

MINISTRY OF HEALTH & FAMILY WELFARE,
GOVT. OF INDIA, NIRMAN BHAWAN,
NEW DELHI

Tender

For

**Construction of additional facilities namely additional Hostel,
academic block-III, Library & Examination hall etc at
Regional Institute of Paramedical & Nursing Sciences
(RIPANS), at AIZWAL, MIZORAM**

VOLUME-V

Bill of Quantity

MARCH 2012



HSCC (INDIA) LTD.
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)
E-6(A), sector-1, NOIDA(U.P) 201301 (India)

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PQ tender No. HSCC/BU-I/RIPANS/2012

Name of Work: Construction of additional facilities like additional Hostel, academic block-III, Library & Examination hall at Regional Institute of Paramedical & Nursing Sciences (RIPANS), at AIZWAL, MIZORAM

SUMMARY OF QUOTED PRICE

S. No.	Description	Amount (In Rs.)
1	Civil	
2	Plumbing (PHE)	
3	Fire fighting	
4	Electrical Works	
5	HVAC Works	
	TOTAL	

Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels, Aizwal, Mizoram

ABSTRACT OF COST(Civil Work)

S.No	DESCRIPTION OF WORK	Amount (in Rs.)
1	EARTHWORK	
2	CONCRTE WORK	
3	RCC WORK	
4	BRICK WORK	
5	DOORS & WINDOWS	
6	STEEL WORK	
7	FLOORING	
8	CEILING & ROOFING	
9	FINISHING	
10	MISCELLANEOUS	
11	Road Work and Development	
	TOTAL	

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
1.00	EARTH WORK					
1.01	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	12302.00	cum			
b)	Ordinary rock	10110.00	cum			
c)	Hard rock (blasting prohibited)	5056.00	cum			
1.02	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 up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
a)	All kinds of soil.	165.00	cum			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
1.03	Filling 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 up to 1.5 m.	10024.00	cum			
1.04	Extra for every additional lift of 1.5 m or part there of in.					
a)	All kinds of soil.					
i)	1.5 to 3.0m	6300.00				
ii)	3.0 to 4.5m	2000.00				
1.05	Supplying and filling in plinth with river sand under floors including, watering. ramming consolidating and dressing complete.	176.00	cum			
1.06	Extra for disposal of excavated earth for additional lead beyond 50m or part thereof upto 9 such additional leads					
a)	All kinds of soil	8662.00	cum			
	Total	4554.00				

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
2.00	Concrete Work					
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	79.00	cum			
b)	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	422.00	cum			
c)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	343.00	cum			
2.02	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets etc. up to floor five level, excluding the cost of centering, shuttering and finishing:					
a)	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	15.00	cum			
2.03	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 12.5mm nominal size).	187.00	sqm			

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1	2	3	4	5	6	7
2.04	Extra for providing and mixing water proofing material in CC/RCC work @ 1 kg per 50kg of cement.	51.00	per 50 kg cement			
2.05	Applying a coat of residual petroleum bitumen of penetration 80/100 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	187.00	sqm			
2.06	Providing and laying in position cement concrete 1:5:10 (1 Cement : 5 fine sand : 10 broken brick bats 40 mm nominal size) including consolidation etc all complete.	596.00	Cum			
	Total					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
3.00	REINFORCED CEMENT CONCRETE					
3.01	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-25 grade reinforced cement concrete by using 380 kg. of cement per cum of concrete. All work up to floor V level.	10365.65	cum			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
3.02	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead up to 10kms having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying , excluding the cost of centering, shuttering finishing and reinforcement including cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. M-25 grade Reinforced cement concrete by using 380kg of cement per cum of concrete. All works up to floor V level.	626.35	Cum			
3.03	Add or deduct for providing richer or leaner mixes respectively at all floor levels.					
i)	Providing M-30 grade concrete by using 400kg of cement per cum of concrete instead of M-25 grade B.M.C/ R.M.C..	2442.00	cum			
ii)	Providing M-35 grade concrete by using 420kg of cement per cum of concrete instead of M-25 grade B.M.C./ R.M.C...	1038.61	cum			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
3.04	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Foundations, footings, bases of columns, etc. for mass concrete.	1841.00	sqm			
b)	Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	7164.00	sqm			
c)	Suspended floors, roofs, landings, balconies and access platform.	20869.00	sqm			
d)	Shelves (Cast in situ)	156.00	sqm			
e)	lintels, beams, plinth beams. girders. bressumers and cantilevers.	24829.00	sqm			
f)	Columns, Pillars, Piers, Abutments, Posts and Struts.	15378.00	sqm			
g)	Stairs, (excluding landings) except spiral-staircases	1292.00	sqm			
h)	Small lintels not exceeding 1.5m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like.	198.00	sqm			
i)	Edges of slabs and breaks in floors and walls.					
i)	Under 20 cm wide	200.00	metre			
ii)	Above 20 cm wide	30.00	sqm			
j)	Extra for shuttering in circular work for					
i)	columns	90.00	Sqm			
ii)	Beams	171.00	sqm			

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1	2	3	4	5	6	7
3.05	Extra for additional height in centering, shuttering wherever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured)					
a)	Suspended floors, <i>roofs</i> , landings, beams and balconies (Plan area to be measured).	600.00	sqm			
3.06	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete (At all levels).					
a)	Thermo-Mechanically Treated bars	1769849.00	Kg			
3.07	Deduct for using less cement than the quantity as provided in the item of batch mix concrete/RMC as arrived as per mix design.	200.00	Qtl			
3.08	Extra for R.C.C./ B.M.C/ R.M.C. work above floor V level for each four floors or part thereof.	1394.00	Cum			
	Total					

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1	2	3	4	5	6	7
4.00	BRICK WORK					
4.01	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in:					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	424.00	cum			
4.02	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level in all shapes and sizes in :					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	5029.90	cum			
4.03	Half brick masonry with F.P.S. brick of class designation 75 in foundations and plinth in.					
a)	cement mortar 1:4 (1 cement: 4 coarse sand)	40.00	sqm			
4.04	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level.					
a)	Cement mortar 1:4 (1 cement :4 coarse sand)	8358.00	sqm			
4.05	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with F.P.S. bricks).	8398.00	sqm			

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1	2	3	4	5	6	7
4.06	Extra for brick work in superstructure above floor V level for each four floors or part thereof by mechanical means by lifting material using mobile crane.	368.00	Cum			
4.07	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means by lifting material using mobile crane.	200.00	Sqm			
4.08	Brick edging 7cm wide 11.4cm. deep to plinth protection with bricks of class designation 75 including grouting with cement mortar 1:4 (1 cement : 4 fine sand)	842.00	Metre			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
4.09	Providing and fixing partition upto ceiling height consisting of G.I. frame and required board including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of grade 175, consisting of floor and ceiling channel 50mm wide having equal flanges of 32mm and 0.55 mm thick fixed to the floor and ceiling at the spacing of 610mm centre to centre with dash fastener of 12.5mm dia meter 40mm length and the studs 48mm wide having one flange of 34mm and other flange 36mm and 0.55 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610mm centre to centre by 6mm dia bolts and nuts at both ends of partition fixed flush to wall with rawl plugs at spacing of 450mm centre to centre and fixing of boards to either side of frame work by 20mm long drive wall screws on studs, floor and ceiling channels at the spacing of 300mm centre to centre,					
	including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of Engineer in Charge all complete.					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
a)	75mm overall thickness partition with 12.5mm thick double skin plain Gypsum board conforming to IS: 2095: part I	1050.00	Sqm			
	Total					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.00	DOORS, WINDOWS AND FITTINGS					
5.01	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required EPDM rubber/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and paneling to be paid for separately) :					
5.01.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	23455.00	kg			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.01.2	For shutters of doors, windows & ventilators including providing and fixing hinges/pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately).					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	12110.00	kg			
5.02	Providing and fixing anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868. Minimum anodic coating of grade AC 15) sub frame work for windows and ventilators a with extruded built up standard tubular sections of approved make conforming to IS: 733 and IS : 1285 fixed with rawl plugs and stainless steel screws etc.	4134.00	kg			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.03	Providing and fixing pressed steel door frames conforming to IS: 4351 manufactured from commercial mild steel sheet of 1.25 mm thickness including hinges jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25mm, or base ties of 1.25mm pressed mild steel welded or rigidly fixed together by mechanical means, adjustable lugs with split end tail to each jamb including steel butt hinges 2.5mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:					
a)	Profile C	3199.00	metre			
5.04	Providing and fixing 12mm thick pre-laminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of engineer-in-charge.					
a)	Pre-laminated particle board with decorative lamination on both sides.	25.00	Sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.05	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / 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)	With float glass panes of 5.50 mm thickness	1707.00	sqm			
b)	With float glass panes of 8 mm thick	365.00	Sqm			
5.06	Providing and fixing double action hydraulic floor spring of approved brand and manufacture IS : 6315 marked, for doors including cost of cutting floors as required, embedding in floors 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.					
a)	With brass cover plate	32.00	each			

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1	2	3	4	5	6	7
5.07	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	5611.00	kg			
5.08	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters :					
a)	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	1977.00	sqm			

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1	2	3	4	5	6	7
5.09	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. 5.09 above.	1977.00	sqm			
5.10	Extra for providing vision panel not exceeding 0.1 sqm in all type of flush doors (cost of glass excluded) (overall area of door shutter to be measured) :					
a)	Rectangular or square.	990.00	sqm			
5.11	Extra for providing frosted glass panes 4/5.55 mm thick instead of ordinary float glass panes 4/5.5 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	70.00	sqm			
5.12	Providing glass panes, with wooden fillets wherever necessary.					
a)	Float glass panes of thickness 4 mm	25.00	Sqm			
5.13	Extra for Providing etching on glass panes in doors, windows shutters, partition etc in desired pattern complete as per drawing and as directed.(Area of etching shall be measered for payment)	70.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.14	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality					
a)	1.0 mm thick.	3954.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.15	Providing and installation of fully insulated wooden fire rated shutter of 120min. fire rating conforming to BS: 476 part 22 and IS:3614 Part II as per the prototype tested and certified by CBRI Roorkee, of minimum 50 mm thickness, comprising of 75mm x 44mm hardwood internal timber frame work, with infill of 96 kg/m ³ , ceramic fiber blankets, coated with VIPER FR or equivalent intumescent coating on both sides for insulation. The coated insulation shall be sandwiched between 12mm thick, Non combustible Boards (Calcium Silicate of approved quality and manufacture) on both sides (edge to edge on internal Hardwood frame) and clad with 3mm thick commercial ply of approved quality & 1mm thick laminate of approved brand and manufacture on both sides, with 50mm x 14mm 2nd class teak wood lipping all round the shutter.					

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1	2	3	4	5	6	7
	The shutter is suitable for mounted on the door frame, as per the item given below. Both frame and shutter shall be fitted with fire & smoke intumescent seal of Viper or equivalent make of size 20 x 4mm on all the three sides except bottom. The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The board shall be Resistant to vermin, mould growth, minor impact, abrasion and short term water attack. The shutter shall be fixed with the frame with the help of SS 304 grade ball bearing hinges of size 100x75x3mm with necessary screws and making cut out for vision panel. Provisions/reinforcement for fixing all fixtures shall be built in on the door prior to the supply. The rate shall include all the materials, labour and T&P for the works described in the item above.					
a)	Single/Double Shutter	203.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.16	Providing and fixing door frames as per BS: 476 part 22, IS:3614 Part II as per the prototype certified by CBRI Roorkee made out of 2nd class Teak Wood (Ivory Coast)frame of section 120 X 70 mm for fire resistant doors of 120 minutes fire rating, with heat activated intumescent fire seal strips of size 2x10 x 4 mm(for smoke sealing) provided in grooves on all three sides of the frame with one coat of approved brand of fire retardant primer including two coats of fire retardant paint FR 881or equivalent un thinned on cleared hard wood surface of door frames (@3.5 sq.m. per litre per coat) including preperation of base surface as per recommendations of manufacturer to make the surface fire retardant, including fixing the frame with 8 nos. 100 mm long, 10 mm dia metal dash fastners complete as per directions of the Engineer in charge NOTE:- cost of fire seal strips, dash fastners are included in the item. Nothing extra shall be paid if size of any component of material exceeds the limit mentioned in the item.	388.00	Metre			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.17	Providing and fixing UL listed door Co-ordinator (of Becker Fire Solutions or equivalent Make) for coordination of double leaf doors, of approved brand and manufacture with minimum one year warrantee.	54.00	Each			

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1	2	3	4	5	6	7
5.18	Providing & fixing of Fire-stop Fire sealing System Board Type(barriers) of approved make for sealing of floors, wall openings under control panels for the purpose of compartmentation.The FPSS consists of 100mm thick mineral wool insulation pad having density of 48 kg/m ³ coated with FR in tumescent compound encased with 10 mm thick calcium silicate board of approved Make, sealed with intumescent Fire Seal Putty of approved quality and Make. The system is coated and fixed with openings with the help of slotted angles of size 40x40mm of 16 SWG thickness, nutbolts of size 40 x8mm Dia. The FPSS system all provide 2 hours fire rating as per IS 12458-1989.After insulation of this system it will be painted with Fire Retardant Paint of approved Make. The system has to be tested at CBRI, Roorkee or approved laboratory for 2 hrs. Fire rating as per the following specifications. 1. BS: 476 Part 8. 2. UL: 1479 . ISO:834 4. ASTM E 814 5. ASTM E 119 6. IS: 12458-1989	40.00	sqm			
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1	2	3	4	5	6	7
5.19	Providing and fixing 6 mm thick pyroswiss extra or equivalent fire rated clear toughened glass of approved make, of 120 minutes fire rating to be fixed in vision panel including cost of fire ceramic tape and moulding/beading etc all complete	6.00	sqm			
5.20	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	607.00	each			
5.21	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)	300x16 mm	8.00	each			
b)	250x16 mm	8.00	each			
5.22	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)	250x10 mm	1580.00	each			
b)	150x10 mm	3666.00	each			

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1	2	3	4	5	6	7
5.23	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)	125 mm	2140.00	each			
b)	100 mm	40.00	each			
5.24	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)	Twin rubber stopper	928.00	each			
5.25	Providing and fixing bright finished brass 100 mm mortice latch and lock ISI marked with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles with necessary screws etc. complete (Best make of approved quality).	727.00	each			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.26	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.					
a)	255 X 19 mm	2670.00	each			
5.27	Providing and fixing aluminium tubular handle bar 32 mm outer dia, 3.0 mm thick & 2100 mm long with SS screws etc .complete as per direction of Engineer-in-Charge.					
a)	Powder coated minimum thickness 50 micron aluminium tubular handle bar.	64.00	each			
5.28	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	32.00	each			
5.29	Providing and fixing aluminium casement windows fastener of required length for aluminium windows with necessary screws etc. complete.					
a)	Powder coated minimum thickness 50 micron aluminium.	2748.00	each			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
5.30	Providing and fixing aluminium round shape handle of outer dia 100mm with SS screws etc. complete as per direction of Engineer-in-charge					
a)	Powder coated minimum thickness 50 micron aluminium	64.00	each			
5.31	Providing and fixing of UL listed fire rated single/double leaf panic exit devices tested in accordance with BS EN 1125: 1997 & BS EN 179: 1997, EN 1670 (Corrosion Resistant), & BS 476 Part 22 (for fire rating) with min. one year					
a)	Double Leaf	54.00	each			
5.32	Providing and fixing of fire rated heavy duty door closer tested in accordance with BS:476 Part 22 for fire rating) and BS EN 1154 with minimum one year warranty.	54.00	each			
5.33	Providing and fixing fire rated mortice lock with lever handle tested in accordance with European Standard EN12209 / DIN18251 and 80mm Long cylinder to EN1303 of approved brand and manufacturer having 1 year manufacturers warranty.	54.00	each			
5.34	Providing and fixing 300 mm long stainless steel grade 304 D type pull handle with necessary screws etc. complete.	97.00	each			
	Total					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
6.00	Steel Works					
6.01	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. all complete.					
a)	Fixed to steel windows by welding.	250.00	kg			
6.02	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:	1800.00	kg			
6.03	Steel work welded in built up sections/ framed work including cutting ,hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
a)	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	300.00	Kg			
6.04	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing and staircase railing including applying a priming coat of approved steel primer.					
a)	M.S. tube.	250.00	Kg			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
6.05	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).					
		10393.00	Kg			
	Total					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.00	Flooring					
7.01	Cement concrete flooring 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate) finised with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete.					
a)	40mm thick with 20mm nominal size stone aggregate.	96.00	sqm			
7.02	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.					
a)	18 mm thick.	12.00	sqm			
7.03	Providing and fixing glass strips in joints of <i>terrazo</i> / cement concrete floors.					
a)	40 mm wide and 4 mm thick.	268.00	Metre			
7.04	Marble stone flooring/skirting with 18mm thick marble stone (sample of marble shall be approved by Engineer-in-charge) over 20 mm (average) thick base of cement mortar 1:4 (1 cement: 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete with:					
a)	Raj Nagar Plain	1058.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
b)	Udaipur green marble	1826.32	sqm			
c)	Jaisalmer Stone	524.00	sqm			
7.05	18mm thick Prepolished Granite (Base Rate 250/- Sqft) in Risers, skirting and dado/wall cladding over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement including pointing with white cement mixed with pigment matching the shade of granite stone all complete and as directed.	262.00	sqm			
7.06	Kota stone slab 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 : 4 (1 cement : 4 coarse sand) :					
a)	25 mm thick.	4009.00	sqm			
7.07	Kota stone slabs 25 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (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.	669.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.08	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	7013.00	sqm			
7.09	Providing and laying rectified Glazed Ceramic floor tiles 300x300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.	2139.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.10	Providing and laying vitrified floor and skirting, tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete					
a)	Size of Tile 60x60 cm	6599.00	sqm			
7.11	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills. facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels					
a)	Granite of any colour and shade					
i	Area of slab upto 0.50 sqm	20.00	sqm			
ii	Area of slab over 0.50 sqm.	143.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.12	Extra for providing edge moulding to 18mm thick Granite stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.					
a)	Granite work.	267.00	metre			
7.13	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.	259.00	metre			
7.14	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.	188.00	Nos			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.15	Providing & fixing 3.0 mm minimum thickness jointless Acoustic PVC Vinyl flooring and skirting. Total weight of PVC should not be less than 3200g/m ² , polyurethane reinforced (PUR), Abrasion group T:≤0.04mm, reduction of noise in room=61dB, castor wheel test qualified, impact sound reduction approx +17db, good resistance of chemical and fire, slip resistant (R9 μ≥0.30 including the cost of suitable adhesive of approved quality and manufacture.	84.00	Sqm			
7.16	Providing & fixing 2 mm thick homogeneous jointless, scratch resistant, chemical resistant, anti fungal and anti bacterial PVC Vinyl flooring and skirting/ coving good for laboratories of approved quality including the cost of suitable adhesive and coving material of approved quality and manufacture.	1344.00	Sqm			
7.17	Chequered terrazo tiles 22 mm thick with graded marble chips of size up to 6 mm in floors jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing and polishing complete on 20 mm thick bed of cement mortar 1:4 (1 cement :4 coarse sand) :					
	Medium shade using 50%white cement 50% ordinary cement	177.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.18	P/L 8mm thick (EN13329) laminated Flooring including skirting (class use of 23/31 AC 3 with 0.2mm thick direct pressure laminated on top) plank size 1290 X 194 mm & groove construction with edge impregnate with seal to secure long lasting joints ,secured together with the help of suitable glue, conforming to EN 13329.	27.00	sqm			
7.19	Providing and fixing 10mm thick acid and/or alkali resistant tiles of approved make and colour using acid and/or alkali resisting mortar bedding and joints filled with acid and/or alkali resisting cement as per IS : 4457 complete as per the direction of Engineer-in- Charge.					
a)	In flooring on a bed of 10 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand).	109.00	Sqm			
b)	In dado/skirting on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand).	15.00	Sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
7.20	Granite stone flooring with 18 mm thick granite (Base Rate Rs. 250/- Sqft) stone, rectangular shape, (minimum size of stone should be 0.45 sqm and one dimension not less than 700 mm) as per drawing or as per the pattern as approved by the client/ architect/ engineer, over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry mixed with pigment to match the shade of stone including rubbing and polishing complete.	287.00	Sqm			
Total						

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
8.00	CEILING & ROOFING					
8.01	Providing and fixing 15mm thick Mineral Fibre False Ceiling Tiles or equivalent of size 600x600 mm in true horizontal levelsuspended on inter locking metalgrid of hot dipped galvanied steel sectios (Galvanized @ 170 gsm/sqm) consisting of main "T" runner suitably spaced at joints to get required length and of size 24x38mm made from 0.30 mm thick (minimum)sheet spaced at 1200 mm center to center and cross "T" of size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x 600mm and laying 15 mm thick mineral fibre false ceiling tiles of approved texture in the grid including, wherever, requiried, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke deterctors etc. Main "T" runners to besuspended from ceiling using GI slotted cleats fixed to ceiling with 6 mm dia and 50 mm long dah fasteners, 4 mm GI adjustable rods with galvanised level clips spaced at 1200 m center to center along main T, bottom exposed □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
	polyester paint, all complete at all heights as per specificaitons drawings and as directed by Engineer-in-Charge.Only Mineral Fibre false ceiling area will be measured for the purpose of payment.					
a)	With Mineral Fibre Ceiling tiles having NRC value of 0.5 (minimum) CAC 35-39, light reflection 84% (minium), fire rating class A as per ASTM E-84, suitable for 95% relative humidity and also having Thermal Resistance "(R)" =0.33 sqm deg. C/W	1666.00	sqm			
Note	The job to be carried out by an approved reputed agency having sufficient work experience.					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
8.02	Providing and fixing at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick button wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high having flanges of 20mm and					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
	30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting with :					
a)	12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.	1775.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
8.03	Providing and fixing 8mm thick clear multi wall polycarbonate sheets of approved quality and shade in desired shape in roofing including the cost of EPDM gaskets , sealing tape , aluminium profile and all necessary accessories complete as per architectural drawings and as directed by Engineer incharge. The item includes designing the complete system and supplying & getting approved from client and / or reputed engineering institue like IIT etc. The detailed shop drawings including supplying structural design calculations based on relevent codal provisions and carrying out water penetration test as per standards followed in India.					
	The whole work is to be done through reputed and approved vendor having experience in polycarbonate work in Commercial/ Govt/ Corporate buildings as per architectural elevation drawings including filling of joints with silicon sealent and also with masonry/ RCC work, at all heights including double heights, straight or curved etc. complete in all respect. (Plan Area shall be measured for the payment) (M.S. Framing to be paid for seprately)	90.00	Sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
8.04	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed portions of W.C., kitchen and the like consisting of :					
i)	v) 1st course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to IS 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.					
ii)	vi) 2nd course of 20mm cement plaster 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.					
iii)	vii) 3rd course of applying blown or residual bitumen applied hot at 1.7 Kg. per sqm of area.					
iv)	viii) 4th course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet should be 100 mm wide and pasted to each other with bitumen @ 1.7 Kg/sqm.)	3356.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
8.05	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: a) Applying a slurry coat of neat cement using 2.75 kg/sqm. of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300mm height including cleaning the surface before treatment. b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm size with 50% of cement mortar 1:5 (1 cement: 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound to IS : 2645 and approved by Engineer - in - charge to required slope and treating similarly the					

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1	2	3	4	5	6	7
	adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) After two days of proper curing applying a second coat of cement slurry using 2.75kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement: 4 coarse sand) admixed with water proofing compound conforming to IS: 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3mm deep. e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge :					
a)	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	2584.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
8.06	Providing and laying waterproofing treatment with 1.5mm self adhesive elastomeric SBS (Styrene Butadiene Styrene) of approved brand and manufacture according to (UNE-EN 13707 Standard 13707:2006) bitumen based membrane with an embossed aluminium foil finish on upper side and easily removable silicon film on the underside with a Joint Peel strength is as 100N +/- 50 /5cm in accordance with (UNE-EN 12316-1).Minimum Cold flexibility of -15 °C when tested in accordance with (UNE-EN 1109),Softening point of membrane not less than 110 Degree Celsius when tested in accordance with ASTM D-36 has consisting of a coat of bitumen primer of approved brand and manufacture as per manufacturer specification with 75mm side laps & 100 mm end laps on both horizontal & vertical surfaces. Area of roof treated shall be measured for payment.	1168.00	Sqm			
Total						

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
9.00	Finishing					
9.01	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	16736.00	sqm			
9.02	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:6 (1 cement: 6 fine sand)	21569.00	sqm			
9.03	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) finished with a top layer 6mm thick cement plaster 1:6 (1 cement: 6 fine sand).	16002.00	sqm			
9.04	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	14943.00	sqm			
9.05	Neat cement punning	900.00	sqm			
9.06	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	7852.00	sqm			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
9.07	Forming groove of uniform size from 12x12mm and upto 25x15mm in plastered surface as per approved pattern using wooden battens, nailed to the under layer including removal of wooden battens, repairs to the edges of plaster panel and finishing the groove complete as per specifications and direction of the Engineer-in-Charge.	1686.00	Mtr			
9.08	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	55521.00	Sqm			
9.09	White washing with lime to give an even shade:					
a)	New work (three or more coats)	400.00	sqm			
9.10	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade					
a)	New work (two or more coats) over and including priming coat with cement primer.	36208.00	sqm			
9.11	Finishing walls with Acrylic Smooth exterior paint of required shade:					

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
a)	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.20 kg/10 sqm).	1700.00	sqm			
9.12	Applying one coat of cement primer of approved brand and manufacture on wall surface:					
a)	Cement primer.	20777.00	sqm			
9.13	Finishing walls with textured exterior paint of required shade:					
a)	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including base coat of water proofing cement paint applied @ 2.20kg/10 sqm.	16002.00	sqm			
9.14	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:					
a)	Two or more coats on new work	20777.00	sqm			
9.15	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade:					
a)	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture.	4060.00	sqm			

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1	2	3	4	5	6	7
9.16	Providing and Fixing Facing extruded vitrified Clay Tile Unistone/Ultra of size 9"x3" on wall with under layer of 12.5 mm cement plaster 1:3 and jointed with neat cement matched with pigment complete as per drawings,specifications and to the entire satisfaction of engineer-in- charge.	400.00	Sqm			
9.17	Providing and fixing 24 gauge and 18mm mesh size chicken wiremesh at junction of concrete and brick work and other locations at all heights including cutting to required size and side laps of minimum 75mm and fixing in positions with nails/screws etc. as directed and as required at site.	1100.00	sqm			
Total						

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
10.00	Miscellaneous					
10.01	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement :3 coarse sand : 6graded stone aggregate 20mm nominal size) over 75mm bed by dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth	708.00	sqm			
10.02	Providing and fixing Wooden Wall panelling with the following specification:					
a)	Frame work of chemically treated (for termites) seasoned local hard wood 50 X 50 mm in horizonntal & Vertical frame 600 X 600 mm c/c and along doors, windows etc, fixed rigidly with suitable desh fastners etc all complete as required at site.					
b)	Providing and fitting 50 mm thick glass wool of 24 kg/cum density wrapped in 200G virgin polythene bags					
c)	Providing and fixing 20 mm thick first quality rubber wood (as per approved sample) slats/panels of required width for skirting and panelling fixed over wooden base giving 3 mm gap between the panels, as per drawing including required hardware, beading etc all complete.					

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
d)	Malamine polishing over wooden panelling (Area of paneling shall be measured for complete item)	700.00	sqm			
10.03	Stone work, plain in copings, cornices, string courses and plinth courses, upto 150 mm thick in Cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade.					
a)	Red sand stone	22.00	Cum			
10.04	30mm red sand stone louvers (rubberd) supported on red sand stone brackets, fixed in walls with cement mortar 1:4 (1 cement : 4 coarse sand) including finishing complete.(Area of red stone louvers provided at site shall be measured for payment.	560.00	Sqm			
10.05	Providing the following vehicle in good condition, at any time for exclusive use of engineer during currency of contract. The number of vehicles and period shall be informed by the engineer as per requirement.The rate are inclusive of services of drivers					
a)	Indica or equivalent as required	25000.00	Km			
	Total					

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.00	ROAD WORK, DEVELOPEMENT AND SIGNAGE					
11.01	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm. depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth lead upto 50 metres.	2500.00	SQM			
11.02	Supplying and stacking at site.					
a)	90 mm to 45 mm	300.00	CuM			
b)	63 mm to 45 mm	266.00	CuM			
11.03	Laying spreading and compacting stone aggregate of specified sizes to WBM specifications including spreading in uniform thickness, hand picking, rolling with 3 wheeled road/ vibratory roller 8-10 tonne in stages to proper grade and camber, applying and brooming requisite type of screening/ binding material to fill up interstices of coarse aggregate watering and compacting to the required density.	400.00	Cum			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.04	Providing and laying C.C. pavement of mix M25 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-in-charge. (The panel shuttering work shall be paid for separately).	300.00	Cum			
11.05	Providing and laying in position bitumen hot sealing compound for expansion joints etc					
a)	Using grade 'A' sealing compound.	7500.00	Per cm depth per cm width per m length			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.06	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction and of approved size and design/ shape laid in required colour and pattern over and including 50mm thick compacted bed of fine sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.	500.00	sqm			
11.07	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement: 3 coarse sand) including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm) including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	135.00	Cum			
11.08	Dry stone pitching 22.5 cm thick including supply of stones and preparing surface complete.	2000.00	Sqm			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.09	Trenching in ordinary soil upto 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).	600.00	Cum			
11.10	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).	100.00	Cum			
11.11	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).	100.00	Cum			
11.12	Rough dressing the trenched ground including breaking clods & Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted vegetation.	2000.00	Sqm			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.13	Supply & sprinkling of Neem cake (at the rate of 6 kg per 100 sq. metres) and fine dressing the ground.	2000.00	Sqm.			
11.14	Supply & grassing with "Calcutta Doob" grass in rows 7.5cms, apart in either direction including fine dressing the ground to be levelled, supply and filling with good earth if needs, watering & maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds & fit for mowing. Anti-termite shall be applied with CHLOROPYRIPHOS (DURSBAN make or equivalent) at the rate of 2ml per litter in the first watering.	2000.00	Sqm.			
11.15	Digging holes in ordinary soil and refilling the same with the exca-vated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately):					
a)	Holes 1.2 m dia and 1.2 m deep.	20.00	Each			
b)	Holes 60 cm dia, and 60 cm deep.	20.00	Each			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.16	Providing fabricating and fixing of signages of varying sizes and shapes using three mm thick PVC sheet at base with self adhesive coloured vinyl with graphicson top of glow tape complete including fixing on wall with screws and washers or hanging on ceiling with GI chain/GI Bar complete as per technical specifications and directions of Engineer.	1000.00	sq inch			
11.17	Providing and fixing of sinages of varying sizes and shapes using stainless steel sheet of minimum 16G thickness brush finish including engraving/etching of letters of required size filled with colour as desired by engineer,fixing with ss screws on walls	1000.00	sqinch			
11.18	Providing and fixing of sinages of varying sizes made of hollow aluminum sections of 150 mm width.with both hollow ends caped with suitable PVC/aluminium cover plates of required including hanging from ceiling by two adjustable suspenders of appropriate dia made of MS/GI bars ,lettering on vinyle sheet and pasting on it with pictogram complete as per technical specifications and directions of Engineer.	1500.00	r/ft			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.19	Providing and fixing of external sinages of varying sizes and shapes using GI sheet of atleast 22 G / aluminium sheet of suitable gauge complete as per technical specifications and directions of Engineer.	120.00	sqft			
11.20	Providing and fixing MS support frame for external signages made of structural steel including welding, primering, painting foundation with 1:1.5:3 cement concrete complete as per drawing, technical specifications and directions of engineer.	240.00	Kg			
11.21	Providing,fabricating and fixing neon glow signages of approved make with 100% handcraft glass tubes in letter shape of required colour of dia 9-12 mm including making the electrical wiring for illumination,transformer,connection complete as per technical specifications and directions of engineer.	500.00	sqft			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.22	Providing,fabricating and fixing digitally printed translites(Technova) with multicolour design on roland /HP printers mounted on acrylic sheet 3mm further mounted on 22 gauge powder coated GI box with phylips /surya tubes inside including installation on wall electric fittings etc on walls or otherwise complete .	64.00	sq ft			
11.23	Providing fabricating installation and fixing of backlit flex signages on Hanwa/star 18 ounce flex signages printed on high resolution printer mounted on MS sheet on framed MS structure further fixed on 24 gauge MS /GI box with phylips/surya fittings inside including tranformers etc, electri wiring etc complete.	500.00	sqft			
11.24	Providing,fabricating installation and fixing of glass finish SS letters made of 20 gauge SS 304 sheet of required size and shape with neatly fabricated joints properly welded and grinded with all corners rubbed and polished with arrangement of screws in the letter itself for mounting on the walls including cost of screws and fixing complete as per directions of Engineer.	500.00	sqinch of each letter			

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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.25	Providing fabricating and fixing of retroreflective vinyle sinages of varying sizes and shapes pasted on aluminium/GI sheet of 18 gauge with provision of fixing on MS structure complete as per technical specifications and directions of Engineer.	500.00	sqinch			
11.26	Providing fabricating , installation and fixing of poster frame with digitally printed transparent film technova sandwiched between 2-3 mm clear acrylic sheet fixed on the wall/MS with the help of suitable steel studs	50.00	sqft			
11.27	Providing fabricating installation and fixing of night vision sinages visible in complete darkness computer cut vinyle pasted on 3mm acrylic sheet and further fixed on wall/hanging from ceiling with the help of MS/GI rods complete as per technical specifications and directions of engineer.	500.00	sq inch			

**Project Name: Construction of Academic Block, Library Block and Boys & Girls hostels,
Aizwal, Mizoram**

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.28	Providing, fabricating and fixing of ACP aluminum composite plastic signs with 3 mm ACP sheet, using 1" ms pipe frame, with anti rust coating, back with G.I. and 5 sides with ACP sheet, lettering to be done with 5mm acrylic sheet and vinyls if needed backlit with Philips slim lite tube light fittings, acrylic letters to protrude out and be lit, together with a timer for switching on and off at required timings, including transportation and fixing at site as per the direction of the site engineer	50.00	sq.ft.			
11.29	Providing, fabricating and fixing of frontlit signages with solvent printing on 13 oz Hanwa/LG make flex printing on Vutek/ Sytec/ Edge print etc with UV cure inks with minimum life of 1 year for non fading, stretched on 25mm sq M.S. pipe, with 28 gauge tin sheet on the back for withstanding wind pressure with adequate lights in the front. The front lighting to be Metalite (white light) of 150 watts and Philips make to be fixed with metal arms at least 4ft protruding outside.	50.00	sq.ft.			


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Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures (in Rs)
1	2	3	4	5	6	7
11.30	Providing, fabricating and fixing digital posters inside the hospitals on 5mm sun board sheet with 1440 dpi digital printing on Technova/ LG coated vinyl duly laminated and pasted on the sheet and fixed on the walls with help of steel studs or mirror screws as per the direction of the engineer	50.00	sq.ft.			
11.31	Providing fabricating and fixing of name plate pockets outside rooms made of 5mm opaque, milky white acrylic sheet in various sizes and with provision of fixing acrylic plates as per boq-1 on the same, the pockets should be well crafted using high quality adhesives and should be fixed on the wall with the help of screws etc. and as per the direction of the engineer.	500.00	sq.inch			
		#REF!				
	Sub Total	#REF!				

ABSTRACT

**Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal
(Boys Hostel,Girls Hostel,Academic and Library)**

S.No.	DESCRIPTION	Amount in figures(in Rs.)
A	INTERNAL PLUMBING ,	
1. 00	SANITARY FIXTURES	
2. 00	SOIL, WASTE AND VENT PIPES	
3. 00	WATER SUPPLY	
4. 00	SEWERAGE AND DRAINAGE	
5. 00	EARTH WORK	
B	EXTERNAL PLUMBING ,	
6.00	RAIN WATER PIPING	
7.00	EXTERNAL WATER SUPPLY	
8.00	BOREWELL	
9.00	RAIN WATER HARVESTING	
9.00	SOLAR WATER HEATING SYSTEM & RECIRCULATING SYSTEM	
10.00	SEWAGE TREATMENT PLANT	
11.00	ELECTRICAL PANEL(Water supply pump Panel)	
	TOTAL	

	Design & Engineering Department					
<div style="text-align: center;">  </div>						
Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Note: Based on the tender drawing the agency has to prepare the internal & external plumbing shop drawing and obtain the approval of the same before execution					
1.00	SANITARY FIXTURES					
1.01	Providing&fixing water closet squatting pan(Indian W.C.Pan)with 100 mm sand cast iron P or S strap,10 Litre low level white P.V.C flushing cistern with manually controled device(handle lever) conforming to IS:7231 with all fittings&fixture complete including cutting and making good the walls & floors wherever required.					
a)	White vitreous china orissa pattern W.C. pan of size 580 x 440 mm with integral type foot rests.	Each	25.0			
1.02	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous flushing cistern and C.P. flush bend with fittings & C.I. brackets, 40mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required:					
a)	W.C. pan with ISI black solid plastic seat & lid.	Each	238.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
1.03	Providing and fixing white vitreous China flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting or fittings and brackets, cutting and making good the walls and floors wherever required.					
a)	One urinal basin with 5 litre white PVC automatic flushing cistern	Each	3.0			
b)	Range of two urinal basin with 5 litre white PVC automatic flushing cistern	Each	21.0			
c)	Range of three urinal basin with 10 litre white PVC automatic flushing cistern	Each	10.0			
1.04	Providing and fixing wash basin with C.I. brackets, 15mm C.P. brass pillar taps, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required:					
a)	White vitreous china wash basin size 550x 400 mm with a pair of 15mm C.P. brass pillar tap.	Each	244.0			
1.05	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required:					
a)	Kitchen sink without drain board					
a i)	610x510 mm bowl depth 200 mm.	Each	5.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
1.06	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug 40 mm C.P. brass waste and 40 mm brass trap with necessary C.P. brass unions complete including painting of fittings and brackets,cutting and making good the walls and floors wherever required:					
a)	Size 600x450x200 mm	Each	10.0			
1.07	Providing and fixing superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shape with 6 mm thick hard board backing.					
a)	Rectangular shape 453x357 mm	Each	244.0			
1.08	Providing and fixing 600x120x5 mm glass shelf with edges round of supported and anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	Each	26.0			
1.09	Providing and fixing toilet paper holder .					
a)	Vitreous china	Each	238.0			
1.10	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour weighing not less than 105 gms.	Each	119.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
1.11	Providing and fixing water Jet Nozzle with hose pipe and haif turn CP brass angle valve to be fitted with seat cover of european water closet complete in all respect of approved quality	Each	238.0			
1.12	Providing and fixing soap tray with CP brass lid and brackets fixed to wooden cleats with CP brass screws.(Jaquar model no.1131 or equivalent model of other approved make).	Each	263.0			
1.13	Providing and fixing CP brass towel rail size of 600x20 mm of approved make complete with CP brackets fixed to wooden cleats with CP brass screws(Jaquar model no.1111 or equivalent model of other approved make)	Each	244.0			
1.14	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	Each	255.0			
1.15	Extra for providing and fixing white vitreous china oval shape wash basin in place of normal wash basin with CI/MS brackets painted white, 15 mm CP brass pillar taps, 32 mm CP brass waste of standard pattern, including painting of fittings and brackets cutting and making good the walls wherever required					
a)	Counter top oval shape wash basin size 550x470 mm with centre tap hole, single 15 mm CP brass swan neck type pillar tap	Each	20.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
1.16	Extra for providing and fixing white vitreous china wall hung type water closet (European type) in place of normal pedestal type water closet with white solid plastic seat and lid concealed flushing cystem 9 ltrs capacity(min) approximate size(400x300x100)comprising of SS actuating panel with dual flush with fittings ,specials of standard make(Viega,ACO,Kohler,Jaquar) and complete including painting , cutting and making good the walls and floors wherever required:	Each	80.0			
1.17	Providing and fixing stainless steel grab bar 20mm dia of required length with PVC cleats, C.P. brass screws etc. complete.	Each	24.0			
SUB TOTAL(SANITARY FIXTURES)						

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
2.00	SOIL, WASTE AND VENT PIPES					
2.01	Providing and fixing soil, waste and vent pipes.					
a)	100 mm dia.					
a i)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	4105.0			
2.02	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 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	372.0			
2.03	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	100 mm					
a ii)	Sand cast iron S&S as per IS-3989	Each	214.0			
2.04	Providing and fixing plain bend of required degree.					
a)	100 mm					
a ii)	Sand cast iron S&S as per IS:3989	Each	452.0			
2.05	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.ii)	sand cast iron S&S as per IS-3989	Each	49.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
2.06	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	100x100x100mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	220.0			
2.07	Providing and fixing single equal plain junction of required degree					
a)	100x100x100mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	262.0			
2.08	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts and nuts complete					
a)	100 mm					
a.ii)	sand cast iron S&S as per IS-3989	Each	30.0			
2.09	Providing and fixing terminal guard.					
a)	100 mm	Each	49.0			
a.ii)	sand cast iron S&S as per IS-3989					
2.10	Providing and fixing collar					
a)	100 mm					
a.ii)	Sand cast iron S&S as per IS-3989	Each	250.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
2.11	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	2895.0			
2.12	Providing Drip seal joint of approved make for the sand cast iron/centrifugally cast iron pipes where the workability of lead joint can be effected due to space constraints.					
a)	100 mm	Each	1240.0			
2.13	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	100 mm	Each	49.0			
2.14	Providing and fixing trap of self cleansing with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	100 mm inlet and 100 mm outlet					
a i)	Sand cast iron S&S as per IS-3989	Each	290.0			
2.15	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	100 mm diameter pipe	Metre	70.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
2.16	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:					
a)	100 mm diameter pipe	Metre	2465.0			
2.17	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	Each	168.0			
2.18	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	272.0			
2.19	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	52.0			
2.20	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCI/centrifugally S&S pipe diameter.					
a)	100 mm dia	Metre	1650.0			
2.21	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
a)	Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of size 25 mm dia and 75 mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35x5 mm/ of required size or MS bars steel structures as per drawing.	Each	750.0			
2.22	Providing and fixing floor clean out plug consist of CI bend & GI socket heavy class with Brass cap & key for opening male threaded cap etc. including lead caulked to CI pipescomplete in all respects as per drawing/ sample approved by Engineer -in - ChargeFCO (floor clean out plug shall be flushed with floor finish					
	100 mm dia	Each	78.0			
2.23	Providing and fixing clean out plug consist of GI socket/nipple heavy class with threaded pludge for opening male threaded cap etc. including lead caulked to CI pipescomplete in all respects as per drawing/ sample approved by Engineer -in -Charge					
	100 mm dia/150 mm dia	Each	55.0			
2.24	Providing and fixing G.I EXTENSION PIECE for 100 mm dia floor trap formed out of main pipe(Type A) with multiple side inlets, suitable for various dia pipes, side connections, including all fixtures and fittings as per site conditions and as per standard details and water tight sealing of joints and area surrounding the grating and as directed.	Each	290.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
2.25	Providing and fixing cPVC. pipes complete with cPVC fittings including painting,jointing,testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
a)	32 mm dia nominal bore (Wash basin to floor trap/floor drain)	Metre	180.0			
b)	40 mm dia nominal bore (Sink,Urinal to floor trap)	Metre	39.0			
b)	50 mm dia nominal bore (Floor Drain to Floor Trap)	Metre	145.0			
2.26	Providing & fixing SS floor trap grating 143x143x5mm thick screwablewith SS fixed frame of 150x150 mm size as per approved make & model	Each	290.0			
2.27	Supplying of stainless steel 304 grade, box channels 200 of 2mm thickness, Pickle passivated for superior anti-corrosive property,having Vshape on bottom of channel debth ranging from 50mm-125mm , with/without built in slope, Standard edge to seat grating, with spigot outlet of dia 110mm, provision of flange for connection to another channel along with gasket in between to ensure leak proof, with built in groove to accommodate SS silt basket to trap kitchen debris for application in commercial kitchen along with anti slip mesh grate of sizes 375/500/1000mm matching the channels along with all required accessories (i.e. End cap & Sieve Basket) complete in all respect of approved make ACO,VIEGA or equivalent approved .	Metre	4.0			
2.28	Providing and fixing WC connector socket(for vitreous china & CI pipe) of EDPM good quality with polypropelene body 100x150/100x250 of approved quality and make complete in all respect.		238.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	SUB TOTAL(SOIL, WASTE AND VENT PIPES)					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.00	WATER SUPPLY					
3.01	Providing and fixing Chlorinated Polyvenyl 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 1.0 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 ciomplete as per direction of Engineer in charge.					
	Internal work – Exposed on wall					
a)	15 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
b)	20 mm nominal outer dia pipes (SDR-11)	Metre	100.0			
c)	25 mm nominal outer dia pipes (SDR-11)	Metre	200.0			
d)	32 mm nominal outer dia pipes (SDR-11)	Metre	500.0			
e)	40 mm nominal outer dia pipes (SDR-11)	Metre	300.0			
f)	50 mm nominal outer dia pipes (SDR-11)	Metre	500.0			
g)	62.5 mm nominal outer dia pipes (SDR-11)	Metre	100.0			
3.02	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.					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Concealed work including cutting chases and making good the walls etc.					
a)	15 mm nominal outer dia pipes (SDR-11)	Metre	1545.0			
b)	20 mm nominal outer dia pipes (SDR-11)	Metre	1090.0			
c)	25 mm nominal outer dia pipes (SDR-11)	Metre	645.0			
d)	32 mm nominal outer dia pipes (SDR-11)	Metre	315.0			
e)	40 mm nominal outer dia pipes (SDR-11)	Metre	165.0			
f)	50 mm nominal outer dia pipes (SDR-11)	Metre	25.0			
3.03	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.					
	External Work					
a)	25 mm nominal outer dia pipes (SDR-11)	Metre	40.0			
b)	40 mm nominal outer dia pipes (SDR-11)	Metre	40.0			
c)	50 mm nominal outer dia pipes (SDR-11)	Metre	20.0			
3.04	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.					
	Internal Work- Exposed on walls					
b)	80 mm dia nominal bore	Metre	45.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.05	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 including obtaining approval for connection from DJB/Municipal corporation :					
a)	50 to 80 mm nominal bore (SDR-11)	Each	4.0			
3.06	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	25 mm nominal bore	Each	19.0			
b)	32 mm nominal bore	Each	29.0			
c)	40 mm nominal bore	Each	23.0			
d)	50 mm nominal bore	Each	26.0			
e)	65 mm nominal bore	Each	12.0			
f)	80 mm nominal bore	Each	6.0			
3.07	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	20mm	Each	8.0			
b)	25 mm nominal bore	Each	4.0			
3.08	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main					
a)	25 mm nominal bore	Each	3.0			
b)	40 mm nominal bore	Each	1.0			
3.09	Providing and fixing unplasticised PVC connection pipe with brass unions:					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
a)	45 cm length					
a i)	15 mm nominal bore	Each	900.0			
3.10	Constructing masonry chamber 30x30x50 cm, inside with 75 class designation 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 cement concrete slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and 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					
a)	With F.P.s bricks	Each	12.0			
3.11	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint over a ready mixed priming coat, both of approved quality for new work					
a)	15 mm nominal outer dia pipes	Metre	20.0			
b)	20 mm nominal outer dia pipes	Metre	80.0			
c)	25 mm nominal outer dia pipes	Metre	105.0			
d)	32 mm nominal outer dia pipes	Metre	325.0			
e)	40 mm nominal outer dia pipes	Metre	195.0			
f)	50 mm nominal outer dia pipes	Metre	380.0			
g)	65 mm nominal outer dia pipes	Metre	55.0			
3.12	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
a)	25 mm diameter pipe	Metre	40.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
b)	40 mm diameter pipe	Metre	40.0			
c)	50 mm diameter pipe	Metre	20.0			
3.13	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	25 mm diameter pipe	Metre	40.0			
b)	40 mm diameter pipe	Metre	40.0			
c)	50 mm diameter pipe	Metre	20.0			
3.14	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI:12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank					
	Treated water Tank and Untreated water tank	per litre	41850.0			
3.15	Providing and fixing C.P brass bib cock of approved quality.					
a)	15 mm nominal bore	Each	238.0			
3.16	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms. (Marck, Jaquar, othello)					
a)	15 mm nominal bore	Each	250.0			
3.17	Providing and fixing C.P. brass angle valve for basin mixer and geyser/cisterns points of approved quality conforming to IS:8931.					
a)	15 mm nominal bore	Each	897.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.18	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to 18:8931.					
a)	15mm nominal bore.	Each	246.0			
3.19	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	40 mm nominal bore, 206 mm long weighin not less than 690 gms	Each	8.0			
b)	50 mm nominal bore, 242 mm long weighin not less than 1240 gms	Each	8.0			
3.20	Cutting holes upto 30x30 cm in walls including making good the same					
a)	with F.P.S bricks	Each	45.0			
3.21	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	45.0			
3.22	Extra for providing wash basin mixer pillar tap in place of normal pillar tap	Each	90.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.23	Extra for providing divertor type shower mixer with provision for shower & single tap in place of 2Nos. concealed stop cock & 2 Nos. CP long nose bib cock complete in all respect of approved make & model	Each	62.0			
3.24	Providing & fixing full way lever operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 10 Kg / sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
a)	15 mm diameter	Each	4.0			
b)	20 mm diameter	Each	10.0			
3.25	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
a)	15 mm diameter	Each	2.0			
b)	20 mm diameter	Each	8.0			
c)	25 mm diameter	Each	13.0			
d)	32 mm diameter	Each	14.0			
e)	40 mm diameter	Each	13.0			
f)	50 mm diameter	Each	10.0			
3.26	Providing and fixing C.P. brass Overhead (Rain Fall) shower (100mm) with arm and wall flange complete including cutting and making good the walls wherever required.	Each	123.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.27	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material on hot water supply/return pipes having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a	15 mm to 25 mm diameter	Meter	125.0			
3.28	Providing & fixing solid state fully hygienic no touch hand drier of approved make rated for continuous repeat usage with solid state time delay LSF protection, with independent ambient light level & seasonal control temperatures including providing necessary C.I./M.S. brackets painted with two or three coats of enamel paint of approved shade over a coat of primer, wiring cables from drier to plug, plug tops etc. complete including cutting and making good the walls wherever required.	Each	25.0			
3.29	Extra for providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic flushing system of approved make instead of urinals with flushing cistern. The automatic flushing system shall comprising of :					
	Light sensing device fixed in recessed metallic box with tamper resistant stainless steel outercase Solenoid valve housed in a recessed metallic box with openable cover mounted at high level (at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	15.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.30	Providing and fixing C.P. brass lab sink pillar tap with long elbow operating lever handle of approved model and make complete in all respect (, Jaguar,Marck,Jainco,orthello Rybo)	Each				
3.31	Supplying, fixing, testing and commissioning of storage type water heater (Geyser) etc. with Stainless steel body , copper container , automatic thermostatic control electric element, pressure release valve, M.S. nuts and bolts etc. conforming to IS: 2082					
a)	25 Litre Capacity	Each	62.0			
b)	35 litre capacity	Each	2.0			
3.32	Providing & fixing water storage cooler of approved make and brand with SS body Complete in respects.(VOLTAS/ BLUE-STAR/ USHA SHRIRAM)					
	minimum flow rate of 20 ltrs. Per hour and storage capacity 40 ltrs.	Each	35.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.33	Providing and fixing approved make & suitable model of R.O. plant 25 ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and not less than 40%. The treated water should have TDS less than 100 ppm and hardness less than 50 ppm. The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system antiscaling dosing system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/AQUAPROCESS/Pantair)					
a)	10 micron polypropylene sediment pre filter					
b)	10 micron bacteriostatic activated carbon block on line micron filter with 5 micron rating					
c)	3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
d)	UV lamp of minimum capacity 25 LPM and minimum lamp wattage 9W	Each	35.0			
	SUB TOTAL(Water Supply)					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
4.00	SEWORAGE & DRAINAGE					
4.01	Providing laying and uPVC pipe conforming to IS 4985(6 kg/sq.m) including heavy class fittings and approved solvent jointing including testing of joints etc. complete.					
a)	110 mm diameter	Metre	100.0			
4.02	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	100 mm diameter uPVC pipe/RCC NP2	Metre	100.0			
b)	150 mm diameter uPVC pipe/RCC NP2	Metre	345.0			
c)	250 mm diameter uPVC pipe/RCC NP2	Metre	260.0			
4.03	Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design:					
a)	150 mm diameter S.W. pipe	Metre	120.0			
b)	250 mm diameter s.W. pipe	Metre	490.0			
4.04	Providing and fixing square-mouth gully trap consist of uPVC trap of 100 mm dia of approved make with C.I. grating, brick masonry chamber with water tight C.I. cover with frame of 300x300 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:.					
a)	150x100mm size P type (uPVC)					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
a.i)	F.P.S. Bricks class designation 75	Each	43.0			
4.05	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement:2 fine sand) including testing of joints etc. complete					
a)	150 mm dia R.C.c. pipe	Metre	415.0			
b)	250 mm dia R.C.C. pipe	Metre	700.0			
4.06	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix (1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 (1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making necessary channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design.					
a)	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):					
a i)	With F.P.S. bricks with class designation 75	Each	34.0			
4.07	Extra depth for manholes					
a)	Size 90 x 80 cm					
a i)	With F.P.S. bricks class designation 75	Metre	3.5			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
4.08	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 coarse sand), in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement: 3 coarse sand: 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
a)	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 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :					
a i)	With F.P.S. bricks class designation 75	Each	38.0			
4.09	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	With F.P.S. bricks class designation 75	Metre	4.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
4.10	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 mix (1 cement :3 coarse sand : 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) finished with a floating coat of neat cement complete as per standard design.					
a)	1.68 m deep with SFRC cover and frame(heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) including centering shuttering all complete. (Excavation, foot rests and 12 mm tick cement plaster at the external surface shall be paid for separately)					
a.i)	With F.P.S. bricks with class designation 75	Each	10.0			
4.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	With F.P.S. bricks with class designation 75	Metre	2.5			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
4.12	Providing and fixing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm 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 specification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	185.0			
4.13	Making connection of drain or sewer line with existing manhole including breking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cemnet mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete (including obtaining approval from DJB/Municipal corporation					
a)	For pipes 100 to 230 mm dia	Each	4.0			

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
4.14	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid sand cast Iron drop pipe and bend encased all-round with cement concrete 1 :5:1 0 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on, inside of the manhole wall lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement: 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications:					
a)	150 mm dia. sand cast iron drop connection	Each	4.0			
4.15	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 75 in cement mortar 1:4 (1 cement:4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design:					
a)	With F.P.S. bricks	Each	55.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
4.16	Constructing brick masonry open surface drain including factory made perforated RCC cover with edge protected with MS plate of 3 mm thick with bricks of class designation 75 in cement mortar 1:4 (1 cement : 4 fine sand) including earth excavation, 10cm thick bed concrete 1:5:10 (1 cement: 5 fine sand :10 graded stone aggregate 40mm nominal size) and 25mm thick cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 12.5 mm nominal size) for filling hunches including 12mm cement plaster 1:4 (1 cement:4 coarse sand) with a floating coat of neat cement inside the drain, its top and exposed side including disposal of surplus earth complete as per standard design.					
	25cm drain 30cm average depth					
a)	With F.P.S bricks	Metre	450.0			
	45cm drain 75cm average depth					
b)	With F.P.S bricks	Metre	290.0			
	SUB TOTAL(SEWERAGE AND DRAINAGE)					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
5.00	EARTH WORK					
5.01	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth,1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m , disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	cum	90.0			
5.02	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)	Ordinary rock	cum	90.0			
5.03	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	All kinds of soil					
a.ii)	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	607.5			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
5.04	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5 m, but not exceeding 3 m (Rate is over corresponding basic item for depth upto 1.5 metre).	metre	303.8			
5.05	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 3.0 m, but not exceeding 4.5 m (Rate is over corresponding basic item for depth upto 1.5 metre).	metre	60.8			
5.06	Excavating trenches of required width for pipes, cables, etc., including excavation for sockets, depth upto 1.5 m including getting out the excavated materials, returning the soil as required in layers not exceeding 20 cm in depth including consolidating each deposited layers by ramming, watering etc. stacking serviceable material for measurements and disposal of unserviceable material as directed, within a lead of 50m:					
a)	Ordinary rock:					
ai)	Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia	metre	607.5			
5.07	Extra for excavating trenches for pipes, cables, etc. in ordinary/ hard rock exceeding 1.5 m in depth but not exceeding 3 m.(Rate is over corresponding basic item for depth upto 1.5 metre).	metre	303.8			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
5.08	Extra for excavating trenches for pipes, cables, etc. in ordinary/hard rock exceeding 3.0 m in depth but not exceeding 4.5m.(Rate is over corresponding basic item for depth upto 1.5 metre).	metre	60.8			
5.09	Close timbering in trenches including strutting,shoring and packing cavities(wherever required) complete. (Measurements to be taken of the face area timbered).					
a)	Depth not exceeding 1.5 m	sq.m.	1822.5			
b)	Depth exceeding 1.5 m but not exceeding 3m	sq.m.	2733.8			
c)	Depth exceeding 3m but not exceeding 4.5m	sq.m.	4738.5			
5.10	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m	cum	45.0			
5.11	Extra for every additional lift of 1.5 m or part thereof in					
a)	All kinds of soil	cum	45.0			
b)	Ordinary or hard rock	cum	45.0			
SUB TOTAL(EARTH WORK)						

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
6.00	RAIN WATER PIPING					
6.01	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	60.0			
6.02	Providing and fixing rain water ,soil, waste and vent pipes.					
a)	100 mm dia.					
a i)	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	795.0			
c)	150 mm dia pipe as per IS:3989	Metre	570.0			
6.03	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 10x10x10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc.					
a)	for 100 mm dia. pipe	Each	279.0			
c)	for 150 mm dia pipe	Each	197.0			
6.04	Providing and fixing plain bend of required degree.					
a)	100 mm					
a ii)	Sand cast iron S&S as per IS:3989	Each	35.0			
c)	150 mm	Each	25.0			
6.05	Providing and fixing heel rest sanitary bend.					
a)	100 mm dia					
a.ii)	sand cast iron S&S as per IS-3989	Each	35.0			
c)	150 mm dia	Each	25.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
6.06	Providing and fixing collar					
a)	100 mm					
a.ii)	Sand cast iron S&S as per IS-3989	Each	230.0			
c)	150 mm	Each	164.0			
6.07	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	100 mm	Each	260.0			
c)	150 mm	Each	190.0			
6.08	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:					
a)	100 mm diameter pipe	Metre	795.0			
c)	150 mm diameter pipe	Metre	570.0			
SUB TOTAL(Rain Water pipe & fitting)						

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
7.00	EXTERNAL WATER SUPPLY					
7.01	Providing and fixing G.I.pipes complete with G.I. fittings including trenching and refilling etc. (External work)					
a)	20 mm dia nominal bore	metre	25.0			
b)	65 mm dia nominal bore	metre	50.0			
c)	80 mm dia nominal bore	metre	200.0			
d)	100 mm dia nominal bore	metre	300.0			
e)	150 mm dia nominal bore	metre	100.0			
7.02	Providing and fixing G.I. pipes complete with G.I. fittings and clamp including cutting and making good the walls etc.					
	Internal work-Exposed on wall-					
	65 mm diameter	metre	10.0			
	80 mm diameter	metre	20.0			
	100 mm diameter	metre	20.0			
7.03	Providing and fixing gun metal non-return valve of approved quality (screwed end)					
a)	100 mm nominal bore					
	Horizontal	each	2.0			
b)	80 mm nominal bore					
	Horizontal	each	2.0			
7.04	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :					
a)	80 mm nominal bore	each	4.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
7.05	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately):					
a)	100 mm diameter					
ai)	Class I	each	6.0			
b)	150 mm diameter					
bi)	Class I	each	4.0			
7.06	Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and 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					
a)	With F.P.S. bricks	each	6.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
7.07	Constructing masonry chamber 90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and 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					
a)	With F.P.S.bricks	each	4.0			
7.08	Painting G.I./CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality					
a)	20 mm diameter pipe	metre	25.0			
b)	65 mm diameter pipe	metre	50.0			
c)	80 mm diameter pipe	metre	200.0			
d)	100 mm diameter pipe	metre	300.0			
e)	150 mm diameter pipe	metre	100.0			
7.09	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	20 mm diameter pipe	metre	25.0			
b)	65 mm diameter pipe	metre	50.0			
c)	80 mm diameter pipe	metre	200.0			
d)	100 mm diameter pipe	metre	300.0			
e)	150 mm diameter pipe	metre	100.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
7.10	Providing and fixing G.I. Union in existing G.I. pipe line, cutting and threading the pipe and making long screws including excavation, refilling the earth or cutting of wall and making good the same complete wherever required:					
a)	65 mm nominal bore	each	2.0			
b)	80 mm nominal bore	each	4.0			
c)	100 mm diameter pipe	each	5.0			
7.11	Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc. if required will be paid separately):					
a)	50 mm dia	each	2.0			
b)	80 mm dia	each	2.0			
7.12	Disinfecting C.I./D.I./GI water mains by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with freash water, operation to be reeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory					
a)	100 mm diameter C.I./D.I. /GI pipe	100 metre	3.0			
b)	150 mm diameter C.I./D.I. /GI pipe	100 metre	1.0			
c)	80 mm diameter C.I./D.I. /GI pipe	100 metre	2.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
7.13	Providing and fixing puddle flanged including 40 cm long GI pipe piece welded/threaded with MS plates 450x450x6 mm thick with both end screwed/flanged.					
a)	For 80 mm dia pipe	Each	2.0			
b)	For 100 mm dia pipe	Each	4.0			
c)	For 150 mm dia pipe	Each	4.0			
7.14	Providing and fixing suitable G.I. vent pipe upto 1m high Class-B (medium quality) with fittings complete as per drawing and as directed.					
a)	For 80 mm dia pipe	Metre	10.0			
b)	For 100 mm dia pipe	Metre	10.0			
7.15	Providing and fixing double seal type D.I. Manhole cover of 560 mm clear internal diameter of over all heavy duty with locking arrangement complete in all respects.	Each	8.0			
7.16	Providing all materials and labour for supplying and fixing multi-level indicator cum controller, operating in electronic sensing probe and having the controller equipped with level monitoring system and phase monitoring system for automatic operations of various pumps and indicating water levels for various tanks and having multi-level 4 nos. visual indications on panel with alarm system and timer including necessary cable and acknowledge facilities as per requirement and all complete as approved.					
	Water tanks					
	controller/Multilevel indicators					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Electronic sensing probe to cut-off raw water pumps at low level in raw water tank.					
	Electronic sensing probe to cut-off pumps at high level in receiving tanks.	set	1.0			
7.17	Providing and fixing gun metal foot valve with stainer of approved quality/model complete in all respect					
	80 mm dia	each	2.0			
	100 mm dia	each	2.0			
7.18	Supplying, installing, testing and commissioning horizontal monobloc centrifugal pumping set with mechanical seal, C.I. volute and SS impeller & SS shaft connected to a TEFC induction motor of suitable HP for 415 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads, base plate wiring upto panel and equipment for water level controller to start and stop the pump automatically at predecided levels of the water in the tank with provision of protection for dry run etc. complete in all respect (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
	1 No, DOL(type-II) starter of 5 HP with thermal overload relay, Push Buttons, Single Phase Preventer and Switches etc complete as required.					
	1 No, DOL(type-II) starter of 3 HP with thermal overload relay, Push Buttons, Single Phase Preventer and Switches etc complete as required.					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Domestic water pumps					
	Capacity 200 lpm					
	Head 65 M	Each	2.0			
	Capacity 150lpm					
	Head 65 M	Each	2.0			
7.19	Supply, installing, testing and commissioning vertical fully floodable type submersible drainage pump in close coupled design single stage, suitable for handling minimum 12 mm dia solids for transferring waste water from sump to outside the building with float switch for automatic start and stop arrangement with panel and wiring, chain and pulley, mechanical seal complete in all respect as per instruction of the Engineer in charge (One additional stand by pump to be kept in the store). (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
	1 No. 3 Phase, DOL starter type - II of 3.5 HP with thermal overload relay, contactor, Push Buttons, Single Phase Preventer and Switches etc complete as required.					
	Material of Construction (M.O.C):					
	: Impeller — Stainless Steel					
	: Shaft — Stainless Steel					
	: Bearings — Anti friction,					
	Motor: — Dry Motor with built in over Protection - IP68.					
	Insulation Class - F					
	Duty of each pump					
	150 LPM against 10M head (for Pump Room)	each	1.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
7.20	Providing and fixing garden hydrant of approved quality and make complete in all respect	each	10.0			
7.21	Providing & fixing anti-corrosion protection to GI pipe & accessories by wrapping pipekot 4mm thick 500mm wide tar based plymaric corrosion protection tape or equivalent suitable to GI/ MS pipe line including applying uniform coat of cold pipekot primer complete 1m below the ground level, erfilling in layers not exceeding 20 cm in deapth consolidated each deposited layer by ramming & watering complete in all respect as per IS:1002 (under ground)					
	50 to 150 mm dia pipe	Metre	650.0			
7.22	Testing Underground tank for water sepage before fixing of tiles or any other finishing including pressure grouting (if required). The tank should be disinfected and cleaned before use as per instruction of Engineer-in-charge	set	1.0			
7.23	Providing and fixing of OxiLyte (Mixed Oxidant) Generation System , based on ECA Technology, producing non toxic mixed Oxidant Slution at 1000 ppm of Oxidant Concentration or any other approved disinfection method excepted by HSCC. The solution should be at a pH 3+-0.5 suitable for 24x7 operations should produce 30L per hour. The system should be supplied complete with appropriate dosing pumps , valves, piping, fittings, chemical dosing tank etc. shop drawing complete in all respect.	Set	1.0			
SUBTOTAL (EXTERNAL WATER SUPPLY)						

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
8.00	BOREWELL(1 No)					
8.01	Drilling by suitable rig as per IS : 2800-1979 (percussion or combination rig) or Reverse Rotary to suit site condition from ground level in all kind of soils and weathered rock including boulders (excluding rock) diameter of bore 450mm including carry out hydrological survey report before boring & getting the approval based on Hydrogeological survey before start of the work.Also getting approval from local authority if any required					
a)	0-30m	metre	30.0			
b)	30-60m	metre	30.0			
c)	60-90m	metre	30.0			
d)	90-120 m	metre	30.0			
8.02	Extra additional for drilling in Ordinary Rock if any found	metre	25.0			
8.03	Extra additional for drilling in Hard Rock if any found	metre	25.0			
8.04	Providing and lowering uPVC casing/housing pipe 200mm dia. with wall thickness 10 mm conforming to IS :12818 including sockets of standard design.	metre	70.0			
8.05	Providing & fixing uPVC screen/slotted pipe with 1.5 mm to 3mm (slots as per strata condition) including sockets of standard design as per IS: 12818/1992.					
a)	200 mm dia uPVC socketed pipe with wall thickness 10.0 mm	metre	80.0			
8.06	Providing and fixing in position threaded iron cap with locking arrangement of approved design to prevent foreign matters getting into the bore-hole as required.	Each	1.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
8.07	Providing and laying rounded pea gravel washed & served 3 to 6 mm nominal boreas per relevant ISI code.	Cum	16.0			
8.08	Providing and laying cement concrete 1:2:4 mix for sanitary sealing of well at top.	Cum	1.0			
8.09	Supplying, lowering and fixing in position reducer ,PVC bail plug with "U" hooks as per IS:2800-1964.	Each	1.0			
8.10	Development of Tubewell including testing of yield depression & quality of water (for all parameters of potable water), contractor to obtain certificate for quality for water from Competent Authority approved by client or Engineer- In -Charge.					
a)	Development of Tube well by high capacity air compressor till the clear water discharge but not more than 100 hours.	per hour	80.0			
b)	Additional development of Tube well by high an over pumping unit till complete development of tube well does not clear by maximum 100 hours air compressor	per hour	50.0			
8.11	Tranportation, mobilisation and demobilisation or drilling equipment and ancillary equipment to site including clearing and cleaning the site after completion of work.	set	1.0			
8.12	Providing and fixing brass full way valve with C.I. wheel of approved make, tested to a pressure of 21 kg/sqcm.					
a)	100 mm dia	Each	1.0			
8.13	Providing and fixing gunmetal non return valve of approved make tested to a pressure of 21kg/sqcm.					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
a)	100 mm dia	Each	1.0			
8.14	Providing & fixing G.I. pipes (heavy class)confirming to IS with special fittings in external works including earthwork ,excavationin all kinds of soil including ordinary rock,refilling, painting pipes & fitting complete in all respects.					
	100 mm dia	Metre	100.0			
8.15	Providing & filling sand of grading zone V or coarser grade all around GI pipe in external work					
	100 mm dia	Metre	100.0			
8.16	Submersible pumps					
	Providing and installing submersible pump and electrical panel suitable for 8" dia casing of bore with SS impeller, high tensile SS shaft, copper wound squirrel cage wet type induction motor 2880 rpm, 415 V, 50 Hz,3 phase A.C. supply, conforming to ISS: 8034-1976, capacity 500 litre per minute at 70-120 m head/ or suitable as per the hydrological survey report along with a directly coupled submersible type squirrel cage electric induction 5 H.P(minimum) , motor suitable for operation on 400 V, 3 phase, 50 c.p.s. A.C. supply, water lubricated bearings and provided with pivoted segment type thrust bearings to withstand non-vertical lead with minimum wear and tear and duly fitted with device to take up the expansion of water with heating of motor, including supply, testing and commissioning of elctrical panel from the same manufacturer, complete with all accessories in all respects. The contractor to obtain approval for model and make of pumpset & suitable Electrical panel after having yield report of fully developed tube well and submite actual bore strata chart.					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	1 No. 3 Phase, DOL starter type - II of 10 HP with thermal overload relay, contactor, Push Buttons, Single Phase Preventer and Switches etc complete as required.					
	including supplying laying and fixing water proof PVC insulated flat submersible cable 3x10 sqmm with end termination with its accessories. complete in all respect as required.	set	1.0			
8.17	Carrying out Electrical logging of Borewell before lowering of pipe for analysiing of water quality including Electrical logging report, calculation etc.	Job	1.0			
SUBTOTAL (BOREWELL)						

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
9.00	RAIN WATER HARVESTING(8 NOS.)					
9.01	Designing and Constructing of percolation pit cum perforated well 3000mm. dia upto 4000mm deep, 230 mm thick brick masonry work around upto 1.5 m deep with 75 class brick in cement mortar 1:4, 200 mm foundation concrete in 1:4:8 mix below brick work only, 150 mm thick precast removable RCC top slab with required steel reinforcement in cement concrete 1:2:4 mix, filled with coarse aggregate, SFRC covers, river pebbles of requisite size stone as shown in the drawing including centering and shuttering, as shown complete as per detailed drawings complete.	Each	8.0			
9.02	Drilling as per IS : 2800-1964 (with percussion or combination rig) from ground level in all kind of soils including boulders (excluding rock) diameter of bore 450mm.					
a)	0-50m	Metre	160.0			
9.03	Extra for drilling in Ordinary Rock	Metre	40.0			
9.04	Providing and lowering of 200 mm dia uPVC blank/ slotted pipe with ribs, special fittings, jointing conforming to IS 12818 - 1992.	Metre	160.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
9.05	Constructing bar screen / settling tank, of sizes 4500x2500 with suitable depth up to 2.0 m in 1: 4 Cement Mortar (one cement : 4 coarse sand) height as per site requirement, in brick masonry 350mm thick walls upto water level and 230mm thick walls above water level & upto ground level, including all excavation, 20 cm thick bed concrete in 1:4:8 (one cement 4 fine sand 8 stone aggregate 40 mm), cement plaster 1:3 (one cement :3 coarse sand) with a floating coat of neat cement as inside finish , top slab in RCC 1:2:4, including centring, shuttering and steel work, also providing and fixing D.I. manhole cover & frame of size 605mm x 450mm of weight not less than 38 kg (frame + cover) and cost of 100mm dia C.I. vent pipe with C.I. Ventilating Cowl and suitable wire mesh provision for inlet, 115mm baffle walls extending 2/3 the width spaced@500mm c/c including finishing with 1:3 cement plaster 15mm thick with floating coat of neat cement slurry , all complete in every respect as per drawing and as directed to suit site condition.	Each	8.0			
SUBTOTAL (RAIN WATER HARVESTING)						

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
10.00	SOLAR WATER HEATING SYSTEM & RECIRCULATION OF HOT WATER SYSTEM (1 Nos)					
10.01	Supply, installation, testing and commissioning of solar water heating system, Thermosyphon type, all complete based on Flat plat collector system (Cu-Cu Type only) comprising of but not limited to the following:					
a)	Requisite number of Flat plate collectors of 2 sq. mtr. collector area. Collector absorber plate to be made of copper tubes & copper fins only					
b)	Hot water storage tank made of stainless steel 304- food grade quality with 100 mm Glass wool insulation and cladding with 24 SWG Aluminum sheet. One temperature measuring device and suitable inlet, outlet and drain connections on the storage tank to be provided. Suitable Electrical Heater backup to be provided inside the tank along with thermostat					
c)	Heat Exchanger - Cage type Internal Heat Exchanger made of SS pipes shall be provided inside the Solar Tank. Heat exchangers shall have min. heat transfer area of 0.24 sq. mtrs. for every 100 LPD calacity. Suitable make up tank for the Heat Exchanger circuit shall also be provided					
d)	Interconnecting system piping shall consist of B Class insulated GI pipes covered with 50mm thick glasswool & clad with 26 SWG Aluminium Sheet. All Gate/Ball valves shall be of ISI make.					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
e)	Electrical control panel, cabling from panel to pumps and electrical heaters shall also be provided					
f)	The solar collector shall be arranged on roof of building in such a way that shadow can be avoided and requisite number of MS support for collector/tanks of minimum 35x35x5 MS angle adequate for 150 Km/Hr wind speed.					
g)	Solar water heating system based on Flat plat collector system technology with output capacity of as mentioned below with hot water at 60 degree centigrade having required Nos. solar collectors as per complete item as per technical specification of make BHEL/TATA/EMMVEE. The system has to be installed by Manufacturers authorised distributors/approved specialised firms of Solar water heating of approved makeThe shop drawing of the systems shall be provided by the agency as per site condition obtain the proper efficiency The system shall be procured after obtaining the approval of shop drawings from HSCC / Engineer-in-charge.(Electric heating element shall not be provided in the system as the solar hot water system will supply the hot water to the individual geyser).					
	Solar System of Capcity 1000 Litre/day (With minimum 8 nos of Collector of 2.0 Sqm area each)	each	4.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
10.02	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.					
	Internal work- Exposed on wall					
a)	15 mm nominal outer dia pipes (SDR-11)	metre	40.0			
b)	20 mm nominal outer dia pipes (SDR-11)	metre	10.0			
c)	25 mm nominal outer dia pipes (SDR-11)	metre	10.0			
10.03	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.					
a)	15 mm nominal outer dia pipes (SDR-11)	metre	85.0			
b)	20 mm nominal outer dia pipes (SDR-11)	metre	80.0			
	25 mm nominal outer dia pipes (SDR-11)	metre	15.0			
10.04	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end):					
a)	25 mm nominal bore	each	8.0			

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
b)	32 mm nominal bore	each	4.0			
10.05	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a)	15 mm dia to 25 mm dia	each	240.0			
10.06	Providing and fixing gun metal ball valve of approved quality					
a)	15 mm nominal bore	each	6.0			
b)	20 mm nominal bore	each	4.0			
	SUBTOTAL(SOLAR WATER HEATING SYSTEM & RECIRCULATING SYSTEM)					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
11.00	SEWAGE TREATMENT PLANT					
	Planning,Designing,Detailing,Supplying, Erection,Testing and Commissioning of Package Sewage treatment plant based on MBBR (Moving bed Bio Reactor)/FAB technology of average flow rate of 75 cu.m/day for sewer including provision of recirculation of treated sewage/effluent for the use of horticulture purposes including design and execution of all civil,structural,electrical,mechanical, plumbing and processing,ancillary equipments and works etc required to complete the package, getting approval from state pollution control board and other statutory bodies as well as from consultant (HSCC) including the cost of STP building for electrical room, treated sewage under ground storage tank of 25 cu.m capacity etc.					
	All the water retaining structure shall be designed as water retaining structure as per provision of IS code and water proofing with fixed or any other approved chemical shall be carried out by approved agency with 10 year (minimum) garanty. All the unit shall be painted by epoxy or any other approved paints.					
i)	The shop drawings & design of STP shall be prepared by the agency . As per site condition/available space most of the unit will be placed below ground under road/green area.The STP shall comprising of the following units of required size as per detail process and hydraulic design.The structure design shall be carried as per provision of IS code.The agency has to get their structure drawing checked and approved by IIT Delhi or any other govt. Engineering college approved by HSCC.(set-1)					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
ii)	RCC Suitable size Bar Screen chamber with minimum free board 300 mm and minimum size 0.5mx1mx0.3m SWD and suitable size SS Bar screen with minimum size of bar3x25 mm is installed at suitable angle at the inlet of raw sewage sump before pumping and manual system to collect and transport the screening material . The unit shall be designed for peak flow - 1 no.(min.) .					
	Electrical & mechanical(1 Nos)					
	Civil (1Nos)-will be paid seperately in civil work					
iii)	Supply, installing, testing and commissioning vertical fully floodable type submersible drainage pump of non-corrosive material with shredder/cutter in close coupled design single stage, suitable for handling minimum 20 mm dia solids for transferring raw sewer from sump to outside the building with float switch for automatic start and stop arrangement with panel and wiring, chain and pulley, mechanical seal complete in all respect as per instruction of the Engineer in charge. (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).Star delta suitable starter complete in all respect for automatic/manual operation of pump,start and stop push button contactor with required overload production and single phase preventor.					
	Material of Construction (M.O.C): Corrosion Resistant in general					
	: Casing — Cast Iron					
	: Impeller — Ductile cast iron/SS					
	: Bearings — Anti friction, prelubricated ball bearings, packed with grease for life.					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Motor: — Dry Motor with built in over load protection					
	Protection - IP68.					
	Insulation Class - F					
	RAW SEWAGE PUMP-(2 nos min.)					
	Capacity - 65LPM (min.)					
	Head - 8 m					
	Solid handing - 10-20mm					
iv)	RCC Equalisation tank with hydraulic retention time Min.6 Hrs HRT of suitable Size free Board 500 mm,the effluent of equalisation tank is agitated with diffused air that is fed by an air blower, including pipe non-corrosive material and its complete system. (1 unit)					
a)	Civil-will be paid seperately in civil work					
b)	Mechanical & Electrical					
v)	RCC MBBR-(2 nos. minimum) with minimum 5hr. retention time of each reactor of suitable size with Air grid CPVC pipe material of construction or corrosion resistant material,Air diffusers (fine bubble), HDPE approved make Bio media for each aeration tank,with minimum water depth of 3.8 m.					
a)	Electrical & mechanical(2 Nos)					
b)	Civil(2 Nos)-will be paid seperately in civil work					
vi)	ROTARY AIR BLOWERS					
	Providing and Installation of Rotary air blowers for air scouring, driver through v-belt or directly coupled through flaxble coupling. Motor shall be of suitable HP for 400-440 volts, ,1500RPM, 3 phase, alongwith air filter, non-return valve, safetyvalve, base plate and necessary air piping fittings, valves, flowmeters etc.					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	(Blower capacity and pressure head shall be suitable to meet the requirement of equalisation tank and Bio reactor suitable for average flow rate of sewer of 75cu.m per day)- 4 nos.(2working +2 stand by)					
vii)	RCC secondary tube settler -1 no. maximum Hydraulic loading 2.0 cu.m/sq.m/hr and with approved quality media. (1 units)					
a)	Electrical & mechanical(1 No.)					
b)	Civil(1No.)-will be paid seperately in civil work					
viii)	Providing and fixing of OxiLyte (Mixed Oxidant) Generation System , based on ECA Technology, producing non toxic mixed Oxidant Slution at 1000 ppm of Oxidant Concentration or any other approved disinfection method excepted by HSCC. The solution should be at a pH 3+-0.5 suitable for 24x7 operations should produce 50litre per hour. The system should be supplied complete with appropriate dosing pumps , valves, piping, fittings, chemical dosing tank etc. complete in all respect. (2 unit)					
ix)	RCC supernatant tank/Filter feed tank minimum 15 cu.m capacity (1 unit) with filter feed pumps - The civil work will be paid seperately					
	FILTER FEED PUMPSETS					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Providing and installation horizontal single/multistage centrifugal monoblock pumping set with CI body, SS impeller, coupled with totally enclosed fan cooled induction motor mounted on common structural base plate with all pump accessories complete as per specifications inclusive rubber vibration eliminators motor suitable for 415 volts, 1500RPM, 3 phase 50 HZ. A/c supply.					
	Type of pump - Horizontal					
	Capacity -75 LPM					
	Head - 30 M					
	Nos.- 2 (min.)					
x)	MULTI GRADE FILTER					
	Providing and installation of mild steel pressure vessel (as per IS:2825) 6 mm thick natural rubber lining fabrication standard multi grade filter complete in all respects, of total capacity 150LPM, complete with dished ends, supporting legs, manhole cover, frontal pipe work fitting with valves. Plant shall be provided with inlet, outlet pressure gauge, sample cocks, charge of filter media graded sand and internals consisting of strainers fitted on plate for collection. (No. of unit-1)					
	Dia of vessel -600mm (minimum)					
	Shell thickness -6mm (minimum.)					
	Dish end thickness-8mm (minimum.)					
	Nozzie plate -10mm thick (minimum.)					
	Manhole -450mm					
xi)	ACTIVATED CARBON FILTER					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Providing and installation of mild steel pressure vessel (as per IS:2825) 6 mm thick natural rubber lining fabrication standard multi grade filter complete in all respects, of total capacity 150LPM, complete with dished ends, supporting legs, manhole cover, frontal pipe work fitting with valves. Plant shall be provided with inlet, outlet pressure gauge, sample cocks, charge of approved quality activated carbon media. (No. of unit-1)					
	Dia of vessel -600mm (minimum)					
	Shell thickness -6mm (minimum.)					
	Dish end thickness-8mm (minimum.)					
	Nozzie plate -10mm thick (minimum.)					
	Manhole -450mm					
xii)	RCC sludge sump (5cu.m minimum) and submersible sludge pump set with CI body, SS impeller and shaft coupled with to a totally enclosed fan cooled iniduction motor complete with HDPED/F pipings, sluice valves, non return valves, fittings etc as required. Motor suitable for 415 volts, 3 phase 50Hz. A/c supply with control auto start float switch with return sludge line upto Bioreactor.					
	SLUDGE PUMP- (2 nos. minimum)					
	Capacity -25 LPM					
	Head - 8 m					
	Solid handing - 25mm (minimum)					
	Civil - RCC sludge sump and piping(1 Nos)-will be paid seperately in civil work					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
xiii)	Providing and fixing 24 plates 600 x 600mm size filter press - 1no. with suitable sludge pump(screw type) and sludge tank of 1,000 ltrs. (min.) capacity alongwith piping, fittings valve etc. complete in all respects.					
xiv)	Providing and fixing dust and vermine proof cubical type motor control panel centre for the various pumps, blower etc. required. It is fabricated from 2mm thick CRCA sheet with stove enamelled finish and comprising of:Panel should have at least 20% spare feeders.					
a.	One incomming main MCCB of required capacity suitable rating					
b.	MCCB/MPCB, one for each motor					
c.	Fully automatic DOL/star delta starters suitable for different motors/pumps used in the ETP.Upto 7.5 HP DOL may be used and above star/delta starter used with push buttons one for each motor and on/off indicating neon lamps.					
d.	Single phasing preventors of appropriate rating for each motor.					
e	rotary type selector switch					
f	Panel type ampere meters, one for each motor shall be with rotary selector switch to monitor line currents.					
g	Panel type volt meters, on incoming main with rotary selecting switch to monitor voltage between phase to neutral and phase to phase.					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
h	Neon phase indicating lamps and indicating lamp for each motor on incoming mains.					
l	Rotary switch for manual or auto operation for each pump					
j	Fully taped separate aluminium bus bar of required capacity for normal and emergency supply.					
k	The panel shall be pre-wired with coded wiring. All intercnnting wiring from incoming main to switchgear, meters and accessories within the switchboard panel shall have suitable copper ferrules					
xv)	Electrical works (including supply, installation and termination of cables of suitable size as per HP of all pumps with all structural supports, clamps and cable trays as per approved design/specifications,installation will be as per relevant Indian standard and CPWD specification alongwith control cable of suitable size).(1 lot). Any other electrical and mechanical item required to complete the work.					
xvi)	Providing and fixing digital type flow meter etc. complete in all respects. (1 no.)					
xvii)	Providing and fixing lab. Equipments including digital type pH meter, COD kit, TDS kit, bicker, conical flask etc. complete in all respects. (1 set)					
xviii)	Sludge drying beds (4.0X4.0X1.2) (minimum size) (complete piping & mechanical work)-civil work will be paid seperately					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
xix)	Rooms for Pumps & control panel (40 sq.m.) (minimum size)					
a)	Civil-will be paid seperately in civil work					
b)	Electrical & mechanical					
xx)	RCC Treated water tank (25m ³) (minimum)-will be paid seperately in civil work					
	Note: The rate also be included the cost of trial run for period of two month from the date of handing over and operation and maintenance of the plant for a period of one year from the expiry of trial run period including the cost of consumables complete as specification as directed .Obtain required no. of test report of treated/raw sewer during trial run. Tentative raw sewage generation & characteristics for designing of the plant are mentioned below. The bidder has to take this own judgment for designing the system					
	Average daily flow (cum/day) : 75 CuM per day					
	pH : 5.5 - 8.5					
	BOD (5 days at 20 degree C) (mg/l) : 150-400					
	COD (mg/l) : 250-600					
	Suspended solids (mg/l): 200-400					
	Oil & grease (mg/l) :20-50					
	The treated effluent characteristics shall be as per local pollution control board standards. The treated effluent (indicative) shall have following standard:-					
	BOD : Less than 10 Mg/l					
	COD : Less than 100 mg/l					
	Suspended solids: Less than 10 mg/l					
	Oil & grease : Less than 10 mg/l					
	pH : 6.5 - 8.0					
	Bio-assay test : Survival of fish after 96 hrs 100 %					

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Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Odor-Odorless					
	On the basis of the above and as per site condition the detailed drawing along with design calculation (Hydraulics, process, Structure etc.) shall be submitted to HSCC for the approval of the same before the start of the work The STPhas to be designed and installed by the approved vendor (Geo Miller, Ion Exchange, Fontus,Thermax, Pollucon Technologies, INDWA, AKAR Implex (P) Ltd.).					
	Complete functional STP 75 KLD capacity as mentioned aboveThe work to be executed as per approved shop drawings/design which meet the functional requirement quoted by the agency.The price quoted by the bidder shall include all the items stated above and also any other item/work required for completion of the work and efficient functioning of STP nothing extra shall be paid beyond above rates (Above BOQ item subhead i to xx) except civil item cost.	Set	1.0			
	SUB TOTAL(Sewage Treatment Plant)					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
12.00	WATER SUPPLY PUMP PANEL					
	Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, wall mounted type, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required. Panel shall have IP-42 protection.					
	INCOMER :					
	125 Amp 415 volts, 35 KA (Isc), FP MCCB with e/f protectionthermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 no. 0 to 500 V Digital voltmeter with selectot switch					
	1 to 0 to 125 Amps Digital ammeter with selector switch with one set of 125/5A C.T. s					
	BUSBARS :					
	160 Amp TPN busbars of aluminium					
	OUTGOINGS :					
i	1 Sets of following (For Tube Well)					
	1 No. 63 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 to 0 to 63 Amps Digital ammeter with selector switch with one set of 63/5A CT,s.					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
ii	2 Sets of following For Treated Water Pump					
	1 No. 32 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, DOL starter type - II of 7.5 HP with thermal overload relay, contactor, Push Buttons, Single Phase Preventer and Switches etc complete as required.					
	1 to 0 to 32 Amps Digital ammeter with selector switch with one set of 32/5A CT,s.					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
ii	2 Sets of following For Raw Water Transfer Pump)					
	1 No. 32 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

Name of Work: BOQ of Plumbing work of Proposed Buildings at RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	1 No. 3 Phase, DOL starter type - II of 5 HP with thermal overload relay, contactor, Push Buttons, Single Phase Preventer and Switches etc complete as required.					
	1 to 0 to 32 Amps Digital ammeter with selector switch with one set of 32/5A CT,s.					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
iii	1 Set of following (Drainage Pump)					
	1 No. 25 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
	WATER SUPPLY PUMP Panel as mentioned above	Set	1.0			
	Sub total(water supply pump panel)					

	PROJECT NAME: RIPANS,Aizwal		
Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)			
S.No	DESCRIPTION OF WORK	Amount in figures(in Rs.)	
	Sub Total (Fire Fighting items)		
	Sub Total(Fire Fighting work)		
	GRAND TOTAL(Rs)		

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.00	FIRE FIGHTING SYSTEM					
1.01	Heavy class G.I. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener , cutting hole and chases in walls, floor, R.C.C. slab etc. and making good the same, including painting pipes and fittings with a primer coat of steel primer and two coats of postal red enamel paint etc. complete as required. (All the fitting i.e. tee /elbow, Valve shall be joint the pumps will flanged joints)					
c)	150 mm dia (with Flanged joints)	Metre	220.0			
1.02	Providing and fixing Single headed hydrants flanged inlet with 63 mm female instantaneous outlet of gunmetal complete with male blank caps, chains conforming to IS:5290 type A with stainless steel orifice plate (if required) to keep the pressure not more than 3.5 kg/sq.cm at any point.	Each	44.0			
1.03	Providing 63mm dia 15 m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	Each	72.0			

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.04	Providing and fixing 63mm dia 15 m long canvas hose pipe complete with gunmetal male & female coupling wire wound with the pipe The pipe shall confirm to IS: 4927.	Each	16.0			
1.05	Providing and fixing Gunmetal branch pipe with 20mm dia nozzle conforming to IS:903. suitable for installation connections to hose coupling etc. as required.	Each	44.0			
1.06	Providing and fixing Four way fire brigade connection housed in steel cabinet of size 900mm x 750mm x 400mm fabricated from 1.5mm thick M.S. sheet having lockable arrangement, openable glazed door with 4mm thick glass, including painting a coat of steel primer and two coats of postal red enamel paint, with necessary supports for the cabinet etc. with 150 mm dia. non return and butterfly valves complete in all respects.					
a)	4 Way - 150mm dia	Each	4.0			
1.07	Providing and fixing Set of "Siamese" quadraplet instantaneous fire brigade connections comprising of two gunmetal instantaneous male inlet coupling 63mm dia with plug and cap, chain bends, tees etc for inlet to the static tank.	Each	4.0			
1.08	Providing & Fixing 150 mm dia, 4 way suction coupling for firebrigade withdrawal of water from the fire tank	Each	4.0			

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.09	Providing and fixing door for Fire hose cabinet with glazed door shutter and frame with hold fasts (frame fabricated from 40 x 40 x 5mm and shutter from angle) 2100 mm high x 1200 mm wide x 600mm deep with locking arrangement, 4mm thick glass with M.S. flats including all accessories, painting with one coat of steel primer and two coats of postal red enamel paint complete as per drawing and as directed. The words “ hose cabinet” to be painted on the box complete in all respects.	Each	36.0			
1.10	Providing and fixing Weather proof standard stand post type hose cabinet (900mm x 750 mm x 400 mm) out door type made of 1.5mm thick M.S. sheet having central opening glazed door with 4mm thick glass suitable for accommodating hydrants, 2 Nos. canvas hose pipe and branch pipe including necessary locking arrangements, painting one coat of primer and two coats of postal red enamel paint.. The shutters are to be lockable type. The words “ hose cabinet” to be painted on the box.	Each	8.0			
1.11	Providing and fixing cast iron body IS: 210 FG 220 and double flange gear simple operation type butterfly valve conforming to IS: 13095 with SS304 disc and shaft NITNLE rubber replaceable seat of the following size complete with bolts, nuts, washers and rubber insertions as per specification.					
a)	150 mm dia	Each	10.0			
a)	80 mm dia	Each	16.0			

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.12	Supplying, testing, installation & commissioning of pressure switches for pumps including necessary wiring upto the control panel.	Each	8.0			
1.13	Constructing masonry chamber 90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 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 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and 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.					
	with F.P.S. bricks	Each	10.0			
1.14	Supplying and Fixing First Aid Hose Reel , wall mounting swinging type complete with drum & bracket of MS construction, spray painted in Post office Red, conforming to IS 884/1995 with upto date amendments, complete with the following as required.					
	36 Meter long 20 mm dia water hose Thermoplastic (Textile reinforced) Type - 2 as per IS : 12585					
	20 mm dia gun metal ball valve & nozzle.					
	Drum and brackets for fixing the equipments on wall.					

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
	Connection from riser with stop valve (gun metal) & M.S. Pipe	Each	36.0			
1.15	Providing and fixing C.I. sluice valves (With cap) of approved quality complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately) Class II					
b)	150 mm dia	Each	16.0			
1.16	Supply, Installation, Testing and Commissioning of 100 mm dia Bourden type, Stainless Steel dial type Pressure Gauge including brass isolation valve and siphon pipe having calibration of 0 - 16 Kg / cm ² .	Each	5.0			
1.17	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	Each	36.0			
1.18	Supplying and Fixing vane type waterflow switch with contacts suitable for installation on 50 mm to 150 mm dia pipeline for a service pressure upto 20 Kg/sq.cm.	Each	5.0			

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.19	Fabricating, Supplying, Installation, Testing and Commissioning Air Vessel of continuous welded construction with flanged discharge header on the top of each riser fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve complete with suitable drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					
a)	1.2 Metre high and 250 mm dia	Each	4.0			
1.20	Supply, Installation, Testing and Commissioning External Yard Hydrant Stand Post comprising of GI pipe 80 mm dia (heavy duty C class) from existing ringmain to about 1 meter above ground level and Single Headed Yard Hydrant Valve with 80 mm dia flanged inlet, instantaneous gunmetal coupling of 63 mm dia with cast iron wheel ISI marked, conforming to IS : 5290 (Type A), with ABS cap and chain etc.complete with all accessroies as required.	Each	8.0			
1.21	Providing and placing on terrace polyethylene water storage tank ISI : 12701 MARKED indicating the BIS license No with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Ltrs	85000.0			
1.22	Supply, erection, testing & commissioning of exit glow sign board of size 200mm x 350 mm wall mounting signage consisting of photo luminescent coating on acrylic cover	Each	52.0			

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1.23	Providing and fixing fire extinguisher of carbon dioxide type consisting of brand new high pressure steel cylinder bearing IS: 7285 mark and having the approval of controller of explosives Nagpur, wheel type valve bearing IS:3224 mark internal discharge tube, 1 meter long high pressure discharge hose, non conducting horn, suspension bracket, fully charged bearing IS: making fixed to wall as directed.					
a)	4.5kg capacity cylinder	Each	36.0			
1.24	Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.	Each	36.0			
1.25	Providing and fixing ABC type fire extinguishers complete in all respects.					
a)	Capacity 5.0 Kg.	Each	36.0			
1.26	Providing and fixing C.I. non-return valve complete with gunmetal seat, bolts, nuts washer & rubber insertions as required conforming to IS:5312.					
c)	150 mm dia	Each	8.0			
1.27	Supplying, fixing, installation, testing and commissioning, control valves comprising of :					
a)	150 mm dia					
b)	1 No. alarm motor & gong (hydraulically operated.					
c)	1 No. main stop valve					
d)	1 No. alarm valve.					

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
e)	Pressure gauges drain pipe.	Set	4.0			
1.28	Providing & fixing electrical gang bell with all inter-connecting cables for an audio annuciation of pumps failure, complete in all respects.	Each	4.0			
1.29	Providing & fixing half mile range siren with all inter connecting cables and wires complete in all respects.	Each	1.0			
1.30	Providing & fixing puddle flanged including 40 cm long GI pipe piece welded / threaded with MS plates 450x450x6mm thick with both end screwed / flanged					
c)	for 150 mm dia pipe	Each	8.0			
1.31	Supplying, installing, testing and commissioning of electric motor driven type automatic pressurisation, punp set suitable for automatic operation of terrace down comer and consisting of the following (as per CPWD specifications Part V-1985) for fire fighting and its amendmends).					

PROJECT NAME: RIPANS, Aizwal						
Name of Works: BOQ of Fire Fighting Works RIPANS,Aizwal (Boys Hostel,Girls Hostel,Academic and Library)						
Item No	Description Of Item	Unit	Total Qty	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
a	Fire pump with stainless steel impeller CI casing, SS shaft shall be horizontal end suction centrifugally type having a capacity of 900 LPM against a total head of 25m so as to ensure a minimum pressure of 3.0 kg/sqm at the highest and farthest out at the specified flow complete with necessary strainer with foot valve in suction side and pressure gauge on the delivery side including bypass arrangement for periodic testing of the working of the pumping set as required. The pump shall be provided with mechanical seals.(Including taking necessary approval of complete fire fighting scheme from local fire authority before and after start of work) {Agency also has to submit characteristic curve of the pumps, model & other technical data for approval before placing the order}					
b	Squirrel cage AC induction motor suitable for operation of 415 V ,+/-10%, 3 phase 50 HZ, AC supply and of minimum 7.5 HP for the above pump with flexible coupling as per specification and conforming to IS 325-1978 and shall be TEFC type only					
c	Common base plate fabricated from mild steel channel or cast iron type					
d	Suitable cement concrete pump foundation with vibration damping arrangement with cushy foot mounting as required					
e	1 No. 3 Phase, DOL starter type - II of 10 HP with thermal overload relay, contactor, Push Buttons, Single Phase Preventer and Switches etc complete as required.	set	8.0			
Sub Total (Fire Fighting items)						

SUMMARY OF COST ESTIMATE FOR ELECTRICAL WORKS .

S.No.	DESCRIPTION	Amount Figure (In Rs.)	In	Amount in Words (Rs.)
1	SUBHEAD 1: H.T. SUB STATION			
2	SUB HEAD 2: MAIN LT PANEL.			
3	SUB HEAD 3 : DG SET & ACCESSORIES			
4	SUBHEAD 4 :UPS SYTEM.			
5	SUB HEAD 5 :MV PANELS			
6	SUB HEAD- 6: MCB DISTRIBUTION BOARDS.			
7	SUB HEAD 7: WIRING			
8	SUB HEAD: 8 - LIGHT FIXTURE AND FANS			
9	SUB HEAD 9 : TELEPHONE SYSTEM & EPABX.			
10	SUB HEAD 10:CONDUITING FOR COMPUTER SYSTEM .			
11	SUB HEAD 11: CONDUTING FOR TV OUTLETS			
12	SUB HEAD 12 : FIRE DETECTION AND ALARM			
13	SUB HEAD 13: LIGHTENING PROTECTION			
14	SUB HEAD 14 : LIFTS			
15	SUB HEAD 15: LT CABLES			
16	SUB HEAD 16: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS			
17	SUB HEAD 17: OUT DOOR LIGHTING			
18	SUB HEAD 18: PUBLIC ADDRESS SYSTEM			
19	SUB HEAD 19: VIDEO CONFERENCING			

	GRAND TOTAL FOR ALL ELECTRICAL WORKS		
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BILL OF QUANTITIES FOR ELECTRICAL WORKS OF RIPANS - AIZWAL.

S.No.	Description.	Unit.	TOTAL QTY	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount in Rs.
1	2	3	5	6	7	8
	SUBHEAD 1: H.T. SUB STATION					
1.00	SUBSTATION EQUIPMENTS					
1.01	HT Panel :					
	Supply, erection, testing and commissioning of 5 panel, 630 A ,11 kV, 3 Phase, 50 Hz., metal clad, dead front, 350 MVA rupturing capacity Vacuum Circuit Breaker Incoming & Outgoings as per the detailed specifications and drawings including connections etc. including door interlocking and expendable as required.					
A.	INCOMER :					
i)	2 No. VCB having following					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No.Digital voltmeter .					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF,TRIP&TRIP circuit healthy					
	1 set of 60/5-5A Current Transformer for metering and protection.					
	1 No.digital Amps ammeter .					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	Digital frequency meter,Digital Tri vector meter.					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay,Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	1 No. Digital Power factor meter					
	BUSBARS :					
	11kV, 350 MVA, 1000 Amps Three Phase busbars of copper.					
B.	OUTGOINGS :					
	2 No. VCB each having following					

	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)				
	1 set of 11kV/110V Potential Transformers with HRC fuses				
	1 Set of Phase indicating lamps with HRC fuses				
	1 No. Digital voltmeter .				
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY				
	Push button for ON, OFF,TRIP&TRIP circuit healthy				
	1 set of 30/5-5A Current Transformer for metering and protection				
	1 No.Digital ammeter .				
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay				
	Digital frequency meter,Digital Tri vector meter.				
	1 Set of undervoltage relay and Overvoltage relay				
	Trip circuit supervision relay,Auxiliary relays with shunt trip coil				
	1 No. Master Trip relay				
	1 No. Digital Power factor meter				
	C. Bus Coupler				
	<i>1 No. VCB having following:</i>				
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)				
	1 set of 11kV/110V Potential Transformers with HRC fuses				
	1 Set of Phase indicating lamps with HRC fuses				
	1 No. 0-15 kV Digital voltmeter with selector switch				
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY				
	Push button for ON, OFF,TRIP&TRIP circuit healthy				
	1 set of 30/5-5A Current Transformer for metering and protection				
	1 No.digital Amps ammeter .				
	HT Panel as mentioned above	Set	1		
	TRANSFORMER :				

1.02	Supply, erection, testing and commissioning of Cast Rasin Dry Type 630 KVA , 11/0.433 kV, 3 Phase, 4 wire, 50 Hz.,Dyn11 vector group, copper wound, class F insulation associated with winding temperature indicator/ controller actuated by means of resistance temperature detector embeded in LV windings, indoor type transformer , tappings for off load operation on HV side from -5% to +5% in steps of 2.5%, cable box at primary (HT side) and secondary end (LT side) shall be connected through busduct, complete with all fittings and accessories and confirming to IS 11171 ammended upto date, interconnection of control cables and accessories etc complete. The transformer will be as per detailed CPWD technical specifications and as required.	Each	2			
1.03	BATTERY CHARGER PANEL Supply, erection, testing and commissioning of battery charger panel totally enclosed, free standing type, dust, damp and vermin proof powder coated panel made up of CRCA sheet, with 24 V DC continuous out put for control supply of HT panel complete with battery, control cabling etc. as required. Capacity of battery charger panel should be suitable for above mentioned H.T. Panels. 2 numbers Sealed Maintenance Free (SMF) battery of minimum 150 AH ampere hour capacity. Boost and Trickle charger suitable for above items. 1 No. AC Voltmeter (0-500Volt) 1 No. DC Voltmeter 1 No. DC Ammeter 1 set of AC and DC indicating lamps 1 No. DC Battery charging position indicator DC distribution board suitable for above application to incoming & outgoing MCBs include tripping, closing and indication etc. Control cabling between DC Distribution panel to the HT panel of the Substation with suitable core 2.5 sqmm copper cable Battery Charger Panel as mentioned above.	Each	1			
1.04	BUS DUCTS :					

	i)	Supply, Installation, testing and commissioning of 1000 phase and neutral four pole, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	Mtrs.	30		
1.05		H.T. CABLE				
		Supply of following sizes of 11 kV grade multicore aluminium conductor XLPE armoured power cable as per IS : 7098.				
	i)	3 Core, 240 sq mm	Mtrs.	500		
1.06		Laying of one number 3 core XLPE power cable of grade exceeding 1.1 KV but not exceeding 11KV of size exceeding 120 sqmm but not exceeding 240 Sqmm direct into ground including excavation, sand cushioning, protective covering and refilling the trench, supply of route marker complete as required.	Mtrs.	500		
1.07		Supplying and making end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size 3 Core, XLPE aluminium conductor cable of 11kV grade as required.				
	i)	240 sqmm	Each	6		
		TOTAL FOR SUB HEAD 1: H.T. SUB STATION				
2.00		SUB HEAD 2: MAIN LT PANEL.				
2.01		MAIN L.T. PANEL (Normal):				
		Supply, installation, testing and commissioning of LT Panel, cubicle type, totally enclosed, free standing type, dust ,damp and vermin proof panel , powder coated, made up of CRCA sheet, complete with aluminium busbars, danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, necessary interlocking, and having incoming and outgoing switchgears with cable alley in front as mentioned below and complete as per technical specifications and as required. The size of cable alley shall be sufficient enough to accomodate the cable sizes as mentioned in the SLD/ specifications/ drawings etc.				
		Note :				

	1. All ACBs shall have 5 NO + 5 NC contacts					
	2. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS is also in the scope of supply.					
	3. Digital Multifunction metre should be suitable for true RMS metering. Metre should measure line and phase voltage, current of all three phases and neutral, HZ, PF, KW, KWH, KVAR, KVARH, KVA, KVAH, voltage and current including one set of CT. Metre should be EMI/ EMC compliant.					
A.	INCOMER:					
	i) 2No. ACB Panels each having following:					
	1000A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Restricted earth fault protection system with one set of CT.					
	Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs					
	One set of dual core dual ratio CT of 1000/500/5/5A for capacitor panel.					
B.	BUSBARS :					
	1250 Amps Phase FP busbars of aluminium.					
C.	BUS COUPLER :					
	i) 1 No. ACB Panels each having following:					
	1 No. 1000 A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button. The ACB should have Icw =Ics= 50KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of digital Ampere metre with ASS and CTs.					

D.	OUTGOING.					
	ii) 3 No. ACB Panels each having following:					
	630 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Indicating lamps (LED type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	iii) 7 Nos.MCCB as per following details/ specifications:					
	320 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	iv) 4 Nos. MCCB as per following details/ specifications:					
	250 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	v) 2 Nos. MCCB as per following details/ specifications:					

	100 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	vi) 2 Nos. 63 Amp MCCB as per following specifications:					
	63 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	Main LT Panel (Normal) as mentioned above.	Set	1			
2.02	MAIN L.T. PANEL (Emergency):					
	Supply, installation, testing and commissioning of LT Panel, cubicle type, totally enclosed, free standing type, dust damp and vermin proof , powder coated, panel made up of CRCA sheet, complete with aluminium busbars, danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, necessary interlocking, and having incoming and outgoing switchgears with cable alley in front as mentioned below and complete as per technical specifications and as required. The size of cable alley shall be sufficient enough to accomodate the cable sizes as mentioned in the SLD/ specifications/ drawings etc.					
	Note :					
	1. All ACBs shall have 5 NO + 5 NC contacts					

	2. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS is also in the scope of supply.					
	3.Digital Multifunction metre should be suitable for true RMS metering.Metre should measure line and phase voltage , current of all three phases and neutral, HZ, PF, KW, KWH, KVAR, KVARH, KVA, KVAH ,voltage and current including one set of CT. Metre should be EMI/ EMC compliant.					
A.	INCOMER:					
	i) 2No. ACB Panels each having following:					
	450A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Restricted earth fault protection with one set of CT.					
	Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs					
B.	BUSBARS :					
	800 Amps Phase FP busbars of aluminium.					
C.	BUS COUPLER :					
	i) 1 No. ACB Panels each having following:					
	1 No. 450 A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button. The ACB should have Icw =Ics= 50KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of A meter with ASS and CTs.					
D.	OUTGOING.					
	i) 1 Nos.MCCB as per following details/ specifications:					

	320 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	ii) 2 Nos.MCCB as per following details/ specifications:					
	160 Amp 415 volts, 50 KA (Ics), TPN MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	iii) 3 Nos.MCCB as per following details/ specifications:					
	100 Amp 415 volts, 50 KA (Ics), TPN MCCB with thermal magnetic release having variable current settings .					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	iv) 2 Nos.MCCB as per following details/ specifications:					
	63 Amp 415 volts, 50 KA (Ics), TPN MCCB with thermal magnetic release having variable current settings .					

	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps (LED Type) with 2A protection MCBs to indicate OPEN, CLOSE, TRIP .					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					

	Main LT Panel (Emergency) as mentioned above.	Set	1			
2.03	CAPACITOR PANEL					
	Supply, installation, testing and commissioning of M.V. cubicle type totally enclosed free standing type, powder coated, dust, damp and vermin proof Capacitor Panel complete with busbars, M.V. danger notice plate, ammeter, ammeter selector switch, indicating lamps, CT's, Extra heavy duty, APP type Capacitors suitable for non linear loads upto 20%, total operating losses not more than 0.5 W / KVAR, contactors suitable for capacitor switching (current limiting contactor circuit to suppress switching inrush current) interconnections with suitable capacity aluminium leads/solid aluminium strips, rods, connection of incoming and outgoing cables with thimbles, and having following incoming and outgoing switchgears complete as required.					
	A. INCOMER :					
	1 No. 320A, 415/500V, 35 KA (Ics) FP microprocessor based MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Day & Night mode selector switch					
	10 steps Intelligent microprocessor based Automatic Power factor Correction relay having measurement sensitivity of 1 %.					
	Extension of incoming busbars for connection of multicore armoured aluminium cables.					
	B. METERING :					
	1 set of digital Amp. Meter, digital Power factor meter and Digital voltmeter					
	C. BUSBARS :					
	630 Amp FP busbars of aluminum					

D.	OUTGOINGS :					
i	1 Nos . MCCB as per following details/ specification:					
	100 Amps TP MCCB with thermal magmetic release having variable current setting, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	MCCB should have extended rotary operating mechanism					
	50 kVAR Extra heavy duty, APP type Capacitors suitable for non linear loads upto 20%, total operating losses not more than 0.5 W / KVAR.					
ii	5 Nos . MCCB as per following details/ specification:					
	63 Amps TP MCCB with thermal magmetic release having variable current setting, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	MCCB should have extended rotary operating mechanism					
	25 kVAR Extra heavy duty, APP type Capacitors suitable for non linear loads upto 20%, total operating losses not more than 0.5 W / KVAR					
iii	1 Nos . MCCB as per following details/ specification:					
	32 Amps TP MCCB with thermal magmetic release having variable current setting, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	MCCB should have Extended rotary operating mechanism					
	10 kVAR Extra heavy duty, APP type Capacitors suitable for non linear loads upto 20%, total operating losses not more than 0.5 W / KVAR.					
	Capacitor panel as mentioned above.	Set	2			

	TOTAL SUBHEAD 2: MAIN LT PANEL.					
3.00	SUB HEAD 3 : DG SET & ACCESSORIES					
	SOUND PROOF DG SETS OF 160 KVA.					
3.01	DG SET OF 160 KVA.					
	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having 160 KVA Prime Power Ratings , 415 volt at 1500 RPM, 0.8 power factor suitable for 50 Hz, 3 phase system , suitable bhp, 0.85 load factor, water cooled type diesel engine- alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor including all accessories & their wiring as per technical specification. This includes the following:					
-	Supplying and fixing of suitable sizes High class MS pipe for DG exhaust complete with bends, elbow, flanges etc including silencer and catalytic convertor exhaust pipe for exhaust of DG sets including pollution control board norms and as required.					
-	Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. exhaust pipe with 22 gauge aluminium sheet cladding etc. as required for the under mentioned dia pipe.					
-	Supply, installation, testing and commissioning of suitable size fuel pipe for connecting diesel engine to individual day service tank including supply and fixing of required valves & filters etc. as required.					
-	Fabrication of supports for exhaust pipe, fuel pipe or for any other purpose out of suitable M.S. structural steel including supplying and applying of enamel paint of approved shade after one coat of steel primer of reputed company.					
-	Supplying and fixing of suitable capacity cable adapter box for alternator.					
-	Providing and fixing oil tank of 990 litres capacity complete with suitable M.S. fabricated MS stand oil level indicator gauge tank and stand duly painted, complete with float switches etc. as required.					

	<ul style="list-style-type: none"> - Factory assembled Sound proof Canopy as per pollution control board requirement to achieve noise level desired during night condition, with base frame, doors, inspection window, fresh air supply fans, light fixtures for illumination with switch, wiring for light fixtures and power sockets, etc. - Any other item required for completion of system above (D.G. set) 					
A.	DG AMF PANEL WITH AUTO TRANSFER SWITCH.					
	Supply, installation, testing and commissioning of DG , cubicle type, totally enclosed, free standing type, dust, damp and vermin proof Panel made up of 14/ 16SWG CRCA sheet, (load bearing members 14 SWG and doors 16 SWG) ,complete with aluminium busbars, M.V. danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, powder coated and having incoming and outgoing switchgears as mentioned below and complete as required.					
B.	Auto changeover arrangement through auto transfer switch of 320 A rating along with the following AMF components.					
C.	PROTECTION AND AMF COMPONENTS for above mentioned DG set.					
	<ul style="list-style-type: none"> - Auto/manual/test/off selector switch - 2 Nos over voltage relay, 2 nos. reverse power relay and 2 nos. under voltage relay. - 3 sets of current transformers 15 P 10 accuracy for protection and 15 VA class - I for metering - Energy analyzer unit to indicate current voltage frequency power factor and KWH - Indicating lamps for load on mains and load on set. - Fuse for instruments. - Battery charger, complete with transformer/rectifier, DC voltmeter and ammeter, selector switch for trickle, off and boost the current adjustment. - Main supply failure monitor. - Supply failure timer - Restoration timer. - Control unit with three impulse automatic engine start / stop and failure to start lockout. 					

	-	Impulse counter with locking and reset facility.				
	-	On/Off/ Control circuit switch with indicator.				
	-	Audio/ Video annunciation for :				
	a)	High stator temperature.				
	b)	Low lubricating oil pressure				
	c)	Engine over speed				
	d)	Engine fails to start				
	e)	Full load/ maximum load warning.				
	D.	ENCLOSURE :				
		Fabrication, PVC Sleeving, Control/Power Wiring and necessary electrical/ mechanical interlocking etc any other item required for proper functioning of the system complete as required.				
		DG SET WITH AMF Panel and ATS as mentioned above	Set	2		
		TOTAL SUBHEAD 3: DG SETS				
		SUBHEAD 4 :UPS SYTEM.				
4.01		UPS 30 KVA.				
	i)	Supply of 30 KVA True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with minimum input pf 0.95 with minimum 92% overall efficiency at 50% load condition and THDI less than 5% on non linear loads with accessories and suitable Power Management software in each UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, input phase reversal protection, provsion for separate input for rectifier and for bypass. UPS should be three phase input and three phase output complete in ready to use condition and as required.				
	ii)	Rack mounted external battery bank of 12 V Sealed Maintenance Free batteries for 30 mins backup.				
	iii)	Installation & commisioning of 30 KVA UPS with battery and accessories.				
		Supply, installation , testing and commissioning of 30 KVA UPS as mentioned above.	Set	1		
4.02		UPS 20 KVA.				

	i)	Supply of 20 KVA True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with minimum input pf 0.95 with minimum 92% overall efficiency at 50% load condition and THDI less than 5% on non linear loads with accessories and suitable Power Management software in each UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, input phase reversal protection, provision for separate input for rectifier and for bypass .UPS should be three phase input and single phase output complete in ready to use condition and as required.					
	ii)	Rack mounted external battery bank of 12 V Sealed Maintenance Free batteries for 30 mins backup.					
	iii)	Installation & commissioning of 20 KVA UPS with battery and accessories.					
		Supply, installation , testing and commissioning of 20 KVA UPS as mentioned above.	Set	1			
		TOTAL SUBHEAD 4 :UPS SYTEM.					
		SUB HEAD 5 :MV PANELS					
5.00		Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, wall mounted type, powder coated, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, and having following incoming and outgoing switchgears complete as required.					
	A1	ACADEMIC BLOCK :					
5.01		MV PANEL GROUND FLOOR (NORMAL) IN ELEC. ROOM :					
	a)	INCOMER:					
		630 Amp 415 volts, 35 KA (Ics) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 600 Amp Digital ammeter with selector switch with one set of 600/5A C.Ts.					
b)	BUSBARS: 800 Amp FP Aluminium busbars					
c)	OUTGOING:					
i	2 Nos.MCCB as per following details/ specifications: 320 Amp 415 volts, 35 KA (Ics), TPN MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release. Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
ii	3 Nos.MCCB as per following specifications: 63 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings . Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
iii	10 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
iv	7 no. 100 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					

		MV PANEL GROUND FLOOR (NORMAL) IN ELEC. ROOM : as mentioned above	Set	1			
5.02		MV PANEL GROUND FLOOR (EMERGENCY) IN ELEC. ROOM :					
	a)	INCOMER:					
		320 Amp 415 volts, 35 KA (Ics) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 300 Amp Digital ammeter with selector switch with one set of 300/5A C.Ts.					
	b)	BUSBARS:					
		400 Amp FP Aluminium busbars					
	c)	OUTGOING:					
	i	2 Nos.MCCB as per following specifications:					
		100 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
	ii	4 Nos.MCCB as per following specifications:					
		63 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					

	Digital energy metre with CT					
iii	3 Nos.MCCB as per following specifications: 40 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings . Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers. Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB Digital Ampere Metre of suitable range with suitable set of CT's and ASS. Digital energy metre with CT					
iv	13 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL GROUND FLOOR (EMERGENCY) IN ELEC. ROOM : as mentioned above	Set	1			
5.03	UPS PANEL (IN ELEC. ROOM AT GF) :					
a)	INCOMER: 1 no.100Amps , 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings R,Y&B phase indicating lamp (LED type) with 2A control SP MCB Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers. 1 No. 0 to 500 V Digital voltmeter with selector switch. 1 No. 0 to 100 Amp Digital ammeter with selector switch with one set of 100/5A C.Ts.					
b)	BUSBARS: 150 Amp FP Aluminium busbars					
c)	OUTGOING:					
i)	8 no. 16 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					

	ii)	3 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
		UPS PANEL (IN ELEC. ROOM AT GF) as mentioned above	Set	1			
A2		LIBRARY BLOCK :					
5.04		MV PANEL NORMAL AT GROUND FLOOR :					
	a)	INCOMER:					
		250 Amp 415 volts, 35 KA (Ics) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 250 Amp Digital ammeter with selector switch with one set of 250/5A C.Ts.					
	b)	BUSBARS:					
		300 Amp FP Aluminium busbars					
	c)	OUTGOING:					
	i	2 Nos.MCCB as per following specifications:					
		63 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
	i)	2 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii)	5 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					

	iii)	3 no. 100 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
		MV PANEL NORMAL AT GROUND FLOOR as mentioned above	Set	1			
5.05		MV PANEL EMERGENCY AT GROUND FLOOR :					
	a)	INCOMER:					
		160 Amp 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 160 Amp Digital ammeter with selector switch with one set of 160/5A C.Ts.					
	b)	BUSBARS:					
		200 Amp FP Aluminium busbars					
	c)	OUTGOING:					
	i)	5 Nos.MCCB as per following specifications:					
		63 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
	ii)	2 Nos.MCCB as per following specifications:					
		40 Amp 415 volts, 25 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings .					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					

		Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
		Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
		Digital energy metre with CT					
	i)	2 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii)	5 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
		MV PANEL EMERGENCY AT GROUND FLOOR : as mentioned above	Set	1			
5.06		UPS PANEL (LOCATION : GROUND FLOOR ELEC. ROOM)					
	a)	INCOMER:					
		63 Amp 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 60Amp Digital ammeter with selector switch with one set of 60/5A C.Ts.					
	b)	BUSBARS:					
		100 Amp FP Aluminium busbars					
	c)	OUTGOING:					
	i)	3 no. 16 Amps , 415 volts, 9 KA ,double Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii)	2 no. 25Amps , 415 volts, 9 KA ,double Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	iii)	4 no. 40Amps , 415 volts, 9 KA ,double Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
		UPS PANEL (LOCATION : GROUND FLOOR ELEC. ROOM) as mentioned above	Set	1			
A3		GIRLS HOSTEL :					

5.07		MV PANEL NORMAL AT GROUND FLOOR (PART - 1) :				
	a)	INCOMER:				
		320 Amp 415 volts, 35 KA (1cs) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.				
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB				
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.				
		1 No. 0 to 500 V Digital voltmeter with selector switch.				
		1 No. 0 to 300 Amp Digital ammeter with selector switch with one set of 300/5A C.Ts.				
	b)	BUSBARS:				
		400 Amp FP Aluminium busbars				
	c)	OUTGOING:				
	i)	1 Nos. MCCB as per following details / specifications:				
		200 Amps,415 volts, TPN, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .				
		"ON" LED indicating lamp and 2A control SP MCB				
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.				
	i)	2 Nos. MCCB as per following details / specifications:				
		63 Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .				
		"ON" LED indicating lamp and 2A control SP MCB				
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.				
	iii)	2 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.				
	iv)	2 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.				
	v)	7 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.				

		MV PANEL NORMAL AT GROUND FLOOR(PART -1) as mentioned above	Set	1			
5.08		MV PANEL NORMAL AT GROUND FLOOR (PART - 2) :					
	a)	INCOMER:					
		200 Amp 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 200 Amp Digital ammeter with selector switch with one set of 200/5A C.Ts.					
	b)	BUSBARS:					
		250 Amp FP Aluminium busbars					
	c)	OUTGOING:					
	i)	2 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii)	2 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	iii)	7 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
		MV PANEL NORMAL AT GROUND FLOOR (PART -2) as mentioned above	Set	1			
5.09		MV PANEL EMERGENCY AT GROUND FLOOR (PART - 1) :					
	a)	INCOMER:					
		100 Amp 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 100 Amp Digital ammeter with selector switch with one set of 100/5A C.Ts.					
	b) BUSBARS:					
	150 Amp FP Aluminium busbars					
	c) OUTGOING:					
	i) 1 Nos. MCCB as per following details / specifications:					
	63 Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	ii) 1 Nos. MCCB as per following details / specifications:					
	40 Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	iii) 2 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	iv) 3 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL EMERGENCY AT GROUND FLOOR (PART - 1) as mentioned above	Set	1			
5.10'	MV PANEL EMERGENCY AT GROUND FLOOR (PART - 2) :					
	a) INCOMER:					
	63 Amp 415 volts, 35 KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					

	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 60 Amp Digital ammeter with selector switch with one set of 60/5A C.Ts.					
b)	BUSBARS:					
	100 Amp FP Aluminium busbars					
c)	OUTGOING:					
i)	1 Nos. MCCB as per following details / specifications:					
	40 Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings .					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
ii)	2 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
iv)	3 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL EMERGENCY AT GROUND FLOOR (PART - 2) as mentioned above	Set	1			
A4	BOYS HOSTEL :					
5.11	MV PANEL NORMAL AT GROUND FLOOR :					
a)	INCOMER:					
	250 Amp 415 volts, 35 KA (Ics) FP MCCB with variable current settings and having microprocessor based O/L, S/C & E/F protection release.					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 250 Amp Digital ammeter with selector switch with one set of 250/5A C.Ts.					
b)	BUSBARS: 300 Amp FP Aluminium busbars					
c)	OUTGOING:					
i)	2 Nos. MCCB as per following details / specifications: 63 Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings . "ON" LED indicating lamp and 2A control SP MCB Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
ii)	2 no. 40 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
iii)	7 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	MV PANEL NORMAL AT GROUND FLOOR as mentioned above	Set	1			
5.12	MV PANEL EMERGENCY AT GROUND FLOOR :					
a)	INCOMER: 100 Amp 415 volts, 35 KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings R,Y&B phase indicating lamp (LED type) with 2A control SP MCB Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 100 Amp Digital ammeter with selector switch with one set of 100/5A C.Ts.					
b)	BUSBARS: 150 Amp FP Aluminium busbars					
c)	OUTGOING:					

	i)	5 Nos. MCCB as per following details / specifications: 40 Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings . "ON" LED indicating lamp and 2A control SP MCB Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		2 no. 25 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
	ii)						
	iii)	2 no. 63 Amps , 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker, with ON/ OFF indication.					
		MV PANEL EMERGENCY AT GROUND FLOOR as mentioned above	Set	1			
		TOTAL SUB HEAD 5 : MV PANEL					
		SUB HEAD- 6: MCB DISTRIBUTION BOARDS.					
6.00		MCB DISTRIBUTION BOARD					
6.01		Supplying & fixing following way, three pole and neutral,prewired,sheet steel, MCB distribution board, 415 volts,on recess/surface complete with loose wire box, terminal blocks, tinned copper busbar, neutral link, earth bar,din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc.Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required.(but without MCB & RCCB),					
	i	4 way (8+12), Double door	Each	30			
	ii	6 way (8+18), Double door	Each	16			
	iii	8 way (8+24), Double door	Each	23			
	iv	12 way (8+36), Double door	Each	2			

6.02		Supplying & fixing following way, single pole and neutral, prewired, sheet steel, MCB distribution board, 240 volts, on recess/surface complete with loose wire box, terminal blocks, tinned copper busbar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required. (but without MCB & RCCB),					
	i	8 way Double door	Each	2			
	ii	10 way Double door	Each	1			
	iii	12 way Double door	Each	2			
	iv	16 way Double door	Each	1			
6.03		Supplying & fixing 6 Amps to 32 Amps rating, 240 volts, 'B' series, miniature circuit breaker suitable for lighting & other loads of following poles in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications & as required.					
	i	Single pole	Each	1004			
	ii	Single pole & neutral (DP)	Each	3			
	iii	Triple pole & neutral (FP)	Each	11			
6.04		Supplying & fixing following rating, double pole, 415 volts, Miniature Circuit Breaker (MCB), in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	40 Amps	Each	3			
6.05		Supplying & fixing following rating, four pole, 415 volts, Miniature Circuit Breaker (MCB), in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	40 Amps	Each	22			
	ii	63 Amps	Each	30			
	iii	100 Amps	Each	8			

6.06		Supplying & fixing following rating, four pole, 415 volts, Residual Current Circuit Breaker (RCCB) having a sensitivity current upto 300 mA in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	25 Amps	Each	5			
	iii	40 Amps	Each	20			
	iv	63 Amps	Each	30			
	v	100 Amps	Each	8			
6.07		Supplying and fixing Single pole Blanking plate in the existing MCB DB complete as required.	Each	335			
		TOTAL SUB HEAD-6: MCB DISTRIBUTION BOARDS.					
		SUB HEAD 7: WIRING					
7.00		WIRING					
7.01	i	Wiring for light point/fanpoint/ exhaust fan point/call bell point with 1.5 sq.mm. PVC insulated, fire retardant low smoke (FRLS) copper conductor cable, single core/ multi strand, in steel conduit (Including supplying & recess laying of MS conduit and accessories) including the following and complete as required.					
	ii	Supplying and Fixing Modular type switches (modular Bell push in case of call bell points) in suitable size modular metal boxes, base plate & modular cover plates, space for fixing electronic fan regulator in case of fan point wiring & space for fixing 5A socket on the board etc.					
	iii	Supplying and fixing Hexagonal fan Boxes with 3 mm thick hylem sheet covers in case of Fan Points					
	iv	Supplying & Fixing Ceiling Rose in case of Exhaust Fan Points etc.					
		Note :					
		i) Unless otherwise specified all the conduiting work to be done in recess					
		Point wiring as mentioned above	Point	3650			
7.02	i	Wiring for twin control light points with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable in MS conduit (including supplying and recess laying of MS conduit) including the following and complete as required.					

	ii	Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
		Note :					
		i) Unless otherwise specified all the conduiting work to be done in recess					
		Wiring for twin control light points as mentioned above	Point	185			
7.03		Wiring for 5A light plugs with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit) as per technical specifications and as required.	Point	744			
7.04		5 A light plug wiring same as above but plug point is in the switch board itself.	Point	60			
7.05		Wiring for computer points (Three sockets & one switch) with 2.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 2.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed MS conduit (including supply and recess laying of conduit) as per technical specifications and as required.	Point	88			
7.06		Wiring for 16 amp power plug with 2X4 sqmm PVC insulated, FRLS copper conductor, single core/multi strand cable in surface/recessed MS conduit (including supply and recess laying of MS conduit with all accessories) along with 4 sqmm PVC insulated, copper conductor, single core/multi strand cable for loop earthing etc per technical specifications & as required.					
		Directly from MCB-Distribution Board to the Socket Outlets	Point	267			
7.07		Wiring for 20 Amp power plug with 2X4 sq.mm. PVC insulated, FRLS copper conductor multi strand cable in surface/recessed in MS conduit (including supply and recess laying of MS conduit with all accessories) along with 1X4 sqmm PVC insulated FRLS copper conductor for loop earthing, as per technical specifications & as required.	Point	21			

7.08		Wiring for 32 amp power plug with 2X6 sq.mm. PVC insulated FRLS copper conductor, multi strand cable in surface/recessed in MS conduit (including supply and recess laying of MS conduit with all accessories) along with 1X6 sqmm PVC insulated FRLS copper conductor for loop earthing, as per technical specifications & as required.	Point	45			
7.09		Wiring for circuit wiring with following size of PVC insulated FRLS copper conductor single core/multi strand cable in recessed steel conduit (including supply & laying of recessed conduit) as required.					
	i)	2X2.5 Sqmm with 1 No. 2.5 sqmm PVC insulated FRLS copper conductor for earthing.	Metre	7223			
	ii)	2X4 Sqmm with 1 No. 4 sqmm PVC insulated FRLS copper conductor for earthing	Metre	25			
	iii)	2X10 Sqmm with 1 No. 10 sqmm PVC insulated FRLS copper conductor for earthing	Metre	29			
	iv)	4X2.5 Sqmm with 2 No. 2.5 sqmm PVC insulated FRLS copper conductor for earthing	Metre	67			
	v)	4X4 Sqmm with 2 No. 4 sqmm PVC insulated FRLS copper conductor for earthing	Metre	67			
	vi)	4X6 Sqmm with 2 No. 6 sqmm PVC insulated FRLS copper conductor for earthing	Metre	0			
	vii)	4X10 Sqmm with 2 No. 10 sqmm PVC insulated FRLS copper conductor for earthing	Metre	379			
	viii)	4X16 Sqmm with 2 nos 16 sq mm PVC insulated FRLS copper conductor for earthing.	Metre	488			
	ix	4X25 Sqmm with 2 nos 25 sq mm PVC insulated FRLS copper conductor for earthing.	Metre	122			
7.10		Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing 3 pin 5/6 amps. modular socket outlet with shutters and 5/6 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required.	Each	804			

7.11	Supplying and fixing suitable module modular metal box on surface or in recess including providing and fixing 6 pin 15/16 A modular socket outlet with shutters and 15/16 A modular switch, base plate, modular cover plate, connections, etc. and all civil works complete as required.	Each	267			
7.12	Supply, Installation, Testing & Commissioning 63 Amps, TPN MCCB in a sheet steel enclosure with extended rotary operating mechanism complete with all accessories as required.	Each	7			
7.13	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing three nos 3 pin 5/6 amps. modular socket outlet with shutters and one no. 10 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works complete as required. (For computer Points)	Each	88			
7.14	Supply and fixing following 20 Amps, 240 volts, 2P+E, AC box with plugs and 20 SP MCB in a sheet steel cover on surface or recess complete with all accessories including connections, testing and commissioning etc. as required.	Each	21			
7.15	Supply and fixing following 32 Amps, 240 volts, 2P+E, AC box with plug and 32 SP MCB in a sheet steel cover on surface or recess complete with all accessories including connections, testing and commissioning etc. as required.	Each	45			
7.16	Supplying, providing & fixing cordless musical bell, batteries etc of approved make complete as required.	Each	34			
	TOTAL SUBHEAD: 7- WIRING					
	SUB HEAD: 8 - LIGHT FIXTURE AND FANS					
8.00	LIGHT FIXTURES AND FANS					
8.01	Supply of following light fixture with high efficiency electronic/dimmable ballast, starter, tubes/lamps, capacitor, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
i	1X28 watt box type fluorescent light fixture (Philips TMS 122M 1XTL5 28 W EBT or approved equivalent) (136b/136bw)	Each	1203			

	ii	1X36 watt surface mounted type fluorescent light fixture with clear acrylic cover (GE TC 1X36 AC S HF or approved equivalent) (136cac)	Each	257			
	iii	2X36 watt surface mounted type fluorescent light fixture with clear acrylic cover (GE TC 2X36 AC S HF or approved equivalent) (236cac)	Each	27			
	iv	1XTL5 28 watt surface mounted fluorescent light fixture (Philips TCS 150 1XTL-5 28W M1 EBT or approved equivalent) 136SMO1	Each	25			
	v	1X36watt recess mounted fluorescent light fixture (Philips TBS 0501XTLD36 W EBE MI or approved equivalent) 136RMO1	Each	5			
	vi	2X TL5 28 watt recess mounted mirror optics fluorescent light fixture (Philips TBS 869 2XTL528 W EBP D8 or approved equivalent). (236RMO1/236rmo2)	Each	83			
	vii	1X36 watt surface mounted type fluorescent light fixture with opal acrylic cover (Philips TCS019 1XTL-D 36W EBE or approved equivalent) (136oac)	Each	14			
	viii	2X TL5 28 watt surface mounted mirror optics fluorescent light fixture (Philips TPS 814 2XTL5-28W EBP D8 or approved equivalent). (236smo1/236smo2)	Each	222			
	ix	2X TL5 28 watt surface mounted mirror optics fluorescent light fixture (Philips TCS 350 2XTL5-28W MI EB or approved equivalent). (236SMO3)	Each	224			
	x	2X TL5 28 watt surface mounted mirror optics fluorescent light fixture (Philips TCS 150 2XTL-5 28W M1 EBT or approved equivalent). (236SMO4)	Each	175			
8.02		Supply of following compact fluorescent light fixture with electronic ballast, starter, capacitor, yellow light lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					

	i	1x9 watt Bulk Head light fixture (Philips FXC 101 1XPL-S/2P11 W ACO or approved equivalent)	Each	92			
	ii	2 X 11 watt surface mounted mirror optics (Philips FCS 518 2XPLS/2P 11 WI 240 V or approved equivalent)	Each	173			
	iii	2X18 watt Mirror top light with frosted glass (Decon 05CA 01 or approved equivalent)	Each	256			
	iv	Surface mounted Batten holder (Plastic) with 13 watt CFL	Each	17			
	v	2X18 W surfaced mounted down light fixture with frosted glass (DECON : 03NBG 42 or approved equivalent)	Each	212			
	vi	2X18 W wall bracket with frosted glass (Decon 05TQ double wave) or approved equivalent	Each	65			
8.03		Supply of following ceiling fans (Crompton Greaves High Breeze or approved equivalent) complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator, suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required					
	i	900 mm sweep	Each	13			
	ii	1200 mm sweep	Each	781			
8.04		Supply of 900 RPM, 300 mm (Crompton Greaves Trans Air or approved equivalent) exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	Each	158			
8.05		Supply of 450 mm sweep, crompton greaves model high flow 18" wall mounted fan complete with double ball bearing, motor, blades, capacitor etc suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	Each	17			
8.06		Installation, testing and commissioning of prewired, flourescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	Each	2183			

8.07	Installation, testing and commissioning of prewired, compact fluorescent lamp fixture (CFL fixtures) of all types, complete with all accessories and lamp etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	Each	815			
8.08	Installation, testing and commissioning of ceiling fan and modular type electronic fan regulator (Electronic regulator to be fixed in switch board) including wiring the down rod and connection with 1.5 sqmm FR PVC insulated, copper conductor single core/multi strand cable including providing & fixing phenolic laminated sheet cover on the fan box, etc. as required.	Each	794			
8.09	Installation, testing and commissioning of exhaust fan up to 450 mm sweep in the opening, including making the hole to suit the size of the above fan including, fixing of louvers/ shutters with frame making good the damages etc. as required.	Each	158			
8.10	Installation, testing and commissioning of wall mounted fan up to 450 mm sweep including supply and fixing wall bracket arrangement complete as required.	Each	17			
TOTAL SUBHEAD 8 : LIGHT FIXTURE & FANS						
SUB HEAD 9 : TELEPHONE SYSTEM & EPABX.						
9.00	TELEPHONE SYSTEM					
9.01	Wiring for telephone point with Supply & laying two pair 0.5 Sq. mm solid, annealed copper conductor insulated with high density polythlene. The insulated cores twisted to form pairs, helically wrapped with polyester tape, over all insulation of FR PVC, unarmoured telephone cable in MS conduit (including supply & recessed laying of M.S. conduit), including providing & fixing of two module modular metal box on recess with following pair cord outlet, connections etc. complete as required. This also includes conduiting, wiring from floor Tag blocks to individual telephone outlets.					
	i	1 pair cord outlet (Jack Type)	Point	62		

	ii	2 pair cord outlet (Jack Type)	point	10			
9.02		Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type lockable box duly painted complete with Krone type tag block etc. including terminations of cable as required.					
	i	50 Pair	Each	1			
	ii	20 Pair	Each	5			
	iii	10 Pair	Each	8			
9.03		Supplying and drawing of following pairs .5 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured telephone cable on surface/tray with saddels etc. complete as required.					
	i	10 Pair	Metre	156			
9.04		Supplying and drawing of following pairs .5 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured jelly filled telephone cable in the existing trench/ hume pipe/ GI pipe etc with saddels etc. complete as required.					
	i	50 Pair	Metre	100			
	ii	20 Pair	Metre	250			
	iii	10 Pair	Metre	320			
9.05		EPABX					
	i)	Supply, installation testing and commissioning of a digital EPABX system having 16 trunk lines (P&T Lines), 8 digital extensions and 96 analog extensions. EPABX should be expandable type including software & UPS of suitable capacity for four hour back-up with SMF battries. EPABX should be complete as per technical specifications & as required.	Set	1			
	ii)	Supply, installation, testing and commissioning of Main Distribution Frame (MDF) krone type for above EPABX with box as per technical specifications and as required.	Set	1			

	iii)	Supply, installation, testing and commissioning of analog push button type telephone instrument having hold-on and tone/pulse switch facility suitable for the connection with the above EPABX system complete as per technical specification and as required : Model as approved by Engieer incharge out of approved makes	Set	80			
	iv)	Supply, installation, testing and commissioning of digital phone sets (KTS) with display, 12 storage keys and speaker suitable for the connection with the above EPABX system complete as per technical specification and as required : Model as approved by Engineer incharge out of approved makes	Set	8			
		TOTAL : SUB HEAD 9:TELEPHONE SYSTEM & EPABX					
		SUB HEAD 10:CONDUITING FOR COMPUTER SYSTEM .					
10.00		CONDUITING FOR COMPUTER SYSTEM .					
10.01		Supply and fixing of following sizes of rigid PVC conduit alongwith the accessories in recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
	i	20 mm dia	Metre	10540			
	ii	25 mm dia	Metre	2635			
10.02		Supplying and fixing two module modular plate (suitable for RJ-45 computer socket) with GI box complete as required.	Each	527			
		TOTAL SUB HEAD: 10 CONDUITING FOR COMPUTER SYSTEM					
		SUB HEAD 11: CONDUTING FOR TV OUTLETS					
11.00		CONDUITING FOR TV OUTLETS					
11.01		Supply and fixing of following sizes of MS conduit alongwith the accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
	i	20 mm dia	Metre	90			
	ii	25 mm dia	Metre	25			

11.02	Supplying and fixing 2 module modular metal box in recess with modular cover plate including fixing 1 no. coaxial TV outlet connection and all accessories complete as required	Each	18			
11.03	Supply and drawing Coaxial TV Cable RG - 6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	250			
	TOTAL SUB HEAD 11: CONDUITING FOR TV OUTLETS					
	SUB HEAD 12 : FIRE DETECTION AND ALARM					
12.00	FIRE DETECTION AND ALARM SYSTEM					
12.01	Supply and drawing of following sizes of PVC insulated FRLS copper conductor cable in surface/ recessed MS conduit (including Supplying and fixing of MS Conduit) complete as required.					
	i 2X1.5 sqmm	Metre	4044			
12.02	Supply, installation, testing and commissioning of the following addressable type fire detection and alarm accessories as per technical specification & complete with connections etc. as required.					
	i Optical type Smoke Detector	Each	256			
	ii Heat Detector	Each	4			
	iii Manual Break call point.	Each	16			
	iv Fire Alarm Hooter cum speaker of suitable range to cover the complete floor, in enclosure.	Each	16			
	v Response indicator	Each	45			
12.03	Supply, installation, testing and commissioning of the manual fire alarm system.					
	i Manual Break call point.	Each	33			
	ii Fire Alarm Hooter to cover the complete floor, in enclosure.	Each	33			

12.04	Supply, Installation, testing and commissioning of 4 loop microprocessor based addressable type networkable Fire Detection & Alarm Panel complete with inbuilt power supply, battery charger with SMF batteries for minimum 24 hours back-up. The panel shall have a communication module and HI 485 network card. The panel should have rectifier, loop card, minimum 80 character LCD unit to indicate fire/ fault signals with address including external/ internal printer to print the details complete as per technical specifications and requirement of Local Fire Authority and as required.	Set	1			
12.05	Supply, Installation, testing and commissioning of 2 loop microprocessor based addressable type networkable Fire Detection & Alarm Panel complete with inbuilt power supply, battery charger with SMF batteries for minimum 24 hours back-up. The panel shall have a communication module and HI 485 network card. The panel should have rectifier, loop card, minimum 80 character LCD unit to indicate fire/ fault signals with address including external/ internal printer to print the details complete as per technical specifications and requirement of Local Fire Authority and as required.	Set	1			
12.06	Supply testing and commissioning of isolator module as per specifications.	Set	15			
12.07	Supply, Installation, testing and commissioning of addressable control modules.	Each	8			
12.08	Supply, Installation, testing and commissioning of addressable monitor modules.	Each	3			
12.09	Supply, Installation, testing and commissioning of flow switch	Each	2			
12.10	Supplying, drawing, connecting, testing & commissioning of 4 core, 1.5 sq. mm ,1100 volts FRLS copper conductor with PVC armoured cable with steel brading for mechanical protection and over all shielded with aluminium myler tape complete as required.	Metre	300			

12.11	Supply, installation, testing and commissioning of 8 zone microprocessor based talkback master control panel with LCD display , inbuilt battery charger and battery space .The panel should have LCD and LED display for zone wise calling , & fabricated with 16 SWG sheet metal housing with red paint .	Each	1			
12.12	Supply, installation, testing and commissioning of 4 zone microprocessor based talkback master control panel with LCD display , inbuilt battery charger and battery space .The panel should have LCD and LED display for zone wise calling , & fabricated with 16 SWG sheet metal housing with red paint .	Each	1			
12.13	Supply, installation, testing and commissioning talkback unit with telephone handset in 16 SWG red body housing with locking protection.	Each	12			
	TOTAL SUB HEAD 12 : FIRE DETECTION AND ALARM					
	SUB HEAD 13: LIGHTENING PROTECTION					
13.00	LIGHTENING PROTECTION					
13.01	Earthing with 600 mm X 600 mm X 6 mm thick GI plate including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but with charcoal or coke and salt) complete as required.	Set	14			
13.02	Providing and fixing of lightening conductor finial, made of 25mm. dia. 300mm., long GI tube, having single prong at top, with 85 mm. dia. 6 mm. thick GI base plate including holes etc. complete as required.	Each	46			
13.03	Providing and and fixing GI tape 20mm X 3 mm thick on parapet or surface of wall for lightning conductor as required. (For horizontal runs).	Metre	459			
13.04	Providing and and fixing GI tape 20mm X 3 mm thick on parapet or surface of wall for lightning conductor as required. (For vertical runs).	Metre	388			

13.05	Providing and fixing testing joint, made of 20mmX3mm thick GI strip, 125 mm. long, with 4 no.'s of GI bolts, nuts, check nuts, bar shaddles, and spring washers etc. complete as required.	Each	14			
13.06	Providing and laying GI tape, 32 mm X 6 mm thick, from test joint upto earth electrode directly in ground as required.	Metre	210			
	TOTAL SUB HEAD 13: LIGHTENING PROTECTION					
	SUB HEAD 14 : LIFTS					
14.01	Design, manufacture, supply, installation, testing and commissioning of following 8 passenger (544 kg) lift , serving different floors in the lift shaft including. The lift should be as per detailed specification/ drawing enclosed as required and as under:					
	- Travel: As per architectural drawing.					
	- Controller: A.C. variable voltage & variable frequency					
	- Automatic rescue device complete with dry maintenance free batteries as required.					
	- Operation: Microprocessor based single automatic push button/ simplex selective collective/ duplex collective selective with / without attendant.					
	- 415 V, 3 phase, 50 Hz, 4 wire system					
	- Type of doors: a) Car : Power operated, centre opening for passenger lift horizontal sliding stainless steel scratch proof. (b) Landing doors: Stainless steel scratch proof. Lift landing doors shall have a fire resistance of one hour.					
	- Car Enclosure : Scratch proof stainless steel					
	- A hand rail guide not less than 600 mm long at 900 mm above floor level .					
	- Mirror of suitable size to be fixed inside the lift car.					
	- Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.					
	- Telephone with minimum two connections one at operator's room and other at guard/ security room and the emergency signal with re-chargeable batteries as source of supply be made in the lift car.					

-	Toe guard, PA speaker, IR curtain on full height, two phase fireman's drive control/ switch and potential free contacts etc to be provided.				
i	Floors :B4+ B3+B2+B1+G+3 , (8 stops & 8 openings), Speed : 1.5 MPS.	Each	2		
ii	Floors :Level -2+Level-1 +G+1 , (4 stops & 4 openings), Speed : 1.0 MPS.	Each	1		
iii	Floors :Level -4+Level-3 +Level -2+ Level -1+ G+2 , (7 stops & 7 openings) Speed : 1.5 MPS.	Each	2		
iv	Floors :Level-3 +Level -2+ Level -1+ G+2 , (6 stops & 6 openings) Speed : 1.5 MPS.	Each	2		
	Passenger Lift as mentioned above				
	TOTAL SUB HEAD 14: LIFTS				
	SUB HEAD 15: LT CABLES				
15.00	LT CABLES				
15.01	Supply of following sizes of 1.1 kV grade multicore aluminium conductor PVC sheathed armoured AYPY cable as per IS 1554.				
i	3.5 Core 25 Sqmm.	Metre	100		
ii	3.5 Core 50 Sqmm.	Metre	400		
iii	3.5 Core 95 Sqmm.	Metre	206		
iv	3.5 Core 185 Sqmm.	Metre	400		
v	3.5 Core 300 Sqmm.	Metre	410		
vi	2 Core 10 Sq mm	Metre	350		
vii	4 Core 4 Sq mm	Metre	170		
viii	4 Core 10 Sq mm	Metre	100		
ix	4 Core 16 Sq mm	Metre	105		
15.02	Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required				
i	Upto 35 sq. mm	Metre	100		
ii	Above 35 sq. mm and upto 95 sq. mm	Metre	606		
iii	Above 95 sq. mm and upto 185 sq. mm	Metre	400		
	Above 185 sq. mm and upto 400 sq. mm	Metre	410		

15.03		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/HUME/ METAL pipe as required.					
	i	Upto 35 sq. mm	Metre	45			
	ii	Above 35 sq. mm and upto 95 sq. mm	Metre	37			
	iii	Above 95 sq. mm and upto 185 sq. mm	Metre	35			
	iv	Above 185 sq. mm and upto 400 sq. mm	Metre	20			
15.04		Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.					
	i	Upto 35 sq. mm	Metre	40			
	ii	Above 35 sq. mm and upto 95 sq. mm	Metre	30			
	iii	Above 95 sq. mm and upto 185 sq. mm	Metre	25			
		Above 185 sq. mm and upto 400 sq. mm	Metre	55			
15.05		Supplying and making end termination with suitable size Copper lugs including double compression glands of following sizes of 1.1. kv grade multicore aluminium conductor PVC insulated and PVC sheathed					
	i	3.5 Core 25 Sqmm.	Each	4			
	ii	3.5 Core 50 Sqmm.	Each	22			
	iii	3.5 Core 95 Sqmm.	Each	4			
	iv	3.5 Core 185 Sqmm.	Each	6			
	v	3.5 Core 300 Sqmm.	Each	12			
	vi	2 Core 10 Sq mm	Each	44			
	vii	4 Core 4 Sq mm	Each	8			
	viii	4 Core 10 Sq mm	Each	20			
	ix	4 Core 16 Sq mm	Each	10			
15.06		Fabricating and installing following size of perforated M.S. cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting etc. as required :-					
	i	150 mm. width x 50 mm. depth x 1.6 mm. thickness	Metre	20			
	ii	300 mm. width x 62.5 mm. depth x 2.0 mm. thickness	Metre	34			
	iii	450 mm. width x 62.6 mm. depth x 2.0 mm. thickness	Metre	40			
	iv	600 mm. width x 62.6 mm. depth x 2.0 mm. thickness	Metre	35			

	TOTAL SUB HEAD 15 : LT CABLES					
	SUB HEAD 16: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS					
16.00	EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS					
16.01	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	16			
16.02	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Set	12			
16.03	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer	Metre	45			
16.04	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	50			
16.05	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	Metre	40			
16.06	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	Metre	60			
16.07	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	Metre	35			

16.08	Supplying and laying 25 mm X 5 mm copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)	Metre	55			
16.09	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	Metre	35			
16.10	Providing and laying of following sizes non pressure NP2 class (light duty) RCC pipe with collar joint with stiff mixture of cement (1 cement : 2 fine sand) including testing the joints etc. as required.					
	i 150mm dia	Metre	90			
	ii 300mm dia	Metre	35			
16.11	Providing and fixing M.V. danger notice plate of 200mmX150mm made of mild steel, atleast 2mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required.	Each	4			
16.12	Providing and fixing H.T. (11kV) danger notice plate of 250mmX150mm made of mild steel, atleast 2mm thick and vitreous enameled white on both sides and with inscription in signal red colour on front side as required.	Each	2			
16.13	Supplying and laying of 12kV grade 1 metre wide anti skid chequered type rubber mat.	Metre	20			
16.14	Supplying and laying of 1.1kV grade 1 metre wide anti skid chequered type rubber mat.	Metre	40			
16.15	Design, manufacture, supply and installation of Fire Buckets 13 litre capacity 4 Nos. duly filled with sand and GI pipe support stand for these buckets including painting etc. complete as required.	Set	6			
16.16	Supply and fixing shock treatment chart in English, Hindi and local language mounted on 5mm thick Plywood and 3mm thick plain glass front complete as required.	Set	8			

16.17	Supplying and fixing Foam type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	Set	8			
16.18	Supplying and fixing Dry Chemical powder type 10 Kg capacity fire extinguishers as approved by ISI complete as required.	Set	2			
16.19	Supplying and fixing CO2 type 9 Kg capacity fire extinguishers as approved by ISI complete as required.	Set	6			
16.20	Supplying and fixing CO2 type 4.5 Kg capacity fire extinguishers as approved by ISI complete as required.	Set	10			
16.21	Supplying, storing, handling and fixing in position First Aid Medical Box complete as per technical specifications as required.	Each	4			
16.22	Supply and testing of 11kV ISI marked hand gloves	Each	4			
16.23	Providing & fixing rigid PVC pipe complete with fittings, clamps including trenching & refilling/ wall cutting & plastering, etc. (for cable entry) with all minor civil & mech. Works complete as required. 50 mm dia nominal bore	Metre	40			
	TOTAL SUB HEAD 16: EARTHING, SAFETY EQUIPMENT AND MISC. ITEMS					
	SUB HEAD 17: OUT DOOR LIGHTING					
17.00	OUT DOOR LIGHTING					
17.01	Supply, erection, testing and commissioning of external swaged steel tubular pole with following specifications & items :					
i	9.0 Mtrs. high swaged steel tubular pole (Single arm of suitable length each around 1.5 Metre), the construction of the pole shall be as per IS 410 SP-33 with base plate 450mmX450mmX6mm complete as per requirement with two coats of spray paints (shade as approved)					

	ii	1X150 watts street light fixture with 150watts high pressure sodium vapour (HPSV) lamp complete with control gear, acrylic cover cover etc. similar to Philips SRP 051/ 150 W or approved equivalent including its wiring with 2X4 sq.mm. PVC insulated, FRLS copper conductor and 1.5 sqmm PVC insulated, FRLS copper earth wire from control box complete as required.					
	iii	Suitable size 32 A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 6A DP MCB complete as required - 1 Set					
	iv	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
	v	<i>Providing foundation including excavation, shuttering, alingment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.</i>					
	vi	The above installations shall be completed as CPWD specifications and as required					
	A.	Steet Tubular Poles(9M) Single Arm as mention above	Set	35			
	B.	Steet Tubular Poles (9M) same as above but for Double Arm as mention above	Set	10			
17.02		Supply, installation, testing and commissioning of external post top lantern with following accessories and complete as required :					
	i)	4m high (3.3m above ground) 50mm dia GI pole as approved, adopting socket at top for fixture mentioned below, base plate 300 x 300 x 6mm and provision for mounting junction box etc. - 1 set.					
	ii)	1 x 70 W Post top lantern with 70W HPSV lamp (Philips SPC 101 x SON 70 W E or equivalent) and its wiring with 2 x 2.5 sq.mm PVC insulated copper wire and 1.5 sqmm PVC insulated copper earth wire from control box					
	iii)	Suitable size 20A DP MS Control box with 2 no. incoming and outgoings terminals and 2 nos. tap-out terminal with 1 nos. 5A HRC fuses complete 1 set.					
	iv)	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					

	v)	Providing 400x400x1000mm deep 1:3:6 ratio cement concrete including excavation shuttering alignment of poles casting etc. including 100mm thick lean concrete shall be provided at the bottom					
		Supply, installation, testing and commissioning of external post top lantern as mentioned above	Set	20			
17.03		Supply, installation, testing and commissioning of bollard lamps 1X18 watts CFL (Philips HCS360 1XPL-C/2P 18W GR Sonara bollard in gree color or equivalent) control box - 1 set.	Each	20			
17.04		Supply, installation, testing and commissioning of bollard lamps 1X18 watts CFL (Philips HCS 370 1XPL-L 18W GR Lumos bollard in green color or equivalent) control box - 1 set.	Each	15			
17.05		Road Lighting Panel					
		Supply, installation, testing and commissioning of following outdoor type with canopy, IP-54 protected M.V. cubicle type totally enclosed, free standing type, dust, damp and vermin proof, MV Panel, busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, stove enamelled painted and having following incoming and outgoing switchgears complete as required.					
		INCOMER:					
		1 No. 63 Amp 415 volts, TPN Switch Disconnecter Fuse Unit with HRC Fuses					
		1 Set of phase indicating lamp with HRC fuses					
		1 Set of photo sensor & 100A TP contactor with nuetral link (for street lights control)					
		BUSBARS:					
		100 Amp TPN Aluminium busbars					
		OUTGOING:					
		10 Nos. 32 Amp 415 volts, DP MCB					
		Feeder Pillar as mention above	Set	4			

17.06	Spiral earthing made out of 6 SWG GI wire , 50mm Dia, 115 turns closely wound ,1.5 mtr below ground, earth pit of 350 Dia., 1.5 mtr depth including providing charcoal and salt for earthing at alternate layers of 300 mm depth (total 3 layers),connections etc. complete as required.	Set	50			
	TOTAL SUB HEAD 17: OUTDOOR LIGHTING					
	SUB HEAD 18: PUBLIC ADDRESS SYSTEM					
18.00	PUBLIC ADDRESS SYSTEM FOR AV ROOM					
18.01	Supply, installation, testing and commissioning of master announcement (PA System) along with Amplifier console of suitable wattage duly wired with terminal strip etc complete with housing, including the following main components and as required. (Contractor has to design and submit the details of PA equipment as per the requirement of this room for approval)					
-	1 Mic & 1 Aux Inputs, with individual volume control, zone control & Aux inputs jacks etc.					
-	CD Player with 5 CD changer, with auto/ manual programming					
-	Terminals & patch cables					
-	Equipment Rack					
-	Supply and installation of metal enclosed suitable wattage false ceiling/ wall mounted speaker with adjustable volume to cover all areas of room size (10.7mx7m).					
-	Podium mic with wire complete as required- 1 number					
-	Wireless hand mic with adapter and receiver etc complete as required- 4 numbers.					
-	Any other item required for proper working of PA system.					
	PA System as mentioned above	Set	1			
18.02	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/recess including painting in case of surface conduit, or cutting the wall and making good the same in case of conduit as recessed required					
i)	20 mm dia	Metre	50			

18.03		Supply and drawing twin twisted 32/0.2mm PVC insulated copper conductor speaker wire in existing conduit including earth wire complete as required (for speakers). This includes wiring for the amplifier as well.	Metre	30			
		TOTAL FOR SUBHEAD 18.00 PUBLIC ADDRESS SYSTEM.					
19.00		SUB HEAD 19: VIDEO CONFERENCING					
19.01		VIDEO CONFERENCING SYSTEM FOR AV ROOM:					
	i	Main Site High Definition Video Conferencing Equipment - 1080p with codec, camera and mic, Content / presentation sharing + 4 party embedded MCU with standard accessories : 1 Nos.					
	ii	Other End HD End Points - 1080p with codec, camera and mic, Content / presentation sharing with standard accessories : 1nos					
	iii	Display Units - 42" LCD Monitors : 02 Nos					
	iv	Installation & Commissioning of system including any other item necessary for the proper functioning of the system. <i>Note: All VC Equipments (except display) must be from the same OEM</i>					
		Video Conferencing system as mentioned above :	Lot	1			
		TOTAL SUBHEAD 19 :VIDEO CONFERENCING					
		GRAND TOTAL FOR ALL ELECTRICAL WORKS					

<u>RIPANS AIZAWL</u>		
<u>SUMMARY SHEET FOR HVAC WORKS</u>		
SECTION	DESCRIPTION OF WORKS	AMOUNT (Rs.)
A	EQUIPMENTS	
B	AIR DISTRIBUTION	
C	ELECTRICAL	
	GRAND TOTAL	

BILL OF QUANTITIES FOR HVAC WORKS AT RIPANS, AIZAWL

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
The prices are to be quoted in the below mentioned form and shall include the supply, installation, testing & commissioning at site of all the equipments, ancillary materials as specified and all such items what so ever which may be required to fulfill the intent and purpose as laid down in the specifications and or the drawings.						
The tenderer shall quote rates in figures and in words under column 5&6 and extend amount to column 7						
	<u>Sub Head -A, Equipments</u>					
1.0	SPLIT AIR CONDITIONERS					
	Supply , installation , testing and commisioning of HI wall split air conditioner comprising of the following.					
	a) Outdoor condensing Units					
	b) Indoor Evaporative Units					
	c) Interconnecting Refrigerant and drain piping with insulation wherever required, refrigerant and oil. The unit shall include refrigerant piping, power cabling and drain piping.					
	c) Safety and operational controls					
	e) Hiwall splits shall be suitable for single phase power supply and complete with voltage stablizer.					
	f) Mounting arrangement and structural supports for outdoor unit are included.					
	g) The units should have atleast 3 star rating from BEE.					
1.1	Capacity : 1.5 TR	7	Nos.			
1.2	Capacity : 2 TR	1	Nos.			
2.0	Window Air Conditioner					
	Supply , installation , testing and commisioning of Window Acs complete with transformer, electrical cabling as required along with mounting arrangement,Voltage stablizer.Complete in all respect as per specifications. The units should have 3 star rating from BEE.					
	Capacity					

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
2.1	1.5 TR	8	Nos.			
2.2	2.0 TR	11	Nos.			
3.0	Propeller Fans					
	Supplying, installing, testing and commissioning of direct driven Propeller fan for exhaust air as shown in drawings and as per specifications. Each fan shall be complete with permanent split capacitor or shaded pole motor, mounting plate, accessories like wire guard, bird screen and fixed louvers for weather protection as required. Fan selection arrangement and Electrical characteristics shall be as follows:					
3.1	150 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	1	Nos			
3.2	225 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	1	Nos			
3.3	300 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	23	Nos			
4.0	Axial Flow fans					
	Supply, installation, testing and commissioning of tube axial flow fans as shown in drawings, Each fan shall be direct driven.. Fan motor shall be suitable for 3 Phase, 415 +/- 10% V, 50Hz AC supply.					
4.1	Duty: Lift well pressurisation Air Quantity : 7500 CFM, Static Pressure : 25 mm wg	2	Nos.			
4.2	Duty: Lift well pressurisation Air Quantity : 6500 CFM, Static Pressure : 25 mm wg	1	Nos.			
4.3	Duty: Lift well pressurisation Air Quantity : 7000 CFM, Static Pressure : 25 mm wg	4	Nos.			

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
4.4	Duty: Lift Lobby pressurisation Air Quantity : 4500 CFM, Static Pressure : 25 mm wg	2	Nos.			
4.5	Duty: Kitchen Ventilation (smoke spill fan, 250 deg, 2 hr)) Air Quantity : 3000 CFM, Static Pressure : 25 mm wg	1	Nos.			
4.6	Duty: Kitchen Ventilation (smoke spill fan, 250 deg, 2 hr)) Air Quantity : 2500 CFM, Static Pressure : 25 mm wg	2	Nos.			
4.7	Duty: Kitchen Ventilation (smoke spill fan, 250 deg, 2 hr)) Air Quantity : 2000 CFM, Static Pressure : 25 mm wg	1	Nos.			
5.0	<u>Kitchen Scrubber</u> Providing and fixing of kitchen scrubber having pre filter section for removal of oil greases, followed by intakes louvers, impingement plate section, high pressure water atomisation section, mist eliminator and outlet cone section, fan section with fan, expansion chamber, nozzles, strainer, belt drive with guard, gasket tight access door, eliminators, water circulation pump, isolation valve for pumps, vibration isolators for blower distribution panel etc. complete as per specifications and drawings.					
5.1	2500 CFM @ 50 MM WG	1	Nos.			
5.2	3000 CFM @ 50 MM WG	1	Nos.			
	<u>Sub Head -B, Air Distribution</u>					
6.0	GSS DUCTING Supply, installation, testing and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvas connections etc. complete as per specifications & drawings:					

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
6.1	1.25 mm (18 G) GSS	10	Sqm			
6.2	1.0 mm (20 G) GSS	10	Sqm			
6.3	0.80 mm (22 G) GSS	30	Sqm			
6.4	0.63 mm (24 G) GSS	170	Sqm			
7.0	VOLUME CONTROL DAMPERS					
	Supply, installation and testing of volume control dampers of GI sheet, box type to be provided in ducts complete with suitable links, levers and quadrants for manual control of air volume and air balancing as per specifications and drawings.	2	Sqm			
8.0	GRILLES					
	Supply, installation, testing and balancing of powder coated extruded M.S. Air Grilles with / without volume control dampers.					
8.1	Supply air grilles in single louvers with volume control dampers.	4	Sqm			
8.2	Exhaust air grilles in single louvers without volume control dampers.	4	Sqm			
	<u>Sub Head - C, Electrical</u>					
9.0	FAN STARTER PANEL					
9.1	OUTGOING :					
	1 No. 16 Amps MCCB 10 KA for 1/ 0.5 HP Motor with suitable Starters for motor with thermal overload protection,single phase preventor,spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button,ammeter with ASS and CTs for axial fan motor as required.	13	Nos.			

ITEM NO 1	DESCRIPTION OF ITEM 2	TOTAL Quantity 3	UNIT 4	RATE IN FIGURES (in RS) 5	RATE IN WORDS (in RS) 6	AMOUNT (Rs.) 7
9.2	1 No. 16 Amps MCCB 10 KA for 2 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for axial fan motor as required.	2	Nos.			
10.0	CABLING					
	Supplying, laying, effecting proper connections, testing & commissioning of following size of 1.1 kv PVC insulated aluminium conducting armoured cables along with necessary cable tray as per IS 1554 Part- 1 laid on surface of wall/ceiling etc. & termination with brass compression glands as required.					
10.1	4 C X4 sq. mm. Cable	160	Rmt			
10.2	4 C X6 sq. mm. Cable	120	Rmt			
11.0	Supply & installation of following sizes of perforated MS cable trays including horizontal & vertical bends, reducers, tees, cross members and other accessories as required and duly supported from the ceiling/wall/floor with MS suspenders/supports and including painting etc. as required					
11.1	100 mm widthx50 mm deep x1.6 mmthickness	100	Rmt			
12.0	Providing and fixing earth wire of complete as per specifications as required.					
12.1	6 SWG wire	80	Rmt			
12.2	8 SWG wire	80	Rmt			
TOTAL FOR HVAC WORKS						