.					
6.2.5.1	3C x 16 Sqmm Aluminium	RM	75	850.00	63,750.00	
6.2.5.1	3C x 10 Sqmm Aluminium	RM	100	800.00	80,000.00	
6.2.5.1	3C x 6 Sqmm Aluminium	RM	100	725.00	72,500.00	
6.2.5.1	3C x 4 Sqmm Aluminium	RM	800	670.00	536,000.00	
6.2.5.1	2C x 1.5 Sqmm Copper	RM	600	310.00	186,000.00	
6.3	Control Cabling					
	Copper conductor , PVC insulated,PVC sheathed cable of 1.1 KV grade					
6.3.1	4C x 1.5 Sqmm	RM	400	210.00	84,000.00	

**PROJECT: CULTURAL AND INFORMATION CENTRE AT JABALPUR, MP
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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
6.4	Cable termination					
	Cable termination of the following XLPE insulated aluminium conductor armoured cables (with FRLS Outer Sheath) of 1100V grade including cost of thimbles / lugs, double compression nickel plated brass glands, cables sockets, insulation tape and crimping etc. complete as required.					
6.4.1	3.5Cx185 Sqmm	Nos.	8	1050.00	8,400.00	14.5.1.c - MPSR-2014
6.4.3	3Cx16 Sqmm	Nos.	2	472.00	944.00	14.5.1.a - MPSR-2014
6.4.4	3Cx10 Sqmm	Nos.	18	450.00	8,100.00	
6.4.5	3Cx06 Sqmm	Nos.	6	350.00	2,100.00	
6.4.6	3Cx04 Sqmm	Nos.	110	300.00	33,000.00	
6.4.7	4Cx10 Sqmm	Nos.	6	500.00	3,000.00	
6.5	Providing & fixing 25mmx5mm G.I. strip on surface or in recess for earth connections etc. complete as required.	RM	100	58.00	5,800.00	11.8 - MPSR-2014
6.6	Providing and fixing 6 SWG dia GI wire on surface or in recess for loop earthing complete as required.	RM	8500	13.00	110,500.00	11.7 - MPSR-2014
6.7	Cable Trays and cable management systems					4.6 - DSR-2016
	Hot Dipped Galvanized Iron Cable Tray					
	Supplying and installing following size of perforated Hot Dipped Galvanized Iron cable tray (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.					
6.7.1	150 mm width X 50 mm depth X 1.6 mm thickness	RM	500	454.00	227,000.00	4.6.2- DSR-2016
6.7.2	300 mm width X 50 mm depth X 1.6 mm thickness	RM	200	633.00	126,600.00	4.6.4 - DSR-2016
6.7.3	450 mm width X 50 mm depth X 2.0 mm thickness	RM	50	922.00	46,100.00	4.6.6 - DSR-2016
6.8	MS conduits					
	P/F MS conduit complete with clamps and suspension arrangement.					
6.8.1	25 mm dia	RM	100	80.00	8,000.00	

PROJECT: CULTURAL AND INFORMATION CENTRE AT JABALPUR, MP
ESTIMATE- HVAC SYSTEM

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	Sr. no. as per DSR / MPSR
	TOTAL CARRIED OVER TO SUMMARY (Electrical)				5,192,919.00	

LANDSCAPRE WORKS - SUMMARY

S.NO.	DESCRIPTION OF WORK		AMOUNT TOTAL
A	EARTH WORK	Rs.	816,245
B	CONCRETE WORK	Rs.	934,210
C	REINFORCED CEMENT CONCRETE WORK	Rs.	1,358,196
D	STONE WORK	Rs.	1,212,300
E	MARBLE WORK	Rs.	10,635
F	WOOD WORK	Rs.	69,516
G	STEEL WORK	Rs.	1,233,127
H	HARD SCAPING WORK	Rs.	11,639,854
I	ROOFING	Rs.	3,026
J	FINISHING	Rs.	37,798
K	WATER PROOFING WORK	Rs.	204,367
L	SPECIAL ITEM	Rs.	3,233,906
	Total :	Rs.	20,753,181

SCHEDULE OF QUANTITIES

LANDSCAPE work						
A						
EARTH WORK						
SL.N	Code	Description	UNIT	QTY	RATE	AMOUNT
1	2.8 p16	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
	2.8.1	All kinds of soil	cum	658.18	116.10	76,415
					-	
2	2.7 p15	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30 cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m, disposed earth to be levelled and neatly dressed.				
a	2.7.1	Ordinary rock	cum	329.09	176.40	58,052
					-	
b	2.7.2	Hard rock (requiring blasting)	cum	109.70	281.70	30,902
					-	
3	9.1 p204	Trenching in ordinary soil up to a depth of 60cm including removal and stacking of serviceable materials and then disposing of by spreading and neatly levelling with in a lead of 50m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	cum	2510.11	116.10	291,424
					-	
4	19.2 p204	Supplying and stacking of good earth at site including royalty and carriage up to 1 km (earth measured in stacks will be reduced by 20% for payment).	cum	830.96	165.60	137,607
					-	
5	19.3 p204	Supplying and stacking sludge at site including royalty and carriage up to 1 km (sludge measured in stacks will be reduced by 8% for payment).	cum	21.15	145.80	3,083
					-	
6	19.4 p204	Supplying and stacking at site dump manure from approved source, including carriage up to 1 km (manure measured in stacks will be reduced by 8% for payment)				
a	19.4.3	Screened through sieve of I.S. designation 4.75mm	cum	4.23	110.70	468
					-	

7	19.8. p204	Spreading of sludge, dump manure or/and good earth in required thickness (Cost of sludge, dump manure or/ and good earth to be paid separately).	cum	856.34	13.50	11,561
					-	
8	19.9 p204	Mixing earth and sludge or manure in proportion specified or directed.	cum	856.34	91.80	78,612
					-	
9	2.34 p95	Providing & laying Selection no. 1 grass turf with earth 50mm to 60mm thickness on existing ground prepared with proper level and ramming with required tools wooden and than rolling the surface with light roller make the surface smoothen and light watering the same, as per direction of officer in charge	sqm	1848.80	69.30	128,122
		Toral carried over to summary			-	816,245
					-	
B		CONCRETE WORK			-	
					-	
1	4.1 p34	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering All work up to plinth level.				-
a	4.1.3	Cement concrete grade M-15 (Nominal Mix) with 40 mm maximum size of stone aggregate.	cum	242.42	3,684.60	893,203
					-	
b	4.1.5	Cement concrete grade M-10 (Nominal Mix) with 40 mm maximum size of stone aggregate.	cum	0.38	3,175.20	1,200
					-	
2	4.10 p36	Providing and laying damp-proof course 50mm thick with cement Cement concrete grade M-15 (Nominal Mix) with 20 mm maximum size of stone aggregate	sqm	154.11	203.40	31,346
					-	
3	4.11 p36	Extra for providing and mixing water proofing material in cement concrete work @ 1 kg per 50kg of cement.	Per 50 kg cement	154.11	54.90	8,461
		Toral carried over to summary			-	934,210
					-	
C		REINFORCEMENT CONCRETE WORK			-	
					-	
1	5.1 p46	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :				-
a	5.1.1	Cement concrete grade M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate.	cum	45.62	4,255.20	194,134
					-	

2	5.2 p46	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor two level excluding cost of centering, shuttering, finishing and reinforcement			-	
a	5.2.1	Cement concrete grade M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate.	cum	39.91	4,545.00	181,392
					-	
3	5.3 p46	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor two level excluding the cost of centering, shuttering, finishing and reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate).	cum	14.81	4,608.00	68,246
					-	
4	5.4 p46	Providing and laying up to floor two level reinforced cement concrete in kerbs, steps and the like excluding the cost of centering, shuttering, finishing and reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate)	cum	36.75	4,376.70	160,844
					-	
5	5.11 p47	Providing, hoisting and fixing up to floor two level precast reinforced cement concrete in small lintels not exceeding 1.5m clear span up to floor two level including the cost of required centering, shuttering and finishing smooth with 6 mm thick cement plaster 1:3 (1 cement : 3 fine sand) on exposed surfaces but excluding the cost of reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate).	cum	0.97	6,973.20	6,778
					-	
6	5.14 p48	Providing, hoisting and fixing up to floor two level precast reinforced cement concrete in shelves including setting in cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering and finishing with neat cement punning on exposed surfaces but excluding the cost of reinforcement with Cement concrete grade M-20 (Nominal Mix with 20 mm maximum size of stone aggregate)	cum	0.25	7,803.90	1,967
					-	
7	5.2. p49	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding including cost of binding wire upto floor two level including all wastage etc. complete.			-	

	5.20.6	Thermo-Mechanically Treated bars.		11326.97	54.00	611,656
					-	
8	20.1	Centering and shuttering including strutting, propping etc.and removal of form for :			-	
a	20.1.1	Foundations, footings, bases of columns, etc. For mass concrete.	sqm	264.64	124.20	32,868
					-	
b	20.1.2	Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc	sqm	358.85	194.40	69,760
					-	
c	20.1.3	Suspended floors, roofs, landings, balconies and access platform.	sqm	48.24	204.30	9,855
					-	
d	20.1.5	Lintels, beams, plinth beams, girders, bressumers and cantilevers.	sqm	53.27	182.70	9,732
					-	
e	20.1.6	Columns, Pillars, Piers, Abutments, Posts and Struts.	sqm	43.20	253.80	10,964
		Toral carried over to summary			-	1,358,196
					-	
D		STONE WORK			-	
					-	
1	7.1 p67	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete M-5 stone aggregate 20mm nominal size) at plinth level with :			-	
a	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	326.62	2,403.90	785,168
					-	
2	7.6 p67	Coursed rubble masonry (first sort) with hard stone in foundation and plinth with :			-	
a	7.6.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	144.34	2,518.20	363,467
					-	
3	7.8 p67	Extra for coursed rubble masonry with hard stone (first or second sort) in superstructure above plinth level & upto 2 floor level.	cum	144.34	397.80	57,417
					-	
4	6.10 p59	Half brick masonry with of class designation 40 in super structure above plinth level up to floor 2 level including the cost of scaffolding.			-	
	6.1.1	Cement mortar 1:3 (1 cement : 3 coarse sand)	sqm	10.68	523.80	5,594
5	6.12 p59	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with of class designation 40).	sqm	10.68	61.20	654
		Toral carried over to summary			-	1,212,300
					-	
E		MARBLE WORK			-	
					-	

1	8.2 p78	Providing and fixing 16mm 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.			-	
a	8.2.8	Granite of any colour and shade			-	
	8.2.8.2	Area of slab over 0.50 sqm.	sqm	3.60	2,289.60	8,243
					-	
2	8.3 p79	Extra for providing full edge moulding to 16mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineerin- Charge.			-	
a	8.3.2	Granite work	metre	6.30	131.40	828
					-	
3	8.4 p79	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.	metre	12.60	124.20	1,565
		Toral carried over to summary			-	10,635
					-	
F		WOOD WORK			-	
					-	
1	9.1 p86	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position :			-	
a	9.1.3	Second class teak wood	cum	0.23	74,823.30	17,334
					-	
2	9.40. p93	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete:			-	
a		2nd class teak wood			-	
(i)	9.40.1. 2	50x20 mm	metre	89.10	108.90	9,703
					-	
3	9.20. p90	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters using following hinges.			-	
a	9.20.1	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	sqm	9.45	1,367.10	12,919
					-	

5	9.10. p88	Providing and fixing factory made laminated veneer lumber glazed shutter conforming to IS: 14616 and TADS 15:2001 (Part B) , using 4mm thick float glass panes for doors, windows and clerestory windows including ISI marked black enamelled M.S butt hinges with necessary screws as per directions of Engineer-in-charge.			-	
a	9.10.1	30 mm thick shutters	sqm	9.45	1,805.40	17,061
					-	
6	17.3 p191	Providing and fixing glazing in wooden / aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in- charge (Cost of aluminium snap beading shall be paid in basic item):			-	
a	17.3.2	With float glass panes of 5.50 mm thickness	sqm	8.91	773.10	6,888
					-	
7	9.11 p88	Extra for providing heavy sheet float glass panes instead of ordinary float glass in glazed doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured)			-	
	9.11.1	5.5 mm thick instead of 4 mm thick.	sqm	10.89	146.70	1,598
					-	
8	9.96 p100	Providing and fixing aluminium sliding door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete :			-	
a	9.96.1	300x16mm	each	5	176.40	882
					-	
9	9.97 p100	Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete :			-	
a	9.97.2	250 x 10mm	each	10	68.40	684
					-	
b	9.97.4	150 x 10mm	each	24	51.30	1,231
					-	
10	9.100. p101	Providing and fixing aluminium handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete :			-	
a	9.100. 1	125mm	each	5	53.10	266
					-	
b	9.100. 2	100mm	each	24	39.60	950
		Toral carried over to summary			-	69,516
					-	
G		STEEL WORK			-	
					-	

1	10.2 p113	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete:	kg	5040.41	55.80	281,255
					-	
2	10.16. p115	Steel work in built up tubular trusses including cutting, hoisting fixing in position and applying a priming coat of approved steel primer, welded and bolted including special shaped washers etc. complete.				
	10.16. 2	Hot finished seamless type tubes.	kg	5124.89	77.40	396.667
	DSR				-	
3	16.15. 2	Welded steel wire fabric of required width having rectangular mesh painted with two or more coats of enamel paint of approved shade over a coat of primer (Priming & Painting to be paid for separately).	kg	6585.6	54.05	355,919
					-	
4	25.10 p116	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	25.10. 2	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	kg	3630	54.90	199,287
		Toral carried over to summary			-	1,233,127
					-	
H		HARD SCAPING WORK			-	
					-	
1	11.3 p127	Cement concrete flooring M-15 (nominal mix) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete.				
	11.3.1	40mm thick with 20mm maximum size of stone aggregate.	sqm	16.23	212.40	3,448
					-	
2	11.6 p128	Cement plaster skirting (up to 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.	sqm	3.05	194.40	593
					-	
3	11.34 p134	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (6 to 7mm thick) 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.	sqm	20.77	617.40	12,823
					-	

4	11.35 p134	Providing and laying Ceramic glazed floor tiles 300x300 mm (9 to 10 mm thick) of 1st quality conforming to IS : 15622 of approved make in colours such as 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 pigment etc., complete.	sqm	3.36	723.60	2,431
	Roads				-	
5	4.2 p30	Laying and spreading available soil in the subgrade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 3 % slaked lime having minimum content of 70% of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade complete and as per relevant clauses of section-400. (Lime stabilisation for improving sub-grade)				
	b	By Manual Means	cum	882.464	316.80	279,565
	Roads				-	
6	4.3 p30	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding materials to fill up the interstices of coarse aggregate, watering and compacting to the required density and as per relevant clauses of section-400.				
	i)	Grading- I			-	
	a	Using Screening Crushable type	cum	1323.70	809.10	1,071,002
	DSR				-	
7	2.27 p80	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	cum	330.924	825.98	273,335
					-	
8	26.14 p418	Supplying & laying of bi-axial extruded high modulus polypropylene geogrid conforming to MORTH SPECIFICATION for base / sub-base reinforcement having minimum tensile strength 30kN/m in the longitudinal and transverse direction, with 10.5 kN/m and 21kN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction, junction efficiency not less than 95% and with 38mm X 38mm mesh opening.	sqm	5063.320	217.13	1,099,373
					-	







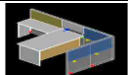



9	26.13 p418	Supplying & laying of bi-axial extruded high modulus polypropylene geogrid coforming to MORTH SPECIFICATION for base/sub-base reinforcement having minimum tensile strength 20kN/m in the longitudinal and transverse direction, with 7kN/m and 14kN/m tensile strength at 2% and 5% strain respectively in the longitudinal and transverse direction, junction efficiency not less than 95% and with 38mm X 38mm mesh opening.	sqm	5063.32	137.79	697,675
	DSR				-	
10	16.92 p281	Providing and fixing 10 x 10 x 7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20mm thick base mortar 1:4 (1 cement : 4 coarse sand) with joints 10mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in-charge.	sqm	2024.12	1,255.73	2,541,738
					-	
11	11.26. p133	Kota stone slab 25mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 coarse sand) 1 : 4 (minimum size of kota stone 0.25 sqm)	sqm	350	737.10	257,985
					-	
12	11.28 p133	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1cement : 5 coarse sand) with joints finished flush. (minimum size of stone 0.25 sqm)				
					-	
a	11.28. 2	White sand stone (Gwalior Mint 40mm thick)	sqm	300	397.80	119,340
	DSR				-	
13	16.87 p280	Providing and laying gang saw cut 30 mm thick, mirror polished (leather finished)pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.				
					-	
a	16.87. 1	With granite stone of area less than 0.50 sqm.	sqm	50	3,005.64	150,282





14	NS	Kadapa Stone 20-25mm slab 16mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 course sand) 1 : 4	sqm	948	1415.48	1,341,878
15	NS	Grey Quartz Stone 25mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 course sand) 1 : 4	sqm	350	1863.84	652,344
16	NS	Brown Quartz Stone 25mm thick slab 16mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 course sand) 1 : 4	sqm	350	1759.79	615,925
17	NS	Light Brown Quartz Stone 25mm thick slab 16mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 course sand) 1 : 4	sqm	350	1759.79	615,925
18	NS	Extra for covering top of road for Fire Tender with Geocell, 100% polyester of thickness 1 to 1.25 mm bonded to the membrane with intermittent touch by heating the membrane by Butane Torch as per manufactures recommendation.	sqm	1100	1530.88	1,683,970
19	NS	Providing and laying in position Gwalior Mint Stone Benches of 35mm thick (450 x 450 x 900) all complete.	each	10	2098.83	20,988
20	NS	Red Agra Stone 25mm thick flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar (1 cement : 4 course sand) 1 : 4	sqm	200	967.13	193,425
21	NS	Providing and fixing in position Stone Boulders (say 1200 x 1200 x 1500) of organic shape all complete.	each	5	1161.50	5,808
		Toral carried over to summary				11,639,854
I		ROOFING WORK				

1	12.21 p146	Providing gola 75x75 mm in cement concrete M-15 with aggregate 10mm and down gauge including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :				
a	12.21. 1	In 75x75mm deep chase	metre	33.24	75.60	2,513
					-	
2	12.22 p146	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete M-15 with aggregate of 20 mm nominal size over P.V.C. sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1cement : 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complet	each	3	123.30	370
					-	
3	12.37 p213	Providing and fixing 100 mm diameter and 60 cm long rain water spout in cement mortar 1:4 (1 cement : 4 fine sand).			-	
	12.37. 1	Stone ware spout	each	3	47.70	143
		Toral carried over to summary			-	3,026
J		FINISHING WORK			-	
					-	
1	13.4 p156	12 mm cement plaster of mix :			-	
	13.4.2	1:6 (1 cement: 6 coarse sand)	sqm	77.22	91.80	7,088
					-	
2	13.5 p156	15 mm cement plaster on rough side of single or half brick wall of mix :			-	
	13.5.2	1:6 (1 cement : 6 coarse sand)	sqm	8.97	99.00	888
					-	
3	13.16 p157	6mm cement plaster of mix :			-	
	13.16. 1	1:3 (1 cement : 3 fine sand)	sqm	24.67	74.70	1,843
	DSR				-	
4	13.81. p234	Distempering with 1st quality acrylic distemper, 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.			-	
a	13.81. 2	Two coats	sqm	110.86	44.69	4,954
	DSR				-	
5	13.85 p235	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content.			-	
a	13.85. 1	With ready mixed pink or grey primer on wood work (hard and soft wood) having VOC content less than 50 grams/ litre	sqm	46.71	34.61	1,616
					-	
b	13.85. 2	With ready mixed red oxide zinc chromatic on steel / iron works having VOC content less than 250 grams/ litre	sqm	590.13	29.30	17,288

					-	
12	13.68 p164	French sprit polishing			-	
	13.68. 1	Two or more coats on new works including a coat of wood filler.	sqm	46.71	88.20	4,120
		Toral carried over to summary			-	37,798
					-	
K		WATER PROOFING WORK			-	
					-	
1	18.16 p199	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd & 4th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0mm thick of 3.00 Kg/sqm weight consisting of five layers prefabricated with centre core as 100micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 100 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat which shall be paid for separately.	sqm	813.89	251.10	204,367
		Toral carried over to summary			-	204,367
					-	
L		SPECIAL ITEM				
1	NS	Providinf and fixing in position asper manufacturer's specification BOOM BARRIER System.all complete : Automatic Boom Barrier Feature:- 1) Electromechanical barrier for passages up to 4m, intensive use 2) Easy to use external manual unlock device 3) Slowing down setup thanks to two adjustable limit switches 4) Speed, strength and soft stop/start adjustable for an always correct use and performance. 5) Possibility of integrated FTC.S photocells thanks to the innovative hide-away system that enables them to be perfectly integrated with the look, ensuring maximum functionality. Model Lady 4 Make Beninca	each	10	90016.25	900,163
1a		Pair of photocell SAFEBEAM Make Beninca	pair	1	7027.08	7,027

2	NS	Providinf and fixing in position asper manufacturer's specification TROPOD TRUNSTILE System.all complete : Tripod Turnstile BIT20 Application Indoor, outdoor ,1.5mm std SS304 grade stainless steel, Dimension 420 x 330 x 980 mm, Passage Width 510mm, Operation Speed Single or Bi - direction 0.2 sec , Passing Speed 30 - 35 person/minute , Communication Interface RS485, Communication interface +12v Level signal or dry relay switch signal, Drive Motor AC220v $\pm 10\%$, 50Hz $\pm 10\%$, Drive Motor DC 24v brush motor ,Power Consumption30W Operation Temparature-20°C ~ 70°C <90%, no condensation IP Protection IP45, MCBF 3000,000 Cycle Make Beninca	each	20	116335.84	2,326,717
		Toral carried over to summary				3,233,906

Furniture Works					
S.No.		Numbers	Rate/ Unit	Total Cost	Reference Image
1	Prelam Storages with openable shutters panel of 9mm, shelves of 18mm, (the complete carcass is of 18 mm , back and base of 25mm thick prelam particle board of size 1050 (L)x425 (D)x1200 (H)	7	15000	105,000	
2	Kingsley Premium table with Main table of prelam particle board of 25mm thickness and PVC Edge binding of 2mm and Prelam Understructure and prelam Modesty. Grommet given in return table for wire management.	6	9100	54,600	
3	That's It: Medium Back mesh back chair with Lumbar support, I D Adjustable armrest, Nylon Base and Nylon Castors- All BIFMA Compliant	34	6700	227,800	
4	Kingsley Premium Prelam table with Main table top of 25mm thickness and PVC Edge binding. Prelam Understructure and prelam Modesty. Grommet given in return table for wire management.	19	10200	193,800	
5	Kingsley Premium Prelam table with Main table top of 25mm thickness and PVC Edge binding. Prelam Understructure and prelam Modesty. Grommet given in return table for wire management.	5	12500	62,500	
6	That's It: Medium Back mesh back chair with Lumbar support, I D Adjustable armrest, Nylon Base and Nylon Castors- All BIFMA Compliant	5	6700	33,500	
7	X bench LINEAR workstation of size 1350x600x740mm, Table top is made up to 25mm prelam partical board with the Fliptop Box of size 450 ASLY, Understructure is made up of 50x50mm suqare pipes of CRCA, powdercoated with 50-60 microns, Mast Leg for carrying all the wiremanagement and horizontal RACEWAY underthe table. Mobile Pedestal of size 400x470x545mm with the locks and X-Bench Fabric Screen of 18mm thick of size 1200x400mm with 75mm band on the top for pinup.	6	17500	105,000	
8	Cubicle workstation of size 2100x600x900mm, Table top is made up to 25mm prelam partical board with the Fliptop Box of size 450 ASLY, Understructure is made up of 50x50mm suqare pipes of CRCA, powdercoated with 50-60 microns, Mast Leg for carrying all the wiremanagement and horizontal RACEWAY underthe table. Mobile Pedestal of size 400x470x545mm with the locks and X-Bench Fabric Screen of 18mm thick of size 1200x400mm with 75mm band on the top for pinup.	3	65000	195,000	
9	Alivio: Medium Back mesh back chair with Lumbar support, I D Adjustable armrest, Nylon Base and Nylon Castors- All BIFMA Compliant	3	8500	25,500	
10	Xmeet meeting table of size 6500 (L)x2200 (D)x740 (H). Table top is 25mm thick prelam particle board with the Flip top box of size 450 mm ASLY and understrucur eis made up of 50x50mm square pipe of CRCA powder coated with 50-60 microns. Mast leg is for carrying all the wire management and Horizontal raceway is below the table top	1	75000	75,000	
11	Alysia Sofa : Frame made up of plywood and Seating cushions: 3" elastic webbing (350 gsm) with diagonal weave and 7" multi layered foam (32D 23D 32D HD) with polyester polyfill outer layer (180 gsm) Backrest: 2" elastic webbing (250 gsm) with diagonal Weave and 3" foam (23D) with Polyester polyfill outer layer (180 gsm) Outer finish: stained solid wooden legs superior quality leatherette stitched with nylon bonded thread and			-	
22.1	1 seater	14	24800	347,200	
11.2	2 seater	13	32000	416,000	

11.3	3 seater	2	38000	76,000	
12	Get together Café Table in of size 1200 (L)x900(D)x740 (H)mm, Heat corrosion and scratch resistant top in membrane finish made of acrylic composite board and matching lipping color and Understructure is 5 prolonged base of SS202 material.	8	19200	153,600	
13	Get together Café Table in rectangular shape of size 1600 (L)x900(D)x740 (H)mm, Heat corrosion and scratch resistant top in membrane finish made of acrylic composite board and matching lipping color and Understructure is 5 prolonged base of SS202 material.	8	21500	172,000	
14	Munch Café Chair made up of Bent Ply double mould re-engineered veneer and Understructure is sparkle silver powder coated- BIFMA Compliant	84	2550	214,200	
15	Transit-Special Multipurpose chair with Virgin plastic on seat and back with Fixed Armrest and Understructure is silver powder coated. BIFMA COMPLIANT	510	3200	1,632,000	
Total Furniture Work				4,088,700	

Auditorium Works					
CEILING TREATMENT					
1.0	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37 mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50 mm long with 6 mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25 mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting.				
1.1	12.5 mm thick tapered edge gypsum fire resistant board conforming to IS: 2095- Part I	270	Sqm.	922	248,954
2.0	Providing and fixing of 25mm thick thermal bonded non woven polyester wadding of 1200GSM behind the ceiling.	1080	Sqm.	673	727,218
3.0	Providing & fixing false ceiling at all heights with GRG (Glass Fibre Reinforced Gypsum) false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having moisture content less than 2%, humidity resistance of 99%, NRC 0.50 to 0.75 as per IS 8225:1987, Non combustible as per BS 476 (part-4)-1970 and light reflectance of 85% (minimum) to be laid in true horizontal level suspended on suspension grid. The work shall be carried out as per specifications, drawing and as per directions of Engineer-in-Charge. With semi perforated 12 mm thick micro tegular edged GRG false ceiling tiles.	166	Sqm.	780	129,480
4.0	Providing and fixing in position wall panelling Channeled Wooden panels of width 128 mm, minimum thickness of 15mm and length 2440 mm made up of high density fiber board with minimum density of 800 Kg/m ³ substrate with a laminated facing as per the approved shade / species & finish with melamine balancing layer on the reverse side. The boards shall have a special perforation pattern of minimum 4 mm & 16 mm pitch visible. The panels shall have fire resistance of Class I, BS 476 part 7. The edges of the panels shall be "tongued-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece. The panel shall be mounted on Aluminium tubular framework using clips. Install framework 50mmx25x2mm aluminium tubes @ 600 c/c suitably suspended from the ceiling by means of 25x25x2mm Aluminium angles of desired length as per the design drawings with suitable aluminium cleats and anchor fastener pf 65x10mm dia fixed in the RCC slab. Screw the aluminium extruded keel for channeled wood panels over the corner most section and second GI Section at an distance of 600mm centers. Install the first set of wooden panels by inserting the clips in the groove of the panel into the projecting flange. Continue installing rows of panels by inserting the tongue into the groove of the earlier inserted panel and progressively installing clips for next . Continue the process till the actual plan area is achieved. Use clips for border channel to finish off the installation, finish the edges using wood moulding of matching colour or as approved by Engineer-in- Charge. The installed panels should give a NRC of minimum 0.70 all complete as per direction Engineer in charge. RECOMMENDED MAKES : ARMSTRONG / CREDENCE /DECOSONIC	810	Sqm.	5 600	4,536,000
5.0	Painting with acrylic emulsion paint at all heights, 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.	430	Sqm.	280	120,400
SH02	WALL TREATMENT				

1.0	Providing and fixing GI Gyp steel ultra frame work for wall panelling as per design drawing consisting of floor channel of size 50x32x32 x0.5mm thick at bottom and top fixed with 35 mm nylon sleeves and 35 mm screw. Further fixing GI stud 48x34x36x0.5 mm thick @600mm C/C vertically. The framework to be filled with 50mm 1000GSM non-woven thermal bonded polyester wadding (Make Dupont/ mikasha/vibrant) held in position with 18 mm GI checken mesh of 24SWG with drive all screws and oversize washers. Finally fixing over it horizontally 80x26x51x0.5 mm thick G.I. Gyp ceiling section placed @600mm C/C or wherever required as per design drawings. The frame to be fixed to the walls by means of angle holdfasts or cleats of required size complete with expandable anchor fasteners of 65x10mm dia fixed on each vertical member @1000mm C/C .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	450	Sqm.	1 580	711,000
2.0	Providing and fixing GI Gyp steel ultra frame work for wall panelling as per design drawing consisting of floor channel of size 50x32x32 x0.5mm thick at bottom and top fixed with 35 mm nylon sleeves and 35 mm screw. Further fixing GI stud 48x34x36x0.5 mm thick @600mm C/C vertically. The framework to be filled with 50mm 1000GSM non-woven thermal bonded polyester wadding (Make Dupont/ mikasha/vibrant) held in position with 18 mm GI checken mesh of 24SWG with drive all screws and oversize washers. Finally fixing over it 290GSM Fire retardant Fabric of approved colour & shade fixed in UPVC grippers 12 x 38mm fixed with drive all screws on the framework @ 1200/c vertically. The frame to be fixed to the walls by means of angle holdfasts or cleats of required size complete with expandable anchor fasteners of 65x10mm dia fixed on each vertical member @1000mm C/C .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	560	sqm	1 780	996,800
3.0	Providing and fixing commercial ply of required thickness for wall lining with necessary screw, priming coat on un-exposed surface complete as per drawing and direction of Engineer-in-Charge. Recomendated Make : Duro , Century , Merino/ Archidply . The ply to be fixed to the existing GI frameowrks (Frameworks to be paid separately) at all heights. The work shall be executed as per drawings ,specifications & instructions of engineer in charge. 12mm thick commercial ply having approx 18% perforation done randomly with 8mm & 12mm dia holes to achieved required NRC values.The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	110	Sqm.	1 650	181,500
4.0	Providing and fixing of Fabrico Acoustic Panel with glasswool core (Make Decosonic / Armstrong / Credance) faced with Inherently Fire retardant fabric design matte having weight not less than 120 KG / Cu mtr fixed over the 12mm perforated ply with impalers . (Ply shall be paid separately in item no 2). The ply to be fixed over the GI frame work (Note: framework to be paid for seperetly in item no 1) Complete as per drawings and as per direction of Engineer-in-charge. Specification and execution of item at all heights and as per direction of Engineer-in-charge	110	Sqm.	4 850	533,500
5.0	Providing and fixing in position wall panelling Channeled Wooden panels of width 128 mm, minimum thickness of 15mm and length 2440 mm made up of high density fiber board with minimum density of 800 Kg/m3 substrate with a laminated facing as per the approved shade / species & finish with melamine balancing layer on the reverse side. The boards shall have a special perforation pattern of minimum 4 mm & 16 mm pitch visible. The panels shall have fire resistance of Class I, BS 476 part 7. The edges of the panels shall be "tongued-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleec. The panel shall be mounted on GI framework using clips. (GI framework payable separately in item no 1) . Install the first set of wooden panels by inserting the clips. For border channel insert the groove of the panel in to the projecting flange of the aluminium clip. Continue installing rows of panels by inserting the tongue into the groove of the earlier inserted panel and progressively installing clips for inside channel into the next frame member. Continue the process till the actual height is achieved. Use clips for border channel to finish off the installation, finish the edges using wood moulding of matching colour or as approved by Engineer-in- Charge. The installed panels should give a NRC of minimum 0.70 all complete as per direction Engineer in charge. RECOMMENDED MAKES : ARMSTRONG / CREDENCE /DECOSONIC	110	Sqm.	3 800	418,000
6.0	Providing & Fixing of square/bevel edge 9 mm. thick from 100% Polyethylene Terephthalate Panels (PET) as per approved colours of 135 kg/cu m density to be installed as per the directions of the architect/engineer in-charge. Manufactured panels should be fire resistant as per Class I as per Test Astm E84 . The recycle content should be 60% and method. PET Panel to be glued with Silicon / SR adhesive. Adhesive to be sprayed/brushed on to ply ensuring the line and level of the panels. After pasting nailed firmly with the help of headless nail which shall be countersunked. The PET panels to be glued over 12mm com ply having 18% perforations installed on GI studs framework filled with non woven thermal bonded polyester wadding (Note : GI Stud framework and perforated ply payable separately.) RECOMMENDED MAKES : CREDENCE /DECOSONIC	300	Sqm.	5 600	1,680,000

7.0	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately). Sal wood	0.9	Cum	75 500	67,950
8.0	Supply & fixing of 83mm thick, having 38 dB acoustic cum fire check door shutters, having Fire rating 120 Minutes minimum, having infill of 47mm thick resin bonded glasswool of 24kg/cum density coated with FR Acrylic Sealant Sandwiched between two 9 mm thick calcium silicate boards (Starpan or equivalent) 100% without asbestos, Brucite and Meerscham having a density not more than 1150kg/cum and thermal conductivity 0.14 W/M*K faced with 8mm thick commercial ply (green/merino/century) with heat activated intumescent fire seal strip of size 10mm x 4mm mounted in the grooves having hardwood lipping of size 15mm x 70mm and fire retardant 1mm thick laminate (merino/century/greenlam) facing on both sides in desired shade and colour. The work shall be executed as per drawings ,specifications & instructions of engineer in charge. (Note:Contractor to submit shop drawing & Test certificates from manufacturer (The Manufacturers should already have a test report with complete Seals tested from CBRI Roorkee for the total design including door closers and panic bar) for approval of the Engineer incharge) . Recommended Make : Global / Navair or equivalent.	42	Sqm.	16 850	707,700
9.0	Providing & fixing acoustic seals to achieve 38 dB noise reduction alongwithcomplete set of RP 24,16 & 38 (Lorient/ Astroflame U.K./Raven/Marshall) to achieve high acoustics and 2 no seals of fire & smoke as required complete. The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	8	sets	44 400	355,200
10.0	Supply & fixing of 304 grade stainless steel ball bearing hinges from Marshall/Assa Abloy/IngersollRand of size 100x100x3mm thick complete .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	64	Each	410	26,240
11.0	Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock/mortice on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	8	Each	22 500	180,000
12.0	Providing and fixing 25mm dia & 400 mm long brushed steel finish pull handles with with long bolt and cap for fixing from outside only as per design approved by engineer in charge of Make Dorset , Dorma , Golden, Hettich ,Haffelle.	8	pairs	4 100	32,800
STAGE FURNISHINGS					
1.0	Providing & fixing of 2 No. staggered layers 12mm thick marine ply of approved make like century, Duro, Green Merino, fixed to Sal wood frame work of size 600 mm c/c both ways (Frame work to be Paid separately). The sal wood framework to be supported on 150x150x5mm neoprene pads & held in position by 35x35x5 mm angle cleats of 150mm length at 1200 mm centres. The wooden framework to be filled with 25mm thick thermal bonded polyester wadding mikron fiber of 800 gm/sqm (Make: Mikasha/ Dupont / Vibrant) held in position with 18mm 24 SWG chicken mesh fixed on the bottom of the wooden framework with necessary screws and washers. The cleats to be given two or more coats of zinc chromate primer. The cleat to be prewelded to the base MS tubular framework & screwed to the wooden framework with necessary screws.The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	170	Sqm.	3 880	659,600
2.0	Providing and applying two coats of fire retardant paint on cleaned wood / ply surface @ 3.5 sqm per litre per coat including preparation of base surface as per recommendations of manufacturer to make the surface fire retardant.	170	Sqm.	247	41,990
3.0	15 mm Engineered wood (min cost @ 4000/- psqm)as per approved shade fixed over 2mm underlay complete with step nose , edge beads , min 100mm skirting at the wall and floor junction as required complete with accessories. The work to be done complete as per instructions of engineer in charge.	170	Sqm.	5 500	935,000
4.0	Providing and fixing first class teak wood moulding of size 70x50mm fixed with wooden adhesive of approved quality and screws/nail on external edges of stage .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	25	Metre	410	10,250
5.0	Providing & fixing of 5mm mirror glued with GE or equivalent silicon adhesive over 12mm commercial ply of make green ply, duro, century, fixed to walls with nylon sleeves on a framing out of aluminium tube of size 18x35mm & in the green room. The Aluminium tube framework to be fixed @ 450mm (V) with both top & Bottom members . The tube to be anchored to the wall by means of suitable cleat and nylon sleeves. The mirror to have a pelmet on all three sides i.e top & both sides except bottom as per design drgs out of 19mm com baord with a depth of 100mm & facia of 100mm . The plemet to have 1mm laminate on facia and side of pelmet or exposed surface of ply as per design. Including cost of lipping beading & polishing wherever required. Complete as per directions of engineer incharge and design drawings.The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	8	sqm	4 300	34,400

SH 04	AUDITORIUM CHAIRS				
1.0	Supply Installation Testing & commissioning of 550mm/c Fire Retardant fabric (FR Fabric conforming to BS EN 1021&1) upholstered chair conforming to BIFMA standards. The chair to have MS tubular framework welded together with continuous arc welding. The chair shall have powder coating of 65microns on all of the MS tubular framework. The seat shall have Polyurethane foam of density 55+3 KG/Cum & Back to have density of 50+3 Kg/CuM. The height of the back to be 950-1000mm from the ground to top of back & for Seat to be 400-450mm from the ground. The rear of back shell & bottom of seat shell to be Polypropylene plastic in black colour Polypropylene plastic cover. The wooden armrest to be of 80mm & 400mm length with melamine polished in black colour. The armrest between two chairs in a row to be shared & at the both ends to be individual. Including cost of expansion fasteners as required of Hilti/Fischer make. The end chair in the row to have aisle LED light fixture. The chair to be of Make Penworkers / Featherlite / BP ergo. The bench shall be fabricated as per drawings, specifications & instructions of engineer in charge.	910	each	11 500	10,465,000
SH05	CARPET /FLOORINGS				
	Providing & fixing of Tufted cut pile carpet. Having Structure ISO 2424 Tufted cut pile, Gauge ISO 2424 1/10, Pile material DIR 96/73, 96/74 100% polyamide, Coloration - Millitron dyed, Backing eTL AB - Acoustic backing, Dimensions ISO 3018 Approx. 400 cm, Total thickness ISO 1765 Apr 8,5 mm, Surface pile thickness ISO 1766 Apr 4.0 mm. Tufts ISO 1763 Apr 239.000 pr.m2, Total carpet weight ISO 8543 Apr 2.300 g/m2, Pile yarn weight eTL 630 g/m2 18.59 oz./yd2, Surface pile density ISO 8543. Apr 0,110 g/cm3, Soil protection eTL Yes, Performance areas EN 1307 Class 32 Commercial, General Guarantee eTL Contract certificate, Suitability for use on stairs EN 1963 Yes, Static control eTL Permanently antistatic, Body walking test EN 1815 Antistatic, Acou.insu. from impact noise ISO 717-2 30 dB, Acoustical absorption ISO 354 0,30 aW, Suitability underfloorheating eTL Apr 0,15 m2K/W, Light reflectance eTL Testreport, Colour fastness to light ISO 105-B02 7, Colour fastness to rubbing wet ISO 105-X12 5, Colour fastness to rubbing dry ISO 105-X12 4-5, Colourfast. to water patterned ISO 105-E01 4-5, Fire classification MK GODKENDELSE Approved, DIBT AbZ.no. Z-156.601-441, IMO Certified, USCG 164.117/EC0575/MEDB00002ZR, EC Type-Ex.Cert.No. MEDB00002ZR, EN 13501-1 Euroclass Cfl-s1, CE Labeling EN 14041 Certified, CPR 1021-CPR-008-2/16, Declaration of Performance DOP 3C-PA-AB, Notified body no. 1021, Ce Year 07, Content of PCP EN 12673 DL, Formaldehyde emission NA, Slip resistance EN 13893 Class DS, Indoor climate DIM certificate No. 006, Green Label Plus Approved, GECA Approved, Environment LEED Qualified.	1080	sqm		
	EXHIBITION HALL				
	CEILING TREATMENT				
1	Providing and fixing in true horizontal level Open cell GI lay-in ceiling tiles with border panels forming flush-regular edge of size 600mmx600mmx38mm having Fire Performance CLASS A1 (EN13964). The tile of 'Global white' color with cell size 150mm X 150mm shall be laid on white painted Armstrong Suprafine XL15mm profile grid system comprising Main runners (3000mm), 1200mm and 600mm cross tees with 15mm white flanges and 38mm web height. The grid should be of 15mm wide T - section flanges color white having rotary stitching on all T sections i.e. the Main Runner with C3 coupling, 1200 mm & 600 mm Cross Tees with Hardened XL2 Clip having a web height of 38 mm and a load carrying capacity of 14 Kgs/M. The T Sections have a Galvanizing of 90 grams per M2 with pull out strength of 100 Kgs. The system to comprise main runner spaced at 1200mm centers securely fixed to the structural soffit by approved hangers at 1200mm maximum centre & not more than 150mm from spliced joints. The last hanger at the end of each main runner should not be greater than 600mm from the adjacent wall. 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 cross tees centrally between the 1200 mm cross tees. Perimeter trim to be wall angles, secured to walls at 450 mm maximum centers. Complete with accessories consisting of M6 Anchor Fasteners with Vertical Hangers made of Galvanized steel of size 26 x 26 x 25 x 1.2mm with a Galvanized Thickness of 80gsm, A pre Straightened Hanger wire of dia - 2.65 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, galvanized spring steel for 2.68 mm. The adjustable clip also consists of a 3.5 mm aquiline wire to be used with the main runner. Laid as per design drawings and instruction of engineer incharge.	550	Sqm.	785	431,750

2	K-13 Standard Grade, sound absorbing cellulose-base plaster, organic in nature, free of asbestos, fiberglass, or manmade mineral fibres and treated with fire resistant chemicals, sprayed with high pressure equipment to the substrate in white colour, construction material Class B1 according to DIN 4102, to be sprayed at an average thickness of 25mm, including protection cover for surfaces that are not to be sprayed. Clips, hangers, supports, sleeves and other attachments to substrate shall be fixed by other agencies prior to spray plaster activity whereas ducts, piping and other suspended equipment shall be placed / fixed after the spray activity. All materials shall be supplied in unopened containers bearing the name of manufacturer, product identification and reference to UL testing. The manufacturer or the applicator shall provide photocopies of material compliance with ASTM E-84 / U. L. 723, tested at a minimum of 5" thk Class I, Class A, Flame Spread: 5, Smoke Development: 5, ASTM E-1042, Non corrosive per UMB-80, Bond Deflection per ASTM E-759: 6" deflection in 10' span – no spalling or delamination. The plaster shall be cured with natural ventilation. The applicator / manufacturer shall provide with test data that the acoustical plaster gives absorption co-efficient, NRC 0.90 for 25mm thk and meet the individual coefficient at 125hz=0.15, at 250hz=0.54, at 500hz=0.91, at 1khz=1.02, at 2khz=0.97 at complete octave bandwidth.	550	Sqm.	6 800	3,740,000
	SEMIANR HALLS				
	WALL / CEILING TREATMENT				
1	Providing and fixing in position wall panelling Channeled Wooden panels of width 128 mm, minimum thickness of 15mm and length 2440 mm made up of high density fiber board with minimum density of 800 Kg/m ³ substrate with a laminated facing as per the approved shade / species & finish with melamine balancing layer on the reverse side. The boards shall have a special perforation pattern of minimum 4 mm & 16 mm pitch visible. The panels shall have fire resistance of Class I, BS 476 part 7. The edges of the panels shall be "tongued-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece. The panel shall be mounted on Aluminium tubular framework using clips. Install framework 50mmx25x2mm aluminium tubes @ 600 c/c suitably suspended from the ceiling by means of 25x25x2mm Aluminium angles of desired length as per the design drawings with suitable aluminium cleats and anchor fastener pf 65x10mm dia fixed in the RCC slab. Screw the aluminium extruded keel for channeled wood panels over the corner most section and second GI Section at an distance of 600mm centers. Install the first set of wooden panels by inserting the clips in the groove of the panel into the projecting flange. Continue installing rows of panels by inserting the tongue into the groove of the earlier inserted panel and progressively installing clips for next. Continue the process till the actual plan area is achieved. Use clips for border channel to finish off the installation, finish the edges using wood moulding of matching colour or as approved by Engineer-in- Charge. The installed panels should give a NRC of minimum 0.70 all complete as per direction Engineer in charge. RECOMMENDED MAKES : ARMSTRONG / CRENDENCE / DECOSONIC	720	Sqm.	5 600	4,032,000
2	Providing and fixing GI Gyp steel ultra frame work for wall panelling as per design drawing consisting of floor channel of size 50x32x32 x0.5mm thick at bottom and top fixed with 35 mm nylon sleeves and 35 mm screw. Further fixing GI stud 48x34x36x0.5 mm thick @600mm C/C vertically. The framework to be filled with 50mm 1000GSM non-woven thermal bonded polyester wadding (Make Dupont/ mikasha/vibrant) held in position with 18 mm GI checken mesh of 24SWG with drive all screws and oversize washers. Finally fixing over it horizontally 80x26x51x0.5 mm thick G.I. Gyp ceiling section placed @600mm C/C or wherever required as per design drawings. The frame to be fixed to the walls by means of angle holdfasts or cleats of required size complete with expandable anchor fasteners of 65x10mm dia fixed on each vertical member @1000mm C/C .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	750	Sqm.	1 780	1,335,000
3	Providing and fixing commercial ply of required thickness for wall lining with necessary screw, priming coat on un-exposed surface complete as per drawing and direction of Engineer-in-Charge. Recommended Make : Duro , Century , Merino/ Archidply . The ply to be fixed to the existing GI frameowrks (Frameworks to be paid separately) at all heights. The work shall be executed as per drawings ,specifications & instructions of engineer in charge. 12mm thick commercial ply having approx 18% perforation done randomly with 8mm & 12mm dia holes to achieved required NRC values.The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	250	Sqm.	1 650	412,500
3	Providing and fixing of Fabrico Acoustic Panel with glasswool core (Make Decosonic / Armstrong / Credance) faced with Inherently Fire retardant fabric design matte having weight not less than 120 KG / Cu mtr glued over 12mm thick perforated ply (Ply shall be paid separately in item no 4). The ply to be fixed over the GI frame work (Note: framework to be paid for seperetly in item no 3) Complete as per drawings and as per direction of Engineer-in-charge. Specification and execution of item at all heights and as per direction of Engineer-in-charge	250	Sqm.	4 850	1,212,500

4	Providing and fixing in position wall panelling Channeled Wooden panels of width 128 mm, minimum thickness of 15mm and length 2440 mm made up of high density fiber board with minimum density of 800 Kg/m ³ substrate with a laminated facing as per the approved shade / species & finish with melamine balancing layer on the reverse side. The boards shall have a special perforation pattern of minimum 4 mm & 16 mm pitch visible. The panels shall have fire resistance of Class I, BS 476 part 7. The edges of the panels shall be "tongued-and-grooved" to receive special clips for installation. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece. The panel shall be mounted on GI framework using clips. (GI framework payable separately in item no 1) . Install the first set of wooden panels by inserting the clips. For border channel insert the groove of the panel in to the projecting flange of the aluminium clip. Continue installing rows of panels by inserting the tongue into the groove of the earlier inserted panel and progressively installing clips for inside channel into the next frame member. Continue the process till the actual height is achieved. Use clips for border channel to finish off the installation, finish the edges using wood moulding of matching colour or as approved by Engineer-in- Charge. The installed panels should give a NRC of minimum 0.70 all complete as per direction Engineer in charge. RECOMMENDED MAKES : ARMSTRONG / CREDENCE /DECOSONIC	500	Sqm.	3 800	1,900,000
5	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately). Sal wood	0.5	Cum	75 559	37,779
6	Supply & fixing of 83mm thick, having 38 dB acoustic cum fire check door shutters, having Fire rating 120 Minutes minimum, including door frame of section 145mm x 75mm marrrantti wood fixed to the door jambs with anchor fastners as required, having infill of 47mm thick resin bonded glasswool of 24kg/cum density coated with FR Acrylic Sealant Sandwitched between two 9 mm thick calcium silicate boards (Starpan or equivalent) 100% without asbestos, Brucite and Meerscham having a density not more than 1150kg/cum and thermal conductivity 0.14 W/M*K faced with 8mm thick commercial ply (green/merino/century) with heat activated intumescent fire seal strip of size 10mm x 4mm mounted in the grooves having hardwood lipping of size 15mm x 70mm and fire retardant 1mm thick laminate (merino/century/greenlam) facing on both sides in desired shade and colour. The door to have 145x75mm The work shall be executed as per drawings ,specifications & instructions of engineer in charge. (Note:Contractor to submit shop drawing & Test certificates from manufacturer (The Manufacturers should already have a test report with complete Seals tested from CBRI Roorkee for the total design including door closers and panic bar) for approval of the Engineer incharge) . Recommended Make : Global / Navair or equivalent.	35	Sqm.	16 856	589,969
8	Providing & fixing acoustic seals to achieve 38 dB noise reduction alongwithcomplete set of RP 24,16 & 38 (Lorient/ Astroflame U.K./Raven/Marshall) to achieve high acoustics and 2 no seals of fire & smoke as required complete. The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	6	sets	44 400	266,400
9	Supply & fixing of 304 grade stainless steel ball bearing hinges from Marshall/Assa Abloy/IngersollRand of size 100x100x3mm thick complete .The work shall be executed as per drawings ,specifications & instructions of engineer in charge.	37	Each	410	15,170
10	Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	6	Each	22 500	135,000
11	Providing and fixing 25mm dia & 400 mm long brushed steel finish pull handles with with long bolt and cap for fixing from outside only as per design approved by engineer in charge of Make Dorset . Dorma . Golden, Hettich ,Haffelle.	6	Each	4 100	24,600
i	MAIN CURTAIN made out of FR velvet curtain cloth with horizontal sliding arrangement complete with fixing rails, brackets, sliding arrangement & motorised operation complete with runners, master runners, pullies, 3mm steel wire rope, 1 HP motor (Crompton) 2nos. air breaker contactors (L&T/SIEMENS) , 2nos. micro switches for auto stop, 3 nos push buttons for forward, reverse and stop positions. The curtain should be draped to half area when in closed position. Minimum overlap at centre should be 900mm and should be stitched in double gathering. Appx. Size:- 10000 x 7000	No.	1	255,000	255,000

ii	REAR CURTAIN made out of glazed FR cotton curtain cloth with horizontal sliding arrangement complete with fixing rails, brackets, sliding arrangements & motorised operation complete with runners, master runners, pullies, 3mm steel wire rope, IHP motor (Crompton) 2nos. air breaker contactors (L&T/SIEMENS), 2 nos. micro switches for auto stop, 3nos. push buttons for forward, reverse and stop positions. The curtain should be draped to half area when in closed position. Minimum overlap at centre should be 900mm and should be stitched in double gathering. Appx. Size:- 8000 x 7000	No.	1	210,000	210,000
iii	FRONT FRILL :- Providing and fixing valance made out of FR velvet cloth to be installed above the stage on 25mm dia GI pipe with the 300% gathering of Size. Size:- 10000 x 1200	No.	1	32,000	32,000
iv	FRILL :- Providing and fixing average frills made out of double gathering FR black glazed velvet cloth to be installed above the stage on 25mm dia GI pipe in front of main curtain. Size:- 9000 x 1200	Nos.	4	30,000	120,000
v	CYCLORAMA CURTAIN :- Providing and fixing cyclorama curtain cum screen in plastic perforated material. The screen to be fixed on tubular frame made out of 35mm / 25 mm dia MS pipe complete with brackets, hooks etc as required. Appx. Size:- 7000 x 6000	No.	1	125,000	125,000
vi	M.S. Pipe Ladders to be provided on sides of the Stage to be fixed on the existing GI pipe or top grid for fixing of side lights. Made of 50mm x 25mm MS pipe.	Nos.	4	8,000	32,000
vii	50mm dia B class GI Pipe to be hung from existing grid or roof structure for side wings, lighting bars.	Mtrs	50	1,200	60,000
viii	Manual Hoisting System for Set Scenery/ Frill Bar with pullies master pulley with 6mm wire rope for each pulley 8 mm wire rope master pulley, frame clamps nut bolt complete in all respects.	Nos.	2	110,000	220,000
Toral carried over to summary					38,985,650

Lift & Escalator Works					
S.No.	Particulars	Unit	Quantity	Rate	Amount
1	Supply, Installtion, Testing & commissioning of MRL Lifts				
a	Passenger lift with capacity of 15 persons or 1020 kg., machine room less, 1.5 mps speed, 5 stops, 16.55m travel, landing door finish in SS, car finish in SS, touch sensitive COP panel etc.	No.	1	1,733,051	1,733,051
b	Passenger lift with capacity of 15 persons or 1020 kg., machine room less, 1.5 mps speed, 5 stops, 16.55m travel, landing door finish in SS, car finish in SS, touch sensitive COP panel etc.	No.	1	1,733,051	1,733,051
c	Passenger lift with capacity of 10 persons or 680 kg., machine room less, 1.5 mps speed, 6 stops, 21.25m travel, landing door finish in SS, car finish in SS, touch sensitive COP panel etc.	No.	1	1,652,542	1,652,542
d	Passenger lift with capacity of 10 persons or 680 kg., machine room less, 1.5 mps speed, 6 stops, 21.25m travel, landing door finish in SS, car finish in SS, touch sensitive COP panel etc.	No.	1	1,652,542	1,652,542
e	Goods lift with capacity of 20 persons or 1360 kg., machine room less, 1.5 mps speed, 6 stops, 21.4m travel, landing door finish in SS, car finish in SS, mechanical push button COP panel etc.	No.	1	2,593,220	2,593,220
2	Supply, Installtion, Testing & commissioning of Indoor Escalator				
a	Covered indoor escalator with 35 degree angle 2850 mm floor to floor height	No.	2	2,910,000	5,820,000
b	Covered indoor escalator with 35 degree angle 3600 mm floor to floor height	No.	2	3,035,000	6,070,000
c	Covered indoor escalator with 35 degree angle 3450 mm floor to floor height	No.	2	3,025,000	6,050,000
d	Covered indoor escalator with 35 degree angle 4500 mm floor to floor height	No.	2	3,335,000	6,670,000
TOTAL Carried to summary					33,974,407

S.no.	Description	Qty	Unit	Rate	Amount	Make	Model
Ground Floor (Exhibition Hall)							
1	Ceiling Speaker : Full range loudspeaker with 1 x 4.5" Driver in a ported enclosure; Frequency Response : 80Hz-17kHz; Nominal Dispersion : 125° conical ; Power handling capacity : 40W; Nominal Impedance : 8Ω or 70/100V; Max SPL : 103 dB; Sensitivity : 87 dB; Installation : Indoor only.	18	Nos.	27,450	494,102	Bose	Freespace DS 40F
2	Main Loudspeaker : Frequency response of 80Hz to 16kHz; Nominal Coverage : 120H X 60V; Power Handling : 200 watt@ 8 Ohms; Sensitivity : 92 Db	2	Nos.	136,474	272,949	Bose	RoomMatch RMU 206
3	Delay Loudspeaker : Frequency response of 80Hz to 16kHz; Nominal Coverage : 120H X 60V; Power Handling : 200 watt@ 8 Ohms; Sensitivity : 92 Db	4	Nos.	136,474	545,898	Bose	RoomMatch RMU 206
4	Subwoofer : High performance flexible bass module; 2 x 10" woofers mounted in a rugged enclosure; Power 250 Watt @ 4 Ohms; 3 position sensing switch; interlocking end caps.	1	Nos.	121,231	121,231	Bose	B2 Bass
5	Power Amplifier :-Professional Amplifiers with 2 x 300 W Class AB Professional Power Amplifier ,Frequency response :20 Hz - 20 kHz (+0 –1 dB, 1 W);THD < 0.5% ;OUTPUT POWER: 300 W at 4Ω-mono(per channel),150W at 8Ω-stereo(per channel),600W at 8Ω Bridge(per channel).	6	Nos.	31,920	191,520	RCF	IPS 700
6	Power Amplifier : Professional Amplifiers with 2 x 450 W Class H Professional Power Amplifier,Frequency response : 20 Hz - 20 kHz (+0 –1 dB, 1 W);THD < 0.5% ;Output Power:450W at 4Ω- mono(per channel),330W at 8Ω-stereo(per channel) ,900W at 8Ω Bridge(per channel).	2	Nos.	41,409	82,818	RCF	IPS 1700
7	Power Amplifier : Professional Amplifiers with 2 x 450 W Class H Professional Power Amplifier,Frequency response : 20 Hz - 20 kHz (+0 –1 dB, 1 W);THD < 0.5% ;Output Power:450W at 4Ω- mono(per channel),330W at 8Ω-stereo(per channel) ,900W at 8Ω Bridge(per channel).	1	Nos.	27,606	27,606	RCF	IPS 1700
8	Processor : Frequency Response : 20 Hz - 20 kHz (+0/-1 dB);THD+N : 0.015 % ; Channel Separation (Crosstalk) : 100 dB (typical);Dynamic Range :107 Db ; Audio Latency : 1.52 ms ; Maximum Output Delay : 170 ms ; Input Channels : 2 channels ; Outputs : 4 analog, balanced, differential	1	Nos.	103,492	103,492	Bose	ControlSpace SP24
9	Mixer : 6 channel mixing console of 2 mono inputs & 2 stereo line inputs; Frequency Response : 10Hz-55kHz; Total Harmonic Distortion (THD+N) : 0.03% ; Power supply : External ; Phantom power : +48V ; Power consumption : 17W.	1	Nos.	9,835	9,835	RCF	LivePad 6
10	CD/ DVD Player	1	Nos.	8,063	8,063	sony	BDP 1500
11	Indoor LED Video wall : Pixel Pitch(mm) : 3; Pixel Density: 111110; pixel configuration : SMD 3in1; Module Size(mm) : -A:192x192; Module Resolution(pixel) :-A:64x64; Cabinet Size(mm) : 576x576/768x768; Cabinet Resolution(pixel) : 256x256; LED Type : SMD2121; Brightness(cd/m2) : >1300; Viewing Angle(V/H) : 170/170; Max Power (W/M2) : 710; Drive Mode : Constant current driver,1/16, 1/32 scan; Life Span(h) : >100000.	1	Nos.	1,612,500	1,612,500	White Interface	P3
12	Equipment Rack for housing all rack mountable equipments with internal wiring, front glass door; heat dissipation fans; movement wheels, power distribution units etc.	1	Nos.	51,600	51,600	Custom	32U
First Floor (Convention Hall)							
Hall 1 for 300							

1		Main FOH Loudspeaker: Full range loudspeaker with 4 x 4.5" environmental driver; Frequency Response : 90Hz -17kHz; Nominal Dispersion : 120°H x 60°V; Power handling capacity : 120W; Powder-coated steel grille; Nominal Impedance : 8Ω; Max SPL : 115dB; Sensitivity : 89dB; Installation : Indoor and Outdoor.	2	Nos.	86,846	173,692	Bose	Panaray 402 Series IV
2		Mounting/ Hanging arrangement for above Main FOH Speakers.	2	Nos.	10,750	21,500	Custom	Custom
3		Delay Loudspeaker: Full range loudspeaker with 4 x 4.5" environmental driver; Frequency Response : 90Hz -17kHz; Nominal Dispersion : 120°H x 60°V; Power handling capacity : 120W; Powder-coated steel grille; Nominal Impedance : 8Ω; Max SPL : 115dB; Sensitivity : 89dB; Installation : Indoor and Outdoor.	4	Nos.	86,846	347,383	Bose	Panaray 402 Series IV
4		Mounting/ Hanging arrangement for above Main FOH Speakers.	4	Nos.	10,750	43,000	Custom	Custom
5		Subwoofer: High performance flexible bass module; 2 x 10" woofers mounted in a rugged enclosure; Power 250 Watt @ 4 Ohms; 3 position sensing switch; interlocking end caps.	1	Nos.	121,230	121,230	Bose	B2 Bass
6		Power Amplifier :-Professional Amplifiers with 2 x 300 W Class AB Professional Power Amplifier ,Frequency response :20 Hz - 20 kHz (+0 -1 dB, 1 W);THD < 0.5% ;OUTPUT POWER: 300 W at 4Ω-mono(per channel),150W at 8Ω-stereo(per channel),600W at 8Ω Bridge(per channel).	2	Nos.	31,920	63,840	RCF	IPS 700
7		Power Amplifier :-Professional Amplifiers with 2 x 300 W Class AB Professional Power Amplifier ,Frequency response :20 Hz - 20 kHz (+0 -1 dB, 1 W);THD < 0.5% ;OUTPUT POWER: 300 W at 4Ω-mono(per channel),150W at 8Ω-stereo(per channel),600W at 8Ω Bridge(per channel).	1	Nos.	31,920	31,920	RCF	IPS 700
8		Processor : Frequency Response : 20 Hz - 20 kHz (+0/-1 dB);THD+N : 0.015 % ; Channel Separation (Crosstalk) : 100 dB (typical);Dynamic Range :107 Db ; Audio Latency : 1.52 ms ; Maximum Output Delay : 170 ms ; Input Channels : 2 channels ; Outputs : 4 analog, balanced, differential	1	Nos.	103,493	103,493	Bose	ControlSpace SP24
9		Mixer : 6 channel mixing console of 2 mono inputs & 2 stereo line inputs; Frequency Response : 10Hz-55kHz; Total Harmonic Distortion (THD+N) : 0.03% ; Power supply : External ; Phantom power : +48V ; Power consumption : 17W.	1	Nos.	9,835	9,835	RCF	LivePad 6
10		CD/ DVD Player	1	Nos.	8,063	8,063	sony	BDP 1500
11		Indoor LED Video wall: Pixel Pitch(mm) : 3; Pixel Density: 111110; pixel configuration : SMD 3in1; Module Size(mm) : -A:192x192; Module Resolution(pixel) :-A:64x64; Cabinet Size(mm) : 576x576/768x768; Cabinet Resolution(pixel) : 256x256; LED Type : SMD2121; Brightness(cd/m2) : >1300; Viewing Angle(V/H) : 170/170; Max Power (W/M2) : 710; Drive Mode : Constant current driver,1/16, 1/32 scan; Life Span(h) : >100000.	2	Nos.	1,612,500	3,225,000	White Interface	P3
12		Equipment Rack for housing all rack mountable equipments with internal wiring, front glass door; heat dissipation fans; movement wheels, power distribution units etc.	1	Nos.	34,400	34,400	Custom	32U
Hall 2 for 200						-		
1		Main FOH Loudspeaker: Full range loudspeaker with 4 x 4.5" environmental driver; Frequency Response : 90Hz -17kHz; Nominal Dispersion : 120°H x 60°V; Power handling capacity : 120W; Powder-coated steel grille; Nominal Impedance : 8Ω; Max SPL : 115dB; Sensitivity : 89dB; Installation : Indoor and Outdoor.	2	Nos.	86,846	173,692	Bose	Panaray 402 Series IV

2		Mounting/ Hanging arrangement for above Main FOH Speakers.	2	Nos.	10,750	21,500	Custom	Custom
3		Delay Loudspeaker: Full range loudspeaker with 4 x 4.5" environmental driver; Frequency Response : 90Hz -17kHz; Nominal Dispersion : 120°H x 60°V; Power handling capacity : 120W; Powder-coated steel grille; Nominal Impedance : 8Ω; Max SPL : 115dB; Sensitivity : 89dB; Installation : Indoor and Outdoor.	2	Nos.	86,846	173,692	Bose	Panaray 402 Series IV
4		Mounting/ Hanging arrangement for above Main FOH Speakers.	2	Nos.	10,750	21,500	Custom	Custom
5		Subwoofer: High performance flexible bass module; 2 x 10" woofers mounted in a rugged enclosure; Power 250 Watt @ 4 Ohms; 3 position sensing switch; interlocking end caps.	1	Nos.	121,230	121,230	Bose	B2 Bass
6		Power Amplifier :-Professional Amplifiers with 2 x 300 W Class AB Professional Power Amplifier ,Frequency response :20 Hz - 20 kHz (+0 -1 dB, 1 W);THD < 0.5% ;OUTPUT POWER: 300 W at 4Ω-mono(per channel),150W at 8Ω-stereo(per channel),600W at 8Ω Bridge(per channel).	2	Nos.	31,919	63,838	RCF	IPS 700
7		Power Amplifier :-Professional Amplifiers with 2 x 300 W Class AB Professional Power Amplifier ,Frequency response :20 Hz - 20 kHz (+0 -1 dB, 1 W);THD < 0.5% ;OUTPUT POWER: 300 W at 4Ω-mono(per channel),150W at 8Ω-stereo(per channel),600W at 8Ω Bridge(per channel).	1	Nos.	31,919	31,919	RCF	IPS 700
8		Processor : Frequency Response : 20 Hz - 20 kHz (+0/-1 dB);THD+N : 0.015 % ; Channel Separation (Crosstalk) : 100 dB (typical);Dynamic Range :107 Db ; Audio Latency : 1.52 ms ; Maximum Output Delay : 170 ms ; Input Channels : 2 channels ; Outputs : 4 analog, balanced, differential	1	Nos.	103,493	103,493	Bose	ControlSpace SP24
9		Mixer : 6 channel mixing console of 2 mono inputs & 2 stereo line inputs; Frequency Response : 10Hz-55kHz; Total Harmonic Distortion (THD+N) : 0.03% ; Power supply : External ; Phantom power : +48V ; Power consumption : 17W.	1	Nos.	9,835	9,835	RCF	LivePad 6
10		CD/ DVD Player	1	Nos.	8,063	8,063	sony	BDP 1500
11		Equipment Rack for housing all rack mountable equipments with internal wiring, front glass door; heat dissipation fans; movement wheels, power distribution units etc.	1	Nos.	24,188	24,188	Custom	15U
Second Floor (Auditorium)								
1		Main FOH Speaker: Full-range loudspeaker designed for permanent installations and portable sound reinforcement, for both indoor and outdoor applications with frequency response of 60Hz to 15kHz; Cont power: 240W @ 8 Ohms; Nominal dispersion of 120H X 100V; Sensitivity of 91 dB; Max SPL of 116 dB SPL; inbuilt drivers with Rugged enclosure with powder coated steel grille. (# 4 - Left & # 4 - Right)	8	Nos.	117,862	942,900	Bose	Panaray 802 Series IV
2		Mounting/ Hanging arrangement for above Main FOH Speakers.	2	Nos.	24,188	48,375	Custom	Custom
3		Delay Loudspeaker : frequency response of 80Hz to 16kHz; Continuous power: 400W @ 8 Ohms; Nominal dispersion of 90H X 60V; Sensitivity of 94 Db ; Max SPL of 120 dB SPL; inbuilt drivers with Rugged enclosure with powder coated steel grille .	4	Nos.	153,842	615,368	Bose	RoomMatch RMU 208
4		Subwoofer with 2 X 12" high excursion woofer; Frequency response 40Hz- 280Hz; Nominal dispersion is omnidirectional below 200Hz; Cont power 800@ 4 ohm; Sensitivity of 94 dB SPL; Max SPL 123 dB SPL; Enclosed in Baltic birch plywood, 13-ply, 18 mm ; Finished with Polyurethane-based textured paint, black or white and 16-gauge perforated steel grille with powder-coated finish.	2	Nos.	397,012	794,023	Bose	LT MB24

5		Stage Monitor: Multi-position Floor monitor with 3 X 2.25" Mid high drivers and single 5.25" woofer gives articulated array configuration 120 X 60 degree coverage; Frequency response 70Hz- 16 kHz; Sensivity 91 dB SPL; Max SPL 111 Db SPL; power handling 100W@ 8 ohm; Internal passive crossover network does not require active equalization; Rear bumper prevents unwanted movement; Drivers enclosed in Molded textured polyethylene material with powder coated steel grille.	4	Nos.	71,959	287,835	Bose	Panaray 310M
6		Front Fills Loudspeaker: Frequency response: 100 Hz to 16kHz; Nominal Coverage: 100 H x 100 V; Power handling: 100 Watt @ 8 ohms; Sensitivity: 90 Db ; Max SPL: 110 Db SPL; 18-gauge (1.2 mm) perforated steel, powder-coated finish.	2	Nos.	69,476	138,952	Bose	RoomMatch RMU 105
7		Control Room Loudspeaker : Full range loudspeaker with 1 x 2.25" driver in a ported enclosure; Frequency Response : 95Hz 17kHz; Nominal Dispersion : 170°H x 160°V; Power handling capacity : 16W; Nominal Impedance : 8Ω or 70/100V; Max SPL : 96dB; Sensitivity : 84dB; Installation : Indoor	2	Nos.	18,299	36,599	Bose	Freespace DS 16S
8		Power Amplifier: Professional Amplifiers with 2 x 1500 W Class H Professional Power Amplifier; Frequency response : 20 Hz - 20 kHz (+0 –1 dB, 1 W); THD < 0.5%; Output Power: 1500 Wat at 4Ω- mono(per channel), 1200 Wat at 8Ω- stereo(per channel), 3000 W at 8Ω- Bridge(per channel).	1	Nos.	69,878	69,878	RCF	IPS 3700
9		Power Amplifier: Professional Amplifiers with 2 x 1100 W Class H and have Frequency response : 20 Hz - 20 kHz (+0 –1 dB, 1 W); THD < 0.5%; Output Power: 1100 W at 4Ω- mono(per channel), 700 W at 8Ω- stereo(per channel), 2200 W at 8Ω- Bridge(per channel). IPS Series is a range of two-way .	3	Nos.	44,860	134,579	RCF	IPS 2700
11		Power Amplifier :- Professional Amplifiers with 2 x 300 W Class AB Professional Power Amplifier , Frequency response : 20 Hz - 20 kHz (+0 –1 dB, 1 W); THD < 0.5% ; OUTPUT POWER: 300 W at 4Ω- mono(per channel), 150W at 8Ω- stereo(per channel), 600W at 8Ω Bridge(per channel).	3	Nos.	31,919	95,758	RCF	IPS 700
12		Processor : Signal Processor 32-bit fixed/floating-point DSP + ARM, 456 MHz; Delay : 43 s; Frequency Response: 20 Hz - 20 kHz (+0.3 dB/-0.1 dB); THD+N : 0.002 % at +4 dBu; Input Channels : 8 analog; Phantom Power: +48 VDC	1	Nos.	322,572	322,572	Bose	ControlSpace ESP 880
13		Mixer : 16 channel mixing console (with Effect) of 10 mono inputs & 4 stereo inputs; 24-bit DSP effects for 99 presets ; Frequency response : 20Hz - 20kHz; Total harmonic distortion (THD-N) of 0.03%; 6 single-control dynamic compressors; Phantom power : +48V; Internal power supply; Power consumption : 50W.	1	Nos.	48,311	48,311	RCF	LivePad 16CX
14		UHF Wireless handheld microphone	2	Nos.	46,037	92,074	Shure	BLX24RIN/SM58
15		UHF Wireless Lapel microphone	2	Nos.	47,085	94,170	Shure	BLX14RIN/W93
16		Antena Distribution System	2	Nos.	94,734	189,469	Shure	UA884+SWB-IN
17		Directional Active Antena	2	Nos.	44,183	88,365	Shure	UA874WB
18		Dynamic microphone (supercardioid) for vocals, with ON/Off switch	2	Nos.	10,481	20,963	Shure	SM58S
19		Dynamic/Condenser microphone (cardioid) for instruments	2	Nos.	8,385	16,770	Shure	SM57
20		CD/ DVD Player	1	Nos.	8,063	8,063	sony	BDP 1500
21		Christie Projector	1	Nos.	1,935,000	1,935,000		D12wu-h
22		Mounting Hardware for Projector	1	Nos.	43,000	43,000		Custom
23		300inch Motorised Projector screen, 16x9 format	1		440,750	440,750	Prima	

24		Indoor LED Video wall : Pixel Pitch(mm) : 3; Pixel Density: 111110; Pixel Configuration : SMD 3in1; Module Size(mm) : -A:192x192; Module Resolution(pixel) :-A:64x64; Cabinet Size(mm) : 576x576/768x768; Cabinet Resolution(pixel) : 256x256; LED Type : SMD2121; Brightness(cd/m2) : >1300; Viewing Angle(V/H) : 170/170; Max Power (W/M2) : 710; Drive Mode : Constant current driver,1/16, 1/32 scan; Life Span(h) : >100000.	2	Nos.	1,612,500	3,225,000	White Interface	P3
25		Equipment Rack for housing all rack mountable equipments with internal wiring, front glass door; heat dissipation fans; movement wheels, power distribution units etc.	1	Nos.	51,600	51,600	Custom	32U
Backend Equipments						-		
1		Speaker Cable : 2 core 1.5 sq mm PVC insulated Cu conduction loudspeaker cable. (Made in Germany)	500	Mtrs.	161	80,625	Klotz	LY 215
2		Speaker Cable : 2 core 2.5 sq mm PVC insulated Cu conduction loudspeaker cable. (Made in Germany)	1000	Mtrs.	161	161,250	Klotz	LY 225
3		Microphone Cable : 2 core PVC insulated Cu conduction shielded microphone cable. (Made in Germany)	500	Mtrs.	108	53,750	Klotz	MY 206
4		Connector: UL Listed Connector	1	Lot	75,250	75,250	Neutrik	
Area: Cafeteria						-		
1		MainFOHLoudspeaker: Fullrangeloudspeakerwith4x4.5"environmentaldriver;FrequencyResponse:90Hz17kHz;NominalDispersion:120°Hx60°V;Powerhandlingcapacity:120W;Powdercoatedsteelgrille;NominalImpedance:8Ω;MaxSPL:115dB;Sensitivity:89dB;Installation:Indoora ndOutdoor.	6	Nos.	86,844	521,066	Bose	Panaray 402 Series IV
2		Mounting/HangingarrangementforaboveMainFOHSpe akers.	6	Nos.	10,750	64,500	Custom	Custom
3		PowerAmplifier: -ProfessionalAmplifierswith 2x300WClassABProfessionalPowerAmplifier,Frequency response:20Hz-20kHz(+0-1dB,1W); THD<0.5%; OUTPUTPOWER: 300Wat4Ω-mono(perchannel), 150Wat8Ω-stereo(perchannel),600W at 8Ω Bridge(per channel).	2	Nos.	31,919	63,839	RCF	IPS 700
4		Processor: FrequencyResponse:20Hz-20kHz(+0/- 1dB);THD+N:0.015%;ChannelSeparation(Crosstalk):100dB(typi cal);DynamicRange:107Db;AudioLatency:1.52ms;MaximumOu tputDelay:170ms;InputChannels:2channels; Outputs : 4 analog_balanced_differential	1	Nos.	103,493	103,493	Bose	SP 24
5		Mixer: 6channelmixingconsoleof2monoinputs&2stereolineinp uts; FrequencyResponse:10Hz 55kHz; TotalHarmonicDistortion (THD+N):0.03%;Powersupply:External;Phantom power : +48V : Power consumption : 17W	1	Nos.	9,835	9,835	RCF	LivePad 6
6		Connector: UL Listed Connector	1	Lot	12,900	12,900	Neutrik	
7		SpeakerCable: 2core2.5sqmmPVCinsulatedCuconduction loudspeaker cable. (Made in Germany)	200	Mtrs.	215	43,000	Klotz	LY 225
8		MicrophoneCable: 2corePVCinsulatedCuconductionshielded microphone cable. (Made in Germany)	50	Mtrs.	161	8,063	Klotz	MY 206
9		EquipmentRackforhousingallrackmountableequipmentswithi nternalwiring,frontglassdoor;heatdissipationfans;movement wheels, power distribution units etc.	1	Nos.	21,500	21,500	Custom	12U
Area: Open Air Theater						-		
1		Projector 5000 ANSI brightness, WUXGA image size 180 - 300" diagonal	1	Nos.	688,000	688,000	Epson	EBWU
2		Projection screen matt white 180" diadonal, wall mount pull down, can be installed on wall and tripod stand	1	Nos.	45,150	45,150	Elite	Custom
3		Projector trolley, lockable shelf, universal wheeled, height adjustable.	1	Nos.	19,350	19,350	Custom	various
4		Speaker system 8 woofer array and 10" Subwoofer built in mixer and amplifier, powered, capable to play, Bluetooth and WiFi plus media source such as Blu ray.	2	Nos.	210,700	421,400	Turbo Sound	IP2000
Area: Digital Signage for Lobby, exhibition center,Audi etc.						-		
1		50" LCD LED display, 1080P, built in Media Player, to be used for digital signage with network or independent	5	Nos.	115,000	575,000	Samsung	Samsung 50
2		Software for controller. One software bundle is sufficient for a system with 64 display panels	1	Nos.	60,000	60,000	Custom	Custom
3		Network and media controller	1	Nos.	50,000	50,000	White Interface	Custom
4		Accessories: All specialized cables, connectors, switchers, Splitters,Scalers,Transmitter&Receiver, Rack etc.	1	Lot	248,000	248,000	Various	various
		TOTAL Carried to summary				21,524,260		