



**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY
AND MANAGEMENT - KERALA (IIITM-K)
THIRUVANANTHAPURAM**



**CONSTRUCTION OF IIITM-K CAMPUS AT TECHNOCITY,
THIRUVANATHAPURAM (KERALA)**

ACADEMIC & HOSTEL BLOCK (PHASE-I)

TENDER DOCUMENT

**BILL OF QUANTITIES (VOLUME-IV)
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PROJECT MANAGEMENT CONSULTANT

DESIGN CONSULTANT



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CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
GRAND SUMMARY**

SL. NO	DESCRIPTION	AMOUNT (IN RUPEES)	
		(IN FIGURE)	(IN WORDS)
1.0	CIVIL WORKS		
2.0	PLUMBING WORKS		
3.0	ELECTRICAL WORKS - INTERNAL		
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5.0	LIFT WORKS		
6.0	FIRE FIGHTING & FIRE ALARM WORKS		
7.0	HVAC WORKS		
8.0	SITE DEVELOPMENT WORKS		
	TOTAL		

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES -CIVIL WORKS

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-1.0	EARTH WORK					
A-1.1	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth upto 30 cm measured at a height of 1m above ground level and removal of rubbish upto a distance of 50 m outside the periphery of the area cleared.	100sqm	140.00			
A-1.2	Earth work in excavation by mechanical means (Hydraulic excavator) /manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
(a)	All kind of soil	Cum	5013.93			
A-1.3	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
	All kind of soil	Cum	1782.00			
A-1.4	Extra over excavation for every additional lift of 1.5 m or part thereof in All Kinds of Soil From 1.5 m to 3.0 m					
		Cum	589.17			
A-1.5	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 upto 1.5 m.	Cum	3700.13			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-1.6	Supplying and filling in plinth with local sand under floors, including watering, ramming, consolidating and dressing complete.	Cum	457.60			
A-1.7	Hard core soling of stone aggregate (63 mm maximum size) mixed with granular material spread, levelled and well compacted in layers of 75 mm to required levels, slopes, camber etc. complete.	Cum	686.90			
A-1.8	Supplying & Filling with earth brought from out side in plinth/under floor in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering complete in all respect as approved by engineer-in-charge	Cum	4576.00			
A-1.9	Felling trees of girth (measured at a height of 1m above ground level), including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unsearviceable material.					
(a)	Beyond 30 cm girth upto and including 60 cm girth	each	18.00			
(b)	Beyond 60 cm girth upto and including 120 cm girth	each	20.00			
(c)	Beyond 120 cm girth upto and including 240 cm girth	each	22.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(d)	Above 240 cm girth	each	27.00			
A-1.10	Supplying /injecting /Spraying Herbal Anti-Termite Treatment Osolin AT -CT(construction Treatment) in concrete /Masonry works as per manufacturer's instruction @ 0.13 Litre/ Sqm.	Sqm	6984.00			
TOTAL OF EARTH WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-2.0	CONCRETE WORK					
A-2.1	Providing & laying in position cement concrete of specified grade including the cost of centering and shuttering -All works upto plinth level:					
(a)	1:4:8 (1 cement: 4 coarse sand: 8 graded stone aggregate 40 mm nominal size)	Cum	207.60			
(b)	1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size)	Cum	354.20			
(c)	1:5:10 (1 cement: 5 coarse sand: 10 graded stone aggregate 40 mm nominal size)	Cum	10.00			
A-2.2	Providing & laying damp proof course 50mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size).	Sqm	429.00			
A-2.3	Extra for providing and mixing water proofing material in cement concrete work doses by weight of cement as per manufacturer's spwcification.	kg	137.28			
A-2.4	Applying a coat of residual petroleum bitumen of penetration 80/100 of approved quality using 1.7 kg 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.	Sqm	429.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-2.5	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top smooth.	Sqm	375.08			
A-2.6	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand). Dark shade using ordinary cement	Sqm	375.08			
A-2.7	Providing precast cement concrete Jali 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 6 mm nominal size), reinforced with 1.6 mm dia mild steel wire, including centering and shuttering, roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. complete, excluding plastering of the jambs, sills and soffits. 50mm thick	Sqm	234.00			
A-2.8	Providing & laying in position cement concrete of specified grade -All works above plinth for all level: 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 12.5 mm nominal size)	Cum	154.62			
A-2.9	Providing and constructing masonry wall using cement concrete and hollow blocks of compressive strength not less than 5.0N/mm ² in cement mortar 1:6 for superstructure including ranking out joints when plastering is to be done/striking joints when no plastering is to be done, curing and scaffolding etc all as per specifications upto floor V level. 200 mm thick wall	Cum	3372.91			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-2.10	Providing and construction masonry wall using cement concrete and soild blocks of compressive strength not less than 5.0N/mm2 in cement mortar 1:6 for superstructure including ranking out joints when plastering is to be done/striking joints when no plastering is to be done, curing and scaffolding etc all as per specifications upto floor V level. 100 mm thick wall	Cum	1021.01			
A-2.11	Extra for Hollow/Solid concrete work in superstructure above floor V level for next four floors or part thereof.	Cum	521.00			
A-2.12	75 mm thick and 64 kg/cum density water repellant grade mineral wool insulation in cavity walls rapped in 200 gauge polythene bags supported by GI wire netting.	Sqm	1044.00			
A-2.13	Providing and fixing "CFC & HCFC" free Pantene Blown Polyisocyanurate slabs conforming to IS:12436having density 32+/- 2 kg/m3 ,laminated, having thermal conductivity not more than 0.021w/mk @ 10 deg celsius mean temperature classified as "not easily ignitable " as per BS: 476 part 7 fixed to the under side of the ceiling with cold applied adhesive like CPRX compound and supported by GI screws with 100mm dia washers placed at 500 mm c/c on one side and 1000mm c/c on the other side.					
(a)	25mm thick for insulation on wall / coloumn surface.	Sqm	104.40			
TOTAL OF CONCRETE WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-3.0	REINFORCED CEMENT CONCRETE WORK					
A-3.1	Boring, providing and installing bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below the pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring, with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap).					
(a)	600 mm dia piles	Metre	9492.00			
(b)	700 mm dia piles	Metre	8925.00			
A-3.2	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge. Single pile above 50 tonne and upto 100 tonne capacity					
(a)	Initial test	per test	4.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	Routine test	per test	12.00			
A-3.3	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, 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. (Note :- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).					
(a)	All works upto plinth level	Cum	1872.72			
(b)	All works above plinth level upto floor V level.	Cum	6243.51			
A-3.4	Extra for providing richer mixes at all floor levels. Note:- Excess/less cement over the specified cement content used is payable /recoverable separately.					
(a)	Providing M-30 grade concrete instead of M-25 grade BMC/RMC. (Note:- Cement content considered in M-30 is @ 340 kg/cum)	Cum	6115.44			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-3.5	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete in small lintels not exceeding 1.5 m clear span up to floor five level, including the cost of required centering, shuttering but excluding the cost of reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	Cum	214.78			
A-3.6	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like, including the cost of required centering, shuttering but excluding cost of reinforcement, with 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size).	Cum	3.62			
A-3.7	Extra for R.C.C work above floor V level	Cum	961.00			
A-3.8	Centering & shuttering including strutting, propping etc.& removal of form (staging height upto 3.5m) for:					
(a)	Foundations, footings, bases of columns etc. for mass concrete.	Sqm	2660.88			
(b)	Walls (any thickness) including attached pilasters, buttresses, plinth & string courses etc.	Sqm	3808.50			
(c)	Suspended floors, roofs, landings, balconies & access plateform.	Sqm	16102.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(d)	Shelves (Cast in situ)	Sqm	290.00			
(e)	Lintels, beams, plinth beams, girders, bressumers & cantilevers.	Sqm	16764.00			
(f)	Columns, pillars, piers, abutments, posts & struts (other than circular columns)	Sqm	11506.72			
(g)	Stairs, (excluding landings) except spiral-staircase.	Sqm	1386.00			
(h)	Extra for shuttering in circular work (20% of respective centering and shuttering items)	Sqm	15850.00			
A-3.9	Extra for additional height in centering, shuttering where ever 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)					
	Suspended floors, roofs, landing, beams and balconies (Plan area to be measured).	Sqm	12777.00			
A-3.10	Reinforcement for R.C.C work including straightening, cutting, bending, placing in position complete: Thermo-mechanically Treated Bars (Fe 500 D)	MT	1556.84			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-3.11	Providing and fixing of expansion joint system related with floor location as per drawings and direction of Engineer-In-Charge. The joints system will be of extruded aluminum base members, self aligning / self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor /floor to wall expansion control system for various vertical localtion in load application areas that accommodates multi directional seismic movement without stress to it's components. System shall consist of metal profiles with a universal aluminum base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self - centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of Moisture Barrier Membrane in the Joint System to have watertight joint is mandatory requirement all as per the manufactures design and as approved by Engineer -in- Charge . (Material shall confirm to ASTM 6063.)					
(a)	Floor Joint of 200 mm gap	Metre	100.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-3.12	Providing and fixing of expansion joint system related with wall joint (internal/external) location as per drawings and direction of Engineer-In- Charge. The joints shall be of extruded aluminum base members, self aligning / centering arrangement and support plates as per ASTM B221- 02. The material shall be such that it provides an Expansion Joints System suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office Buildings & complexes with no slipping down tendency amongst the components of the Joint System. The Joint System shall utilize light weight aluminum profiles exhibiting minimal exposed aluminum surfaces mechanically snap locking the multicellular to facilitate movement. (Material shall confirm to ASTM 6063.)					
(a)	Wall Joint of 200 mm gap	Metre	355.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-3.13	<p>Providing and fixing of expansion joint system of approved make and manufactures for various roof locations as per approved drawings and direction of Engineer-In-Charge. The joints shall be of extruded aluminum base members with, self aligning and self centering arrangement support plates asper ASTM B221-02. The system shall be such that it provides watertight roof to roof/roof to corner joint cover expansion control system that is capable of accommodating multidirectional seismic movement without stress to its components. System shall consist of metal profile that incorporates a universal aluminum base member designed to accommodate various project conditions and roof treatments. The cover plate shall be designed of width and thickness required to satisfy movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self-centering arrangement that freely rotates / moves in all directions. The Self centering arrangement shall exhibit circular sphere ends that lock and slide inside the corresponding aluminum extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. The Joint System shall resists damage or deterioration from the impact of falling ice, exposure to UV, airborne contaminants and occasional foot traffic from maintenance personnel. Provision of Moisture Barrier Membrane in the Joint System to have water tight joint is mandatory requirement. Material shall confirm to ASTM 6063.</p>					
	Roof Joint of 200 mm gap	Metre	127.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-3.14	Providing and fixing in position Stainless steel Grade 304 plate-1.0 mm thick as per design for expansion joints.					
	200 mm wide.	Metre	368.00			
A-3.15	Centering & shuttering including strutting, propping etc.& removal of form (staging height upto 3.5m) for coffer slab.	Sqm	1684.00			
TOTAL OF REINFORCED CEMENT CONCRETE WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-4.0	BRICK WORK/ STONE WORK					
4.1	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:					
(a)	Cement Mortar 1:6 (1 cement : 6 coarse sand).	Cum	5.50			
4.2	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :					
	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum	12.00			
4.3	Extra for brick work / AAC block masonry / Tile brick masonry in superstructure above floor V level, for each four floors or part thereof by mechanical means.	Cum	2.00			
4.4	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundations and plinth in :					
	cement mortar 1:4 (1 cement : 4 coarse sand)	Sqm	4.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
4.5	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.					
(a)	cement mortar 1:4 (1 cement : 4 coarse sand)	Sqm	12.00			
4.6	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means.	Sqm	4.00			
4.7	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.	Sqm	16.00			
4.8	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) upto plinth level with including pointing complete :					
	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum	143.00			
4.9	Random rubble masonry with hard stone in superstructure above plinth level and upto floor five level, including leveling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) at window sills, ceiling level and the like including pointing complete .					
(a)	Cement mortar 1:6 (1 cement : 6 coarse sand).	Cum	72.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
4.10	Pointing on stone work with cement mortar 1:3 (1 cement :3 fine sand):					
(a)	Flush /ruled pointing	sqm	358.00			
TOTAL OF STONE WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.0	WOOD WORK					
A-5.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).					
(a)	Kiln seasoned chemically treated anjili/pinkoda	Cum	50.00			
(b)	Kiln seasoned chemically treated anjili/pinkoda for sub frame	Cum	14.20			
A-5.2	Providing & fixing ISI marked flush door shutters conforming to IS:2202 (Part-I) non decorative type, core of block board construction with frame of first class hard wood & well matched commercial 3 ply veneering with vertical grains or cross bands & face veneers on both faces of shutters:					
(a)	35 mm thick including ISI marked stainless steel butt hinges with necessary screws.	Sqm	1640.00			
(b)	30 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sqm	271.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.3	Providing and fixing 1.0 mm thick decorative high pressure laminated sheet of plain / wood grain in gloss/matt/suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality.	Sqm	3279.00			
A-5.4	Extra for Providing and fixing flush doors with decorative veneering instead of non decorative ISI marked flush door shutters conforming to IS: 2202 (Part I) On one side only	Sqm	138.00			
A-5.5	Extra for providing lipping with 2nd class teak wood battens 12mm minimum depth on all edges of flush door shutters (over all area of door shutter to be measured).	Sqm	1640.00			
A-5.6	Providing and fixing aluminum U beading of required size to Pre-laminated/ flush door shutter, including fixing etc. complete as per direction of Engineer-in-charge.	kg	188.30			
A-5.7	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	Sqm	25.00			
A-5.8	Providing & 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 & shade with nuts & screws etc. complete:					
(a)	300 X 16 mm	Each	45.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.9	Providing & 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 & shade with necessary screws etc. complete:					
(a)	300 X 10 mm	Each	73.00			
(b)	150X 10 mm	Each	3005.00			
A-5.10	Providing & fixing bright finished brass 100 mm mortice latch & lock ISI marked with 6 levers and a pair of lever handle with necessary screws etc. complete. (Best make of approved quality)	Each	350.00			
A-5.11	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. 255 X 19 mm	Each	1898.00			
A-5.12	Providing & 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 & shade with necessary screws etc. complete:					
(a)	Twin rubber stopper	Each	73.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.13	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item)					
(a)	With float glass panes of 8 mm thickness	Sqm	334.00			
A-5.14	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)	100 mm	Each	1785.00			
(b)	125 mm	Each	152.00			
A-5.15	Providing and fixing 50cm long aluminium kicking plate 100 x3.15mm 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.	Each	28.00			
5.16	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete : Anjili/pinkoda - (50 x 20 mm)	Metre	5005.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.17	Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embedding in cement concrete block 30x10x15cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	Each	4339.00			
A-5.18	Providing & fixing fly proof wire gauze to windows, clerestory windows & doors with aluminium/wood beading complete. Stainless steel (grade 304) wire gauze of 0.5 mm dia wire and 1.4 mm aperture on both sides.	Sqm	798.00			
A-5.19	Extra if louvers (not exceeding 0.2 sqm) are provided in flush door shutters (overall area of door shutters to be measured). In door	Sqm	138.00			
A-5.20	Extra for cutting rebate in flush door shutters (Total area of the shutter to be measured).	Sqm	229.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.21	Providing and fixing of Hollow metal fire rated glazed doors as per BS 476 part-22 for stability and integrity. Pressed Galvanized steel conforming to IS 277 with the following specification. Recommended glazed fire door shall have maximum rating of 120Mins, as a complete assembly. Manufacturer test certificate shall cover doors both single and double leaf and all doors supplied shall be within the tested specimen, deviation in specification and sheet thickness other than what is mentioned in the test certificates are not allowed. Proper label confirming the type of door and the hourly rating is mandatory. Approved manufacturer Shakti Met-dor or approved equivalent. Door frame shall be double rebate profile of size 143 x 57 mm made out of 1.60mm (16gauge) minimum thick galvanized steel sheet. Frames shall be Mitered and field assembled with self tabs. All provision should be mortised, drilled and tapped for receiving appropriate hardware. Rubber door silencers should be provided on the striking jamb. Frames should be provided with back plate bracket and anchor fasteners for installation on a finished plastered masonry wall opening. Once frame installed should be grouted with cement & sand slurry necessary for fire doors on the clear masonry opening. Door leaf shall be of galvanized steel rails 47mm thick and 100mm.	Sqm	151.20			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	<p>Door leaf profile shall be manufactured from minimum 1.2mm (18 gauge) thick galvanised steel sheet. The internal construction of the door should be rigid reinforcement pads the bottom rail shall be 200mm. The glass shall be minimum 6mm thick fire rated glass of make schott. Glazing and glass material shall be fixed on rails with steel GI beddings. The gasket shall be 4mm ceramic based of approved make. All doors shall be factory prepped for receiving appropriate hardware and provided with necessary reinforcement for hinges, locks, and door closers. The edges should be interlocked for pair of doors astragals has to be provided on the meeting stile for both active and inactive leaf.</p> <p>All doors and frames shall be finished with etched primer coating, stove zinc phosphate primer and thermosetting polyurethane aliphatic grade paint of approved colour. The door leaf and frame shall have passed minimum 250 hours of salt spray test.</p> <p>Rate should include supply and installation of door and fire rated hardware set as below-</p> <p>120Mins Fire Rated Glazed (FD1) Double equal leaf door of size : 2000 x 2400mm with Hardware 6nos 100x75x3mm BB hinges, 2Nos heavy duty door closer with std arm, 1no. door Coordinator, Mortise sash lock with lever handel & 2nos conceald flush bolt & conseald door bottom seal of neoprene gasket Hardware make-Guardian. (Location-Lift Lobbies & Corridor)</p>					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.22	<p>Providing and fixing fire retardant door, frames made out of hard wood (Hollock wood) of approved size with heat activated intumescent seal strip of size 15mm x 3mm suitable for mounting shutters of 120 minutes fire rating mounted on the rebate of the frame with one coat of approved brand of fire retardant primer and tested for 120 minutes with and including embedding frames in floors or walls, cutting masonry for hold fasts with supply and fixing of M.S. hold fasts as required including CBRI approved non-metallic asbestos free fire resisting door shutter of 120 minutes fire rating conforming to BS:476 Part-20 & 22, ISO:3614 Part-II as per prototype tested and certified at Central Building Research Institute, Roorkee, suitable for mounting on door frame. The shutter shall comprise of 52mm thick made out of 2 Nos. 12mm thick non-combustible board with insulation sandwiched in between, faced with 4mm thick water proof commercial ply facing on both sides and Second Class Teak Wood lipping for smoke sealing on all edges and heat activated intumescent seal strips of sizes 15mm x 3mm on three sides (excepting bottom) with and including one coat of anti-termite fire retardant primer and wood finished paint</p> <p>each shutter shall also include 200mm x 200mm Vision Panel of sandwiched glass rated at 120 minutes alongwith shutter as per CBRI, Roorkee complete etc.(The Items includes the cost of Door Frame, Door Shutter, Hold Fast, Screws, including all necessary hardwares as approved by Local Fire Services, fixing charges all taxes, transportation, sundries etc. complete). The above work is to be carried out by a specialized agency approved by Engineer-in-Charge.</p>	Sqm	109.20			
A-5.23	Providing and fixing 150mm long stainless steel handles with necessary ss screws etc. complete. - Model SHD - 2 of ARKAY of equivalent.	No	1570.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.24	Providing & fixing stainless steel grade 304 sliding door bolts of 2.5 mm thick with SS screws and accessories etc. complete:					
(a)	300 X 16 mm	No	723.00			
A-5.25	Providing & fixing stainless steel grade 304 tower bolts with necessary screws etc. complete:					
(a)	300 X 10 mm	No	1568.00			
A-5.26	Supply & fixing of stain finish stainless steel 304 grade d-line DPL or equivalent 19mm dia C shape lever handle set complete with entrance lockcase of 55mm back set having latch and lock with double through locking bolt operated with one side key other side thump lump cylinder, including cost of material and labour as directed by Engineer -in- charge.	No	55.00			
A-5.27	Providing & fixing stainless steel 304 grade hanging floor door stopper with necessary screws etc. complete					
(a)	Double stopper	No	838.00			
A-5.28	Providing and fixing stainless steel door closure of grade 304 model ADC - 1 of ARKAY or equivalent with necessary accessories and screws etc.	No	162.00			
A-5.29	Providing and fixing Dead Lock of model DD-1 of ARKAY or equivalent with necessary accessories and screws etc.	Each	47.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-5.30	Providing and fixing Mortice latch with pair of handle and thumb turn inside (Model no SHR 4 of ARKAY or equivalent) with necessary accessories and screws etc.	Each	167.00			
A-5.31	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . With float glass panes of 6 mm thickness	Sqm	2288.00			
A-5.32	providing and fixing anchor fastner of M/S Hilti or equivalent of required size for fixing frame on RCC / Brick surface. Suitable for fixing 20mm thick sub frame	Each	8777.00			
A-5.33	Supplying /injecting /Spraying Herbal Anti-Termite Treatment Osolin AT -CT(construction Treatment) on wood surface as per manufacturer's instruction @ 0.06 Litre/ Sqm	Sqm	5482.00			
TOTAL OF WOOD AND PVC WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-6.0	STEEL WORK					
A-6.1	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 zincchromet structural steel etc.as required.					
(a)	In stringers, treads, landings etc. of stair cases including use of chequered plates wherever required, all complete.	kg	252.00			
(b)	In grating, frames, guard bar, ladders, railings, brackets, gates & similar works.	kg	17149.34			
A-6.2	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.					
a)	80x1.25mm M.S. laths with 1.25 mm thick top cover.	Sqm	45.00			
A-6.3	Providing and fixing ball bearing for rolling shutters.	Each	10.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-6.4	Extra for providing mechanical device chain and crank operation for operating rolling shutters.					
(a)	Exceeding 10.00 sqm and upto 16.80 sqm in the area	sqm	45.00			
A-6.5	Extra for providing grilled rolling shutters manufactured out of 8 mm dia M.S. bar instead of laths as per design approved by Engineer-in- charge, (area of grill to be measured).	sqm	18.00			
A-6.6	Structural steel work riveted, bolted or welded in built up sections, trusses, framed work & struts including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer and Synthetic enamel paint over steel structure as per approved shade all complete.	kg	27836.00			
A-6.7	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.).	kg	6795.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-6.8	Providing, fabricating and fixing in position at required locations to correct lines and levels nuts, anchor bolts etc complete for columns, floors, machine foundations, cable trenches and all types of RCC, PCC & masonry including necessary welding, machining, grinding, threading etc. Rate shall include providing, making and positioning templates grouting with non-shrink grout.	kg	150.00			
TOTAL OF STEEL WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.0	FLOORING WORK					
A-7.1	Providing and laying vitrified floor tiles (glossy or matt finish) in different sizes with water absorption less than 0.08% and conforming to IS:15622 of approved make in all colours and shades, laid on 20mm thick grey cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigment etc., complete					
(a)	Size of tile 600 x 600 x 9.5 mm (min)	Sqm	6466.00			
A-7.2	Providing and laying Vitrified tiles (glossy or matt finish) in different sizes with water absorption less than 0.08 % and conforming to I.S. 15622, of approved make in all colours & shade in skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand), including grouting the joint with white cement & matching pigments etc. complete.	Sqm	549.00			
A-7.3	Providing and laying Ceramic floor tiles (glossy or matt finish) 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigment etc., complete.	Sqm	1333.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.4	Providing and fixing 1st quality ceramic wall tiles (glossy or matt finish) 600x300x8mm (min.) conforming to IS : 15622 of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	Sqm	5571.00			
A-7.5	Kota stone slab flooring over 20 mm (average) thick base laid over & jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing & polishing complete with base of cement mortar 1:4 (1 Cement: 4 coarse sand):					
(a)	25 mm thick	Sqm	1494.00			
A-7.6	Kota stone slab 20 mm thick in riser of steps, skirting, dado & pillars laid on 12 mm (avg.) thick cement mortar 1:3 (1 cement: 3 coarse sand) & jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing & polishing complete.	Sqm	518.00			
A-7.7	52mm thick cement concrete flooring with concrete hardener topping under layer 40mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick concrete hardener consisting of mix 1:2 (1 cement hardener mix : 2 stone aggregate 6mm nominal size) by volume Hardening compound is mixed @ 2 litre per 50kg of cement or as per manufacturers specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc.complete.	Sqm	1056.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.8	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete. 40mm thick with 20mm nominal size stone aggregate.	Sqm	4192.00			
A-7.9	Cement plaster skirting (upto 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	Sqm	72.00			
A-7.10	25mm thick flooring with combination of Kota stone (80%) with white marble border(20%) as shown in drawings laid over 20 mm (average) thick base & jointed with grey/white cement slurry mixed with pigment to match the shade of the slab including rubbing & polishing complete with base of cement mortar 1:4 (1 Cement: 4 coarse sand).	Sqm	3129.00			
A-7.11	Providing and fixing glass strips in joints of terrazo / cement concrete floor - 40 mm wide and 4 mm thick as per Engineer-in-charge.	Metre	7766.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.12	Providing and fixing 18mm thick gang saw cut mirror polished pre moulded and pre polished) 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 edges to give high gloss finish etc. complete at all levels. Black Granite slab Area of slab over 0.50 sqm	Sqm	387.00			
A-7.13	Providing edge moulding to 18mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge. Granite work.	Metre	645.00			
A-7.14	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	Metre	645.00			
A-7.15	Extra for providing opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	Each	92.00			
A-7.16	Extra for Kota stone/ sand stone in treads of steps and risers using single length up to 1.05 metre .	Sqm	421.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.17	Extra for marble / granite stone flooring in treads of steps and risers using single length up to 2.00 metre .	Sqm	290.00			
A-7.18	Extra for pre finished nosing in treads of steps of Kota stone/ granite stone slab.	Metre	1130.67			
A-7.19	25 mm wooden planking, tongued and grooved in flooring, including fixing with iron screws complete with : Second class teak wood	Sqm	2813.00			
A-7.20	Providing and fixing Ist quality border ceramic tiles (glossy or matt finish) conforming to IS : 15622 (thickness to be as per the manufacturer's specification) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge, in dados over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.	Sqm	271.60			
A-7.21	Extra over for providing and laying 2mm thick Spacer in vitrified tiles/ceramic tile flooring with solid epoxy grout of BAL ENDURA, PIDILITE (Silver star grade) or equivalent of desired shade etc. complete and as per pattern specified in approved drawings and specifications. (Area of vitrified tiles flooring shall be measured for payment)	Sqm	6466.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.22	Providing and laying 18 mm thick Polished Granite Flooring in pattern of three colours (60% Sinduri Rate, 30% Ruby Rate & 10% Imperial Rate Colour) as shown in drawings laid over 20 mm thick based of Cement Mortar 1:4 (1 Cement : 4 Sand) laid over and jointed with white cement slurry mixed with pigment to match the shade of the slab. The uneven areas in curvature / triangular shape shall be filled with cast in situ mosaic flooring of 40 mm thick with top layer of 6 mm thick with White, Black, Chocolate, Grey, Yellow or Green marble chips of sizes from 1 mm to 4 mm nominal size laid in Cement Marble Powder Mix 3:1 (3 Cement : 1 Marble Powder) by weight in proportion of 4:7 (4 Cement Marble Powder Mix : 7 Marble Chips) by column including slurry with light shade pigment with white cement including rubbing & polishing complete (over all area of marble & granite together shall be measured for payment)	Sqm	2813.00			
A-7.23	Providing and fixing mirror polished machine cut granite stone 18mm thick for dado, skirting, riser, wall lining in cement mortar 1:3 (1 cement: 3 coarse sand) 12mm thick jointed with grey cement slurry (@ 3.3 Kg/ sqm including pointing with white cement mixed with pigment epoxy touch ups including rubbing, curing etc. complete at all level.	Sqm	509.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-7.24	Providing and laying wood laminated flooring of Scheit (Germany/China), Faus Floor (by Faus Group, Spain), Kaindl (Austria) or equivalent as per manufacturer specification with special sound reduction underlay and PE film as per manufacture specifications. The plank size shall be 1213mm x 142mm x 12.3 mm having joint guard joint protection system and patented EIR synchro surface finish. The plank shall have glue less click insulation system arrangement. All joints shall be filled with click guard joint sealing system for extra joint strength and moisture protection. The floor shall be finished using original skirting and aluminium mouldings of Scheit/Fausfloor / Kaindl make or equivalent complete as directed by Engineer-in-Charge in approved colour and shade.	Sqm	98.00			
A-7.25	Providing and fixing of wall base skirting of 100mm high plank matching with floor as per drawing and direction of Engineer-in-Charge.	Rmt.	153.00			
TOTAL OF FLOORING WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-8.0	ROOFING WORK					
A-8.1	Providing gola in 75 X 75mm in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 10 mm & down gauge) including finishing with cement mortar 1:3 (1 cement: 3 fine sand) as per standard design:					
(a)	In 75 X 75mm deep chase.	Metre	384.80			
A-8.2	Making khurras 30 x 30 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over PVC sheet 1 m x 1 m x 400 micron, finished with 12mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement rounding the edges and making the finishing the outlet complete.	Each	82.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-8.3	Providing and Fixing 15 mm thick densified tegular edged eco friendly light weight calcium silicate false ceiling tiles of approved texture spintone/cosmos / Hexa or equivalent of size 595 x 595 mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanised steel sections (galvanising @ 120 grams per sqm including both side) consisting of main 'T' runner suitably spaced at joints to get required length and of size 24x38mm made from 0.33 mm thick (minimum) sheet, spaced 1200mm centre to centre, and cross 'T' of size 24x28mm made out of 0.33mm (Minimum) sheet, 1200mm long spaced between main'T' at 600mm centre to centre to form a grid of 1200x600mm and secondary cross 'T' of length 600mm and size 24 x28mm made of 0.33mm thick (Minimum) sheet to be inter locked at middle of the 1200x 600mm panel to from grid of size 600x600mm, resting on periphery walls /partitions on a Perimeter wall angle pre-coated steel of size(24x24X3000 mm made of 0.40 mm thick (minimum) sheet with the help of rawl plugs at 450mm centre to centre with 25mm long dry wall screws @ 230mm interval and laying 15mm thick densified edges calicum silicate ceiling tiles of	Sqm	8986.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	<p>approved texture (Spintone / Cosmos/hexa) in the grid including, cutting/ making opening for services like diffusers, grills,light fittings, fixtures, smoke detectors etc., wherever required, Main 'T' runners to be suspended from ceiling using G.I. slotted cleats of size 25x35x1.6mm fixed to ceiling with 12.5 mm dia and 50mm long dash fasteners, 4mm G.I. adjustable rods with galvanised steel level clips of size 85 x 30 x 0.8 mm, spaced at 1200mm centre to centre along main 'T' , bottom exposed with 24mm of all T-sections shall be pre-painted with polyster baked paint, for all heights, as per specifications, drawings and as directed by engineer-in-charge.</p> <p>Note :- Only calcium silicate false ceiling area will be measured from wall to wall. No deduction shall be made for exposed frames/opening (cut outs) having area less than 0.30 sqm.The calcium silicate ceiling tile shall have NRC. value of 0.50(Minimum), light reflection > 85%, non - combustible as per B.S. 476 part IV, 100% humidity resistance and also having thermal conductivity <0.043 w/m 0 KC.</p>					
A-8.4	<p>Providing and fixing 12.5 mm thick Moisture Proof Gypsum Board on vertical surface of droop in false ceiling. The Board shall be fixed over and including vertical framing of 'T' Section, made out of 24 x 28 mm and 0.33 mm (Minimum) sheet of hot dipped galvanised steel @ 600mm c/c. This vertical framing shall be fixed between horizontal supports of false ceiling. (Surface area of Gypsum Board false ceiling shall be measured for payment)</p>	Sqm	898.60			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-9.0	FINISHING WORK					
A-9.1	12 mm cement plaster on fairface of internal wall with mix :					
(a)	1:6 (1 cement: 6 fine sand)	Sqm	27523.00			
A-9.2	15 mm cement plaster on the rough side of single or half brick wall of mix:					
(a)	1:6 (1 cement: 6 fine sand)	Sqm	18363.00			
A-9.3	18 mm cement plaster in two coats under layer 12mm cement plaster 1: 5 (1 cement : 5 coarse sand) and top layer 6mm thick cement plaster 1: 6 (1 cement : 6 coarse sand) finished smooth with trowel.	Sqm	11328.56			
A-9.4	6 mm cement plaster on soffit of stair and ceiling with mix:					
(a)	1: 3 (1 cement: 3 fine sand)	Sqm	21821.00			
A-9.5	Add for plaster drip course or moulding to R.C.C. projections.	Metre	2355.38			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-9.6	Providing & applying plaster of paris putty of 2mm thickness over plastered surface to prepare the surface even & smooth complete.	Sqm	25223.00			
A-9.7	White washing with lime to give an even shade:					
(a)	New work (Three or more coats)	Sqm	17105.00			
A-9.8	Distemping with oil bound washable distemper of approved brand & manufacture to give an even shade:					
(a)	New work (two or more coats) over & including priming coat with cement primer.	Sqm	14581.00			
A-9.9	Wall painting with acrylic emulsion paint of approved brand & manufacture to give an even shade:					
(a)	Two or more coats on new work.	Sqm	29213.00			
A-9.10	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.	Sqm	5387.17			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-9.11	French sprit polishing:					
(a)	Two or more coats on new works including a coat of wood fillers.	Sqm	138.00			
A-9.12	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.					
(a)	From 10m to 13 m	Sqm	6648.00			
(b)	From 13m to 16 m	Sqm	5247.00			
(c)	From 16m to 19 m	Sqm	3845.00			
(d)	From 19m to 22 m	Sqm	2444.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(e)	From 22m to 25 m	Sqm	625.00			
A-9.13	Finishing wall with textured exterior paint Tartaruga of Berger or equivalent including finishing coats of exterior emulsion paint in required shade (Two or more coats applied as per manufacturer's printed instructions.)	Sqm	11328.56			
A-9.14	Providing and Fixing 25 x 25 mm Synthetic mesh of Reinplast or approved equivalent in junction such as column/Beam fixing position as per manufacture's instruction below plaster.as directed by the Engineer-in-charge.	Sqm	5672.06			
A-9.15	Providing and applying two or more coats of 1st quality plastic emulsion paint of approved manufacturer using paint roller , so as to ensure smooth and even surface of the final paint without any undulations or wavy surface including necessary scaffolding et. complete as per the printed instructions of manufacturers.	Sqm	5559.00			
A-9.16	Forming groove of uniform size (25mmx6mm) in external plaster as per drawing and as directed by the Engineer-in-charge.	RM	397.00			
TOTAL OF FINISHING WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-10.0	ALUMINIUM WORK					
A-10.1	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 PVC/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) : Natural anodised aluminium (minimum thickness of anodising shall be of AC15)					
(a)	Overall portion treated as fixed	Kg	23155.00			
(b)	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 neoprene gasket required (Fittings shall be paid for separately).	Kg	27319.00			
A-10.2	Providing and fixing double action hydraulic floor spring of approved brand and manufactures IS : 6315 marked, for doors including cost of cutting floors as required, embedding in floors and cover plate with brass pivot and single piece M.S sheet outer box with slide plate etc complete as per the direction of Engineer- in- charge with stainless steel cover plate.	Each	110.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-10.3	Filling the gap in between aluminium frame & adjacent RCC/ Brick/ Stone work(up to 5mm depth and 5mm width) by providing weather silicon sealant over backer rod of approved quality as per architectural drawings complete.	Rmt.	8787.80			
A-10.4	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick reflective float glass on outer face and clear float glass on inner face having 12 mm air gap to have light transmission > 67%, SHGC 0.41 max., U value 1.6 w/M2k including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete.	Sqm	200.00			
A-10.5	Extra for providing and fixing Insulated profiles of Polyamide for thermal separation of having U value not more than 3.3 w/m2 degree C, to minimize the thermal effect of the environment on the building's air conditioning in Aluminium profiles of approved door/window/ventilator systems , as per specifications, drawings complete. (weight of aluminium frame fixed in position shall be measured for payment.)	kg	300.00			
TOTAL OF ALUMINIUM WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-11.0	WATER PROOFING /INSULATION WORK					
	Note :- For all water proofing work describe below, The specialized contractor shall Provide 10 year Guarantee for water tightness of the complete system in the manner as provided in the specification.					
A-11.1	Grading roof for water proofing treatment with					
(a)	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	Cum	333.50			
A-11.2	Providing and laying water proofing treatment on roofs of slabs, in bathroom , kitchen, pantry & similar water location area by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30cm on parapet wall and tucked into groove in parapet all around. d) fourth layer of cement plaster cement mortar (which will be paid for separately For the purpose of measurement the entire treated surface will be measured.	sqm	1795.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-11.3	Providing and laying water proofing treatment on RCC roof slabs consisting of the following.					
(a)	Application of one coat of Acrylic Modified Cementeous slurry over the RCC roof slab surface and continued upto a height of 200mm on the parapet wall. Application of 2nd coat of Acrylic Modified Cementeous slurry coating over the 1st coat of in cross direction. and continued upto a height of 200mm on the parapet wall. This shall be allowed to air cure for 24 hours followed by water curing for 72 hours. The entire treatment will be taken up to 20 cm on parapet wall and taked into groove in parapet all around.	Sqm	4721.00			
(b)	Providing concrete screed to provide slope . (which will be paid separately)					
(c)	Providing and laying 3 mm thick APP (Atactic Polypropylene Polymer) modified prefabricated water proofing membrane, black finish reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. of density at 25°C, 0.87-0.89 kg/ltr and viscosity 70-160 cps. Over the primer coat the membrane shall be laid using Butane Torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 650/450N/5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane & complete work shall be done as per the manufacturer's printed instruction.					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(d)	Providing and laying ceramic matt finished antiskid tiles 300mm x 300mm size (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigment etc., complete.					
A-11.4	<p>Providing and laying waterproofing treatment for basement or other RCC water retaining structure of pre construction method</p> <p>Raft: Cleaning PCC surface, smoothing with cement sand mortar and applying two coats of acrylic polymer modified cementitious slurry coating over lean concrete surface. Providing and laying 12mm cement sand plaster ratio (1:4) over the acrylic polymer modified cementitious coating.</p> <p>Providing and fixing of 75 mm long 15 NB MS threaded nozzles in grid pattern. (The spacing of nozzles should not be more than 1.5 m apart) while concreting and after 28 days curing, grouting with cement slurry admixed with Non-shrink polymer grout by hand-operated pump under maximum pressure of 2.5 kg/cm², all complete as per manufacturer's printed instruction.</p> <p>Basement walls (Retaining wall): Providing and fixing of 75 mm long 15 NB MS threaded nozzles and after achieving proper strength of concrete, Grouting with cement slurry admixed with non-shrink polymer grout by hand operated grouting pump under maximum pressure of 2.5 kg/m². Applying two coats of acrylic polymer modified cementitious slurry coating over outer surface of RCC walls and laying 12mm cement sand plaster 1:4 as protection layer.</p>	Sqm	1656.00			
TOTAL OF WATER PROOFING & INSULATION WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
A-12.0	MISCELLANEOUS WORKS					
A-12.1	Structural Glazing in semi unitised system with 6mm thick hard coated reflective tinted glass of approved shade as per specification, duly heat strengthened complete with and including aluminium splice section, glazing tape, back up foam, expansion anchor bolts, nuts, structural silicon sealant, silicon weather seal, EPDM gasket, smoke seal etc. all complete as specified and shown in drawing, fixed to the structure using galvanize steel brackets.					
(a)	Overall portion treated as fixed	Sqm	1739.00			
(b)	Extra over above item but for glazed openable window units without any frame visible from the outside at all levels and location to match the structural glazing and as shown in drawing.	Sqm	173.90			
A-12.2	Providing and fixing exterior Clay tile cladding with 230mm x 75mm x 12mm thick average smooth walling (cladding) of specified colour over 15mm thick cement mortar 1:4 as specified or as directed by Engineer-in-charge	Sqm	1853.00			
A-12.3	Providing and fixing second class teak wood handrail of size (55mmx75mm) with and including polishing of approved size to staircase railing, as directed by Engineer-in-charge	Metre	340.00			
TOTAL OF MISCELLANEOUS WORK CARRIED OVER TO SUMMARY OF CIVIL WORKS						

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
SUMMARY OF CIVIL WORKS**

SL. NO	DESCRIPTION	AMOUNT (IN RUPEES)	
		(IN FIGURE)	(IN WORDS)
A-1.0	EARTH WORK		
A-2.0	CONCRETE WORK		
A-3.0	REINFORCED CEMENT CONCRETE WORK		
A-4.0	BRICK WORK / STONE WORK		
A-5.0	WOOD WORK		
A-6.0	STEEL WORK		
A-7.0	FLOORING WORK		
A-8.0	ROOFING WORK		
A-9.0	FINISHING WORK		
A-10.0	ALUMINIUM WORK		
A-11.0	WATER PROOFING /INSULATION WORK		
A-12.0	MISCELLANEOUS WORKS		
	TOTAL OF CIVIL WORKS CARRIED OVER TO GRAND SUMMARY		

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES -PLUMBING WORKS

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.0	SANITARY INSTALLATIONS					
B-1.1	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 110mm uPVC P or S trap, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required :					
B-1.2	White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests.	Each	6			
B-1.3	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required :					
(a)	W.C. pan with ISI marked white solid plastic seat and lid.	Each	30			
B-1.4	Providing and fixing white vitreous china extended wall mounting water closet of size 780x370x690 mm of approved shape including providing & fixing white vitreous china cistern with dual flush fitting, of flushing capacity 3 litre/ 6 litre (adjustable to 4 litre/ 8 litres), including seat cover, and cistern fittings, nuts, bolts and gasket etc complete.	Each	80			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.5	Providing and fixing white vitreous china battery based infrared sensor operated urinal of approx. size 610 x 390 x 370 mm having pre & post flushing with water (250 ml & 500 ml consumption), having water inlet from back side, including fixing to wall with suitable brackets all as per manufacturers specification and direction of Engineer-in-charge.	Each	60			
B-1.6	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350mm and 340x410x265mm sizes respectively with urinal valve Auto closing system with in built control cock with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :					
(a)	One urinal basin with urinal valve Auto closing system with in built control cock.	Each	27			
B-1.7	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps,32 mm C.P. brass waste, 32 mm CP. Bottle trap and unions of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require :					
(a)	White Vitreous China Flat back wash basin size 550x400 mm with pillar tap.((Pillar tap shall be paid separately)	Each	35			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.8	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 CP brass mixing fitting, pvc waste fitting with pvs flexible waste pipe including painting of fittings and brackets, cutting and making good the walls wherever required (Glossy Finished)					
(a)	Kitchen sink - with drain board 1040x 510mm bowl depth 225mm	Each	4			
(b)	Kitchen sink - without drain board 610x 510mm bowl depth 200mm	Each	14			
B-1.9	Providing and fixing white vitreous china Janitor sink with C.I. Brackets, 40mm C.P. brass waste and 40mm dia pvc flexible pipe with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the wall wherever required.					
(a)	Size 600 x 450 x 200mm	Each	15			
B-1.10	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931					
(a)	15 mm nominal bore	Each	253			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.11	Providing and fixing 600 x 450mm beveled edge mirror of superior glass (of approved quality) complete with 6mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	Each	18			
B-1.12	Providing and fixing beveled edge mirror of superior glass (of approved quality) complete with 6mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	Sqm.	97			
B-1.13	Providing and laying cement concrete 1:2:4 mix (1 cement : 2 coarse sand : 4 sand aggregate 20mm down grade) 75mm in bed alround uPVC soil and waste pipe.					
(a)	100mm dia under floor including shuttering and centering	RM	279			
(b)	75mm dia under floor including shuttering and centering	RM	76			
B-1.14	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	322			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.15	Providing and fixing stone slab with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth					
(a)	White Agaria Marble Stone	Each	13			
B-1.16	Providing and fixing Hindware "SLEEK +" PVC low level dual flushing cistern 3/6 Litres capacity with all fittings and fixtures complete as approved equivalent .	Each	36			
B-1.17	Providing and fixing white vitreous wash down water closet (MATRIX Set-1) of Hindware Cat. No. 70002 including wash basin (600 x 350mm) with one pair mounting brackets, C P pillar tap Jaquar Cat. No. 15001, EWC & cistern complete with fittings and seat cover, one no. hinged rail 760mm and five nos. of grab rail 600mm complete all respect.	Each	11			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.18	Providing and fixing white glazed vitreous china wash basins with C.P. pillar tap, 32mm C.P. brass waste, 32mm C.P. bottle trap and unions and sealing of joints between wash basins and counter slabs around the wash basins with Silicone rubber cement of approved make of matching colour all complete including cutting and making good the walls and floors where required.					
(a)	Hindware Wash basin ZEN Cat. No. 10049 (under counter) oval shape (560cm x 430cm) or approved equivalent make with CP pillar tap (Pillar tap shall be paid separately)	Each	80			
B-1.19	Providing and fixing CP pillar cock auto closing system instead of pillar tap (Jaquar cat. No. 031 or approved equivalent).	Each	115			
B-1.20	Providing and fixing CP Bib cock auto closing system (Jaquar cat. No. 043 or approved equivalent).	Each	34			
B-1.21	Providing and fixing CP lever operated pillar cock (Jaquar cat. No. OPL-15001 or approved equivalent).	Each	11			
B-1.22	Providing and fixing hand shower (Health Faucet) with 6mm dia., 1 m long PVC tube and wall hook all complete Jaquar Cat. No. 563 or equivalent.	Each	121			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.23	Providing and fixing CP brass two way bib tap Jaquar Cat. No. 15037.	Each	121			
B-1.24	Providing and fixing Bib cock with Nozzle Jaquar Cat. No. 049 or approved equivalent.	Each	14			
B-1.25	Providing and fixing C.P. brass twin robe hooks, JAQUAR Cat. No. 1161 or approved equivalent.	Each	156			
B-1.26	Providing and fixing liquid soap dispenser with push lever assembly complete with soap refill - Chilly Cat. No. LSD01 make or approved equivalent.	Each	71			
B-1.27	Providing and fixing stainless steel soap dish Jaquar Cat. No. 1131 or approved equivalent.	Each	52			
B-1.28	Providing and fixing Toilet paper holder Jaquar Cat. No. 1151 or approved equivalent.	Each	121			
B-1.29	Providing and fixing CP brass shower with revolving ball joint Jaquar Cat No. 493 with shower arm Jaquar Cat. No. 483 or approved equivalent.	Each	31			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.30	Providing and fixing CP Bib cock with flange for bath and shower. Jaquar Cat. No. 15037 or approved equivalent.	Each	59			
B-1.31	Providing and fixing CP concealed stop cock with adjustable wall flange. Jaquar Cat. No. 15083 or approved equivalent.	Each	31			
B-1.32	Providing and fixing CP single lever concealed divertor for bath and shower system jaquar Cat. No.15075 or approved equivalent.	Each	1			
B-1.33	Providing and fixing CP Bath spout with button attachment for Telephonic Shower Jaquar Cat. No.15463 or approved equivalent.	Each	1			
B-1.34	Providing and fixing C.P brass towel rails JAQUAR Cat. No. 1111 or approved equivalent complete with C.P. brass brackets fixed to rawl plug of approved design with C.P. brass screws.	Each	38			
B-1.35	Providing and fixing CP brass towel ring JAQUAR Cat. No. 1121 or approved equivalent fixed to rawl plug of approved design with CP brass screws.	Each	46			
B-1.36	Providing and fixing S.S. hinged grating, 6mm thick with frame Chilly Cat. No. SKH-06 or approved equivalent) including setting in floor with cement mortar 1:3.	Each	348			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-1.37	Providing and fixing automatic high pressure electric water heaters (Racold or approved equivalent) with glass lining thermostats with each element and high temperature cut off, necessary insulation, safety valve, etc., all complete.					
(a)	15 Litres	Each	1			
(b)	25 Litres	Each	2			
(c)	35 Litres	Each	3			
B-1.38	Providing, fixing and testing UPVC soil waste and vent pipes UV stabilize and conforming to IS: 13592 - Type-B including all fittings conforming to IS:14735 such as W.C. connector, bends, junctions, inspection doors, offsets, vent cowls, access pieces/plugs, cleanoutplugs, inlet fittings etc. clamps/ structural steel supports as required/directed at site, jointing with rubber ring and rubber lubricant including cutting holes in walls and making good the same.					
(a)	110 mm dia	Metre	1031			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	75 mm dia	Metre	243			
B-1.39	Providing and fixing UPVC trap ('P' or 'S') of self cleaning design with C.P. grating with or without vent horn complete, as shown in detailed drawing including inlet fitting wherever required including cost of cutting and making good the walls & floors.					
(a)	110 mm inlet and 110 mm outlet	Each	68			
(b)	110 mm inlet and 75 mm outlet	Each	145			
B-1.40	Providing at site, lowering & laying in trenches, aligning & jointing of uPVC pipes of class III (6 kg/ cm ²) as per IS:4985 and as per specification with rubber ring with socket and spigot joint,(EPDM/SBR) for all depths including well graded granular bedding (Type-E) for pipe length as per drawing and specification including hydraulic field testing and commissioning etc complete as directed by Engineer. Note : Earthwork will be measured and paid separately.					
(a)	32mm diameter pipe	Metre	192			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	40mm diameter pipe	Metre	105			
(b)	50mm diameter pipe	Metre	156			
	TOTAL OF SANITARY INSTALLATION CARRIED OVER TO SUMMARY OF PLUMBING WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-2.0	WATER SUPPLY					
B-2.1	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)	15mm nominal outer dia. Pipes	Metre	695			
(b)	20mm nominal outer dia. Pipes	Metre	199			
(c)	25mm nominal outer dia. Pipes	Metre	147			
(d)	32mm nominal outer dia. Pipes	Metre	171			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(e)	40mm nominal outer dia. Pipes	Metre	109			
(f)	50mm nominal outer dia. Pipes	Metre	24			
B-2.2	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.					
(I)	Internal work - Exposed on wall					
(a)	15 mm nominal outer dia .Pipes.	Metre	37			
(b)	20 mm nominal outer dia .Pipes.	Metre	35			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(c)	25 mm nominal outer dia .Pipes.	Metre	88			
(d)	32 mm nominal outer dia .Pipes.	Metre	268			
(e)	40 mm nominal outer dia .Pipes.	Metre	121			
(f)	50 mm nominal outer dia .Pipes.	Metre	66			
(g)	62.5mm dia. nominal inner dia.	Metre	50			
(h)	75mm dia. nominal inner dia.	Metre	61			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(i)	100mm dia. nominal inner dia.	Metre	69			
(i)	150mm dia. nominal inner dia.	Metre	5			
B-2.3	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc.					
	External work					
(a)	15 mm dia nominal bore	Metre	5			
(b)	20 mm dia nominal bore	Metre	45			
(c)	25 mm dia nominal bore	Metre	87			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(d)	32 mm dia nominal bore	Metre	5			
(e)	40 mm dia nominal bore	Metre	80			
(f)	50 mm dia nominal bore	Metre	5			
(g)	65 mm dia nominal bore	Metre	640			
(h)	80 mm dia nominal bore	Metre	250			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-2.4	Painting G.I. pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality :					
(a)	15 mm dia nominal bore	Metre	5			
(b)	20 mm dia nominal bore	Metre	45			
(c)	25 mm dia nominal bore	Metre	87			
(d)	32 mm dia nominal bore	Metre	5			
(e)	40 mm dia nominal bore	Metre	80			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(f)	50 mm dia nominal bore	Metre	5			
(g)	65 mm dia nominal bore	Metre	640			
(h)	80 mm dia nominal bore	Metre	250			
B-2.5	Providing and filling sand of grading zone V or coarser grade, allround the GI pipes in external work :					
(a)	15 mm nominal outer dia .Pipes.	Metre	5			
(b)	20 mm nominal outer dia .Pipes.	Metre	45			
(c)	25 mm nominal outer dia .Pipes.	Metre	87			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(d)	32 mm nominal outer dia .Pipes.	Metre	5			
(e)	40 mm nominal outer dia .Pipes.	Metre	80			
(f)	50 mm nominal outer dia .Pipes.	Metre	5			
(g)	65 mm nominal inner dia .Pipes.	Metre	640			
(h)	80 mm nominal inner dia .Pipes.	Metre	250			
B-2.6	Providing and fixing brass stop cock of approved quality					
(a)	15mm nominal bore	Each	2			
(b)	20mm nominal bore	Each	3			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-2.7	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :					
(a)	25mm nominal bore	Each	18			
(b)	32mm nominal bore	Each	28			
(c)	40mm nominal bore	Each	16			
(d)	50mm nominal bore	Each	21			
(e)	65mm nominal bore	Each	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(f)	80mm nominal bore	Each	12			
(g)	100mm nominal bore	Each	3			
B-2.8	Constructing masonry chamber 30 x 30 x 50 cm, inside with 35 class designation brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for stop cock, with C.I. Surface box 100 x 100 x 75mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.					
(a)	With F.P.S. bricks	Each	18			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-2.9	Constructing masonry chamber 60x60x75 cm inside with 35 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, 160mm bottom diameter and 180mm deep (inside) with chained lid and R.C.C. top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size), and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design :	Each	9			
B-2.10	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	per litre	88000			
B-2.11	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)	50mm dia	Each	2			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-2.12	Disinfecting 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 fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory.					
(a)	80 mm diameter G.I. pipe	100metre	3			
B-2.13	Providing and fixing 600mm long puddle flanges fabricated out of 6mm thick M.S. plates along with flanges of suitable size properly fixed in walls and top slabs of underground and overhead tanks.					
(a)	32mm dia	Each	1			
(b)	40mm dia	Each	1			
(a)	50mm dia	Each	5			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	65mm dia	Each	3			
(c)	80mm dia	Each	4			
B-2.14	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	Each	80			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-2.15	Steel work welded in built up sections/framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
(a)	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	Kilogram	25			
B-2.16	Supplying and fixing C.I. manhole covers with frame (250 kg weight) in position of size 600 x 600 mm . for under ground tank.	Each	8			
B-2.17	Providing and fixing 600mm long puddle flanges fabricated out of 6mm thick M.S. plates along with flanges of suitable size properly fixed in walls and top slabs of underground and overhead tanks.					
(a)	100mm dia		13			
(b)	150mm dia		4			
(c)	200mm dia		1			
	TOTAL OF WATER SUPPLY CARRIED OVER TO SUMMARY OF PLUMBING WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-3.0	RAIN WATER PIPES AND FITTINGS					
B-3.1	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS:13592 Type A including jointing with seal ring conforming to IS:5382 leaving 10mm gap for thermal expansion.					
(i)	Single socketed pipes					
(a)	110 mm diameter	Metre	1373			
(b)	75 mm diameter	Metre	15			
B-3.2	Providing and fixing on wall face unplasticised - PVC moulded fittings/accessories for unplasticised Rigid PVC rain water pipes conforming to IS:13592 Type A including jointing with seal ring conforming to IS: 5382 leaving 10mm gap for thermal expansion.					
(i)	Shoe (Plain)					
(a)	110mm Shoe	Each	77			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	75 mm Shoe	Each	3			
(ii)	Single tee with door					
(a)	110x110x110 mm	Each	134			
B-3.3	Providing and fixing unplasticised - PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50 x 50 x 50mm hard wood plugs, screwed with M.S. screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.					
(a)	110mm	Each	732			
(b)	75mm	Each	7			
B-3.4	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	206			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-3.5	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS:13592 Type B including jointing with seal ring conforming to IS:5382 leaving 10mm gap for thermal expansion.					
(i)	Single socketed pipes					
(a)	160 mm diameter	Metre	370			
B-3.6	Providing and fixing on wall face unplasticised - PVC moulded fittings/accessories for unplasticised Rigid PVC rain water pipes conforming to IS:13592 Type A including jointing with seal ring conforming to IS: 5382 leaving 10mm gap for thermal expansion.					
(i)	Shoe (Plain)					
(a)	160mm Shoe	Each	16			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-3.7	Providing and fixing unplasticised - PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50 x 50 x 50mm hard wood plugs, screwed with M.S. screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.					
(a)	160mm	Each	187			
B-3.8	Providing and fixing 50 mm diameter and 60 cm long PVC rain water spout	Each	7			
	TOTAL OF RAIN WATER PIPES AND FITTINGS CARRIED OVER TO SUMMARY OF PLUMBING WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.0	DRAINAGE					
B-4.1	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	33			
(b)	250 mm dia. R.C.C. pipe	Metre	112			
(c)	300 mm dia. R.C.C. pipe	Metre	38			
(d)	450 mm dia. R.C.C. pipe	Metre	5			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.2	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)	150 mm dia. R.C.C. pipe	Metre	33			
(b)	250 mm diameter R.C.C. pipe	Metre	112			
(c)	300 mm dia. R.C.C. pipe	Metre	38			
(d)	450 mm dia. R.C.C. pipe	Metre	5			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.3	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 35 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 with class designation 35	Each	14			
B-4.4	Constructing brick masonry manhole in cement mortar 1:4 (1 cement: 4 coarse sand), R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size) inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement complete as per standard design.					
(a)	Inside size 90cm x 80cm and 45cm deep including C.I. cover with frame (light duty) 455 x 610mm 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.) :					
(i)	With F.P.S. bricks with class designation 35	Each	17			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	Inside size 120cm x 90cm and 90cm deep including C.I. cover with frame (medium duty) 500mm internal diameter, total weight of cover and frame to be not less than 116 kg. (weight of cover 58 kg. and weight of frame 58 kg.) :					
(i)	With F.P.S. bricks with class designation 35	Each	2			
B-4.5	Extra for depth for manholes					
(a)	Size 90 x 80 cm with F.P.S. bricks class designation 35	Metre	5			
(b)	Size 120 x 90 cm with F.P.S. bricks class designation 35	Metre	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.6	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 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) :					
(i)	With F.P.S. bricks class designation 35	Each	48			
B-4.7	Extra depth for circular type manhole 0.91m internal dia (at bottom) with beyond 0.91m to 1.67m					
(a)	With F.P.S. bricks class designation 35	Metre	14			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.8	Constructing brick masonry circular manhole 1.22m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (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)	1.68m deep with SFRC cover and frame (heavy duty HD-20 grade designation) 560mm 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 nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)					
(i)	With F.P.S. bricks class designation 35	Each	8			
B-4.9	Extra depth for circular type manhole 1.22m internal dia (at bottom) beyond 1.68m to 2.29m					
(a)	With F.P.S. bricks class designation 35	Metre	4			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.10	Constructing brick masonry circular manhole 1.52m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (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)	2.30m deep with SFRC cover and frame (heavy duty HD-20 grade designation) 560mm 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 nominal size) including centering shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately)					
(i)	With F.P.S. bricks class designation 35	Each	10			
B-4.11	Extra depth for circular type manhole 1.52m internal dia (at bottom) beyond 2.30m					
(a)	With F.P.S. bricks class designation 35	Metre	6			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.12	Providing orange colour safety foot rest of minimum 6mm thick plastic encapsulated as per IS:10910 on 12mm dia steel bar conforming to IS:1786 having minimum cross section as 23 mm x 25mm and over all minimum length 263mm and width as 165mm with minimum 112mm space between protruded legs having 2mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 x 20 x 15cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) complete as per design.	Each	332			
B-4.13	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.	Kg.	316			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.14	Excavating trenches of required width for pipes, cables, etc., including excavation for sockets and dressing of sides, ramming of bottoms, depth upto 1.5m including getting out the excavated soil and then returning the soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering, etc., and disposing of surplus excavated soil as directed, within a lead of 50m :					
(a)	All kind of soils (Pipes, cable etc. exceeding 80mm dia. but not exceeding 300mm dia).	Metre	1347			
B-4.15	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	528			
B-4.16	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means in foundation trenches or drains (not exceeding 1.5m in width or 10 sq.m. on plan) including dressing of sides and ramming of bottoms, lift upto 1.5m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50m.					
(a)	All kinds of soil	Cum.	526			
B-4.17	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 upto 50m and lift up to 1.5m.	Cum.	65			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.18	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - All work upto plinth level.					
(a)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40mm nominal size).	Cum.	66			
B-4.19	Providing and laying in position specified mix of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :					
(a)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	Cum.	43			
B-4.20	Providing, hoisting and fixing up to floor five level precast reinforced cement concrete in shelves including setting in cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering and finishing with neat cement punning on exposed surfaces but excluding the cost of reinforcement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 12.5mm nominal size).	Cum.	50			
B-4.21	Brick work with F.P.S. bricks of class designation 35 in foundation and plinth in:					
(a)	Cement mortar 1:6 (1 cement : 6 coarse sand).	Cum.	143			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.22	15mm cement plaster on rough side of single or half brick wall of mix :					
(a)	1:6 (1 cement : 6 coarse sand)	Sqm.	1060			
B-4.23	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete:					
(a)	Thermo-Mechanically Treated bars.	kilogram	2321			
B-4.24	strutting, propping etc. and Centering and shuttering including removal of form for :					
(a)	Suspended floors, roofs, landings, balconies and access platform.	sqm	279			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.25	Providing , lowering & laying intrenches, aligning & jointing of PVC-U pipes for SDR 34/Ring Stiffness SN 8KN per Sqm as per IS: 15328 and as per specification with rubber ring with socket and spigot joint, (EPDM/SBR) for all depths including well graded granular bedding for pipe length as per drawing and specification including hydraulic field testing and commissioning etc complete as directed by Engineer.Note : Earth work will be measured and paid separately.					
(a)	160mm diameter	Metre	827			
(b)	200mm diameter	Metre	10			
B-4.26	Providing at site, lowering & laying in trenches, aligning & jointing of uPVC pipes of class III (6 kg/ cm2) as per IS:4985 and as per specification with rubber ring with socket and spigot joint,(EPDM/SBR) for all depths including well graded granular bedding for pipe length as per drawing and specification including hydraulic field testing and commissioning etc complete as directed by Engineer. Note : Earthwork will be measured and paid separately.					
(a)	110mm diameter UPVC. pipe	Metre	38			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	160mm diameter UPVC. pipe	Metre	827			
(c)	200mm diameter UPVC. pipe	Metre	10			
B-4.27	Providing and fixing UPVC gully trap complete with grating and brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design :					
	a) 160 x 110mm size	Each	8			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-4.28	Construction of grease trap chamber of internal dimensions 450X450X760mm in 230mm thick brick masonry using first class country brick walls in CM 1:3 over a bed of 150mm thick 1:2:4 CC, plastering with CM 1:2, 12mm thick on internal, external, top surfaces and inside and exposed top surfaces finished smooth with a floating coat of neat cement, and inserting a G.I Tray with perforated bottom & M S Rod handles suitable in position as detailed in the drawing CED:PH.8.5, also providing and fixing light single seal CI frame and cover of size 450X450mm weighing not less than 25Kgs confirming to IS 1726, CC 1:2:4 for fixing the CI frame and cover, painting with 3-coats of anticorrosive black bitumastic paint, providing 1 no SW Tee of size 100mm on the outlet, encasing sewers connection to chamber in CC 1:2:4 etc. Complete all as directed and specified. (Ref. Fig.No.CED:PH8.5 of PH Engg. Specification) Note: CC 1:2:4 in the above Item is by using 20mm graded granite aggregate obtained from approved quarry.					
(a)	With F P S bricks	Each	2			
	TOTAL OF DRAINAGE CARRIED OVER TO SUMMARY OF PLUMBING WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.0	PUMPING SYSTEM & WATER TREATMENT					
B-5.1	Supply, Installation, erection, testing & commissioning of single stage horizontal centrifugal pumping set having C.I. casing & bronze impeller complete with all accessories as specified with gun metal pressure gauge, isolation cock and mounted on a common M.S. structure base plate motor of required capacity Pumps shall have following duty:					
(a)	Filter Feed Pumps Flow rate = 600 lpm Head = 25 mtr RPM = 2900	Each	2			
(b)	Filter Water Transfer Pumps for PH-I (Academic & Hostel Block) Flow rate = 550 lpm Head = 50 mtr RPM = 2900	Each	2			
B-5.2	Providing, fixing and commissioning non clog type submersible drainage pumps suitable for handling solids of 10 -12 mm size with totally water and dust proof motor as specified complete with control cable from pump to control panel.					
(a)	Drainage Pumps Flow rate = 250 lpm Head = 10 mtr	Each	2			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.3	Supply, Installation, erection, testing & commissioning of Suction / delivery Headers including piping, bends tees, supports.					
	a) 150 mm dia	Set	1			
	b) 100 mm dia	Set	2			
	c) 80 mm dia	Set	2			
	d) 65 mm dia	Set	2			
	d) 50 mm dia	Set	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.4	Providing & Fixing Cast Iron slim seal butterfly valves including nuts bolts, flanged end connecions complete.					
	a) 150 mm dia	Each	3			
	b) 100 mm dia	Each	5			
	c) 80 mm dia	Each	7			
	d) 65 mm dia	Each	5			
	e) 50mm dia	Each	5			
B-5.5	Providing & Fixing Dual Plate Wafer type slim seal Non Return Valves complete with nuts bolt, flanged end connections.					
	a) 100 mm dia	Each	2			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	b) 80 mm dia	Each	4			
	c) 65 mm dia	Each	2			
	d) 50mm dia	Each	2			
B-5.6	Providing & Fixing Y Type Strainers					
	a) 100 mm dia	Each	4			
	b) 80 mm dia	Each	2			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.7	Providing & Fixing Suction Strainer with M.S. Flangeed connection, 1000 mm long fabricated from 16 gauge brass sheet with 3 mm slots or holes.					
	a) 150 mm dia	Each	1			
	b) 100 mm dia	Each	1			
B-5.8	Providing and fixing reinforced Neoprene flexible pipe connectors with all accessories on all pumps delivery.					
	a) 100 mm dia	Set	4			
	b) 80 mm dia	Set	2			
	c) 65 mm dia	Set	2			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.9	Providing & fixing S.S. Dial type Pressure gauge with S.S. Needle valve & S.S. Siphon complete with all fittings					
	a) 100 mm dia having range 0-7 kg/cm ²	Set	4			
B-5.10	Supplying, installing, testing and commissioning of MSRL pressure sand filter with frontal piping & 5 valve battery system with initial charge of filter media including the necessary face piping & valves. The vessel shall be fabricated from minimum 6 thick M.S. Plates for Shell & 8 mm thick for dished ends. The media shall be natural quartz sica with minimum 300 mm depth of Anthracite and 600 mm depth of Silica sand.					
(a)	Capacity : 36000 lph Filtration Rate : 15000 lph / sq.mtr. Filter Dia : 1800mm Minimum Filter Shell Height : 2000 mm Working Pressure : 3.5 kg/sq.com Test Pressure : 6.0 kg / sq.cm. Quantity : 01 No.	Set	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.11	Supplying, installing, testing and commissioning of MSRL pressure activated carbon filter with frontal piping & 5 valve battery system with initial charge of filter media including the necessary face piping & valves. The vessel shall be fabricated from minimum 6 thick M.S. Plates for Shell & 8 mm thick for dished ends. The media shall be natural quartz supporting bed with minimum 1000 mm depth of granular coconut shell based activated carbon having Iodine value not less than 800 mg suitable for drinking water specifications.					
	a) Capacity : 36000 lph Filtration Rate : 15000 lph / sq.mtr. Filter Dia : 1800mm Minimum Filter Shell Height : 2000 mm Working Pressure : 3.5 kg/sq.com Test Pressure : 6.0 kg / sq.cm. Quantity : 01 No.	Set	1			
B-5.12	Supplying, installing, testing and commissioning of twin lobe type air blower comprising of blower with motor and all accessories suitable for air scouring of filters complete.					
	a) Capacity : 90 cum./hour at 3.5 m.	Set	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.13	Providing, fixing, testing and comissioning of online chlorine dosing system comprising of electronic metering pump, Dosing tank complete.					
	Pump Capacity : 0-6 lph Tank Capacity : 200 ltr	Set	2			
B-5.14	Providing and fixing bulk water meter with direct reading dial in KL, all internal parts and strainer in gun metal/brass.					
	a) 100 mm dia	Set	1			
B-5.15	Providing and fixing of G.I. pipes to IS:1239 (Heavy class) including all fittings e.g. bends elbows, tees coupling with clamps and pipe supports painting and testing complete.					
	a) 32 mm dia	Metre	5			
	b) 40 mm dia	Metre	5			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	c) 50 mm dia	Metre	20			
	d) 65 mm dia	Metre	20			
	e) 80 mm dia	Metre	40			
	f) 100 mm dia	Metre	10			
	g) 150 mm dia	Metre	6			
B-5.16	Providing & fixing Earthing Wire					
	a) 8 Guage	Metre	50			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-5.17	Automatic Level Controllers complete with PVC/ SS Probes or float switch & Conduit for wiring as required to make pumps on auto operation.	Each	3			
B-5.18	Providing and fixing motorised butterfly/globe valve normally operated type suitable for 240V with working pressure rating of not less than 10 kg/cm2, with control panel and sensors to open valve when water level is low in tanks and to close when water level is high in water tanks including necessary cables, conduites etc complete.					
	a) 40 mm dia	Each	2			
	b) 50 mm dia	Each	1			
B-5.19	PUMP PANEL Supplying, installation, testing and commissioning of cubicle type prewired motor control panels suitable for 415 Volt, 3 phase, 4 wire 50 HZ AC supply system, floor mounted, fabricated in compartmentalized design from CRCA steel of 2 mm thick for frame work and covers, 3 mm thick for gland plates, including cleaning and finishing powder coated, dust and vermin proof complete with 7 tank process having extensible type TPN aluminium alloy bus bar of high conductivity, with base frame of M.S. channel section of not less than 75 mm x 50 mmx5mm thick, copper earth bar of size 25mmx 5mm at the rear with 2 No. earth stud, complete with control wire, cable alleys, cable gland plates, including following :	Set	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	<p>Breakers should be selected as per Type II coordination chart of manufacturer</p> <p>MCCBs with Microprocessor release should have adjustable O/L, S/C & inbuilt E/F protections</p> <p>MFM shall have Ammeter, Ammeter selection switch, Voltmeter, Voltmeter selection switch, kWh meter,</p> <p>Incoming</p> <p>1 no. 150A 4P MCCB microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings.</p> <p>1 Set of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 150 /5A 15VA CTs.</p> <p>1 Set of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA</p> <p>Busbar</p> <p>4 Strip aluminium bus bar of 250 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding - 1 set</p> <p>Outgoing</p> <p>2 Nos. 40A TP MPCB for Filter Water Transfer Pumps (Ph - I)</p> <p>2 Nos. 32A TP MPCB for Filter Water Feed Pumps</p> <p>2 Nos. 32A TP MPCB for Filter Water Transfer Pumps (Ph - II)</p> <p>2 Nos. 16A TP MPCB for Drainage Pumps</p>					

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	1 No. 20A TP MPCB for Borewell 1 No. 40A TP MPCB as Spare 1 No. 32A TP MPCB as Spare 1 No. 16A TP MPCB as Spare 1 No. 32A 4P MCB for SDB 0-40A digital ammeter with 40/5A CTs - 3 sets. 0-32A digital ammeter with 32/5A CTs - 6 sets. 0-20A digital ammeter with 20/5A CTs - 1 set 0-16A digital ammeter with 16/5A CTs - 3 sets. Set of phase indicating lamp (LED Type) with 2A,SP MCB - 13 sets. 10 Nos. fully automatic DOL starters one each for Filter Feed Pumps / Filter Water TR. Pumps / Drainage Pumps. 2 Nos. fully automatic star delta starters one each for Filter Borewell. 12 Sets starter ON / OFF indicating lights with control MCB's. 12 Sets of push button with 2A, 4P MCB	Set	1			
TOTAL OF PUMPING SYSTEM & WATER TREATMENT CARRIED OVER TO SUMMARY OF PLUMBING WORKS						

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-6.0	TUBEWELL AND TUBEWELL PUMPS					
B-6.1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level.					
a)	All types of soil 300 mm dia	Metre	30			
B-6.2	Supplying, assembling lowering and fixing in vertical position :					
(a)	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 mild steel screwed and socketed/ plain ended casing pipes of required dia, conforming to IS: 4270, of reputed & approved make, including painted with outside surface with two coats of anticorrosive paint of approved brand and manufacture, including required hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer-in-charge.					
	i) 150 mm nominal size dia having minimum wall thickness 5.00 mm	Metre	15			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(b)	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed / plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge.					
	i) 150 mm nominal size dia	Metre	15			
B-6.3	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Engineer-in-charge.	Cum.	4			
B-6.4	Providing and fixing Bail plug/ Bottom plug of required dia to the bottom of pipe assembly of tubewell as per IS:2800 (part I).					
	a) 150 mm dia	each	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-6.5	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water samples & getting tested in approved laboratory, i/c disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge	Hrs.	30			
B-6.6	Providing and fixing suitable size threaded mild steel cap or spot welded plate to the top of bore well housing/ casing pipe, removable as per requirement, all complete for borewell of:					
	a) 150 mm dia	each	1			
B-6.7	Providing and fixing M.S. clamp of required dia to the top of casing/ housing pipe of tubewell as per IS: 2800 (part I), including necessary bolts & nuts of required size complete.					
	a) 150 mm dia	each	1			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-6.8	Testing of tubewell with Air compressor for its yield as per ISI specifications and directions of the Engineer including sanitary , water testing and discharge test etc.	Job	1			
B-6.9	Testing of quality of tubewell water for Physical, Chemical & Bacteriological charecteristics of water from two separate approved laboratories.	Job	1			
B-6.10	Providing and fixing single/multistage submersible pumping set with 7.5 HP motor 6 stage pump suitable for 400 LPM at 55 Mtr. Head	Each	1			
B-6.11	Providing and fixing gunmetal pressure gauge (100mm dia) or rating (0-10 kg/cm ²) with gunmetal isolating cock and connecting pipe	Each	1			
B-6.12	Providing and fixing 65 mmdia supporting clamps with nuts and bolts.	Pairs	1			
B-6.13	Providing and fixing 65 mm cable clips with nuts and bolts.	Each	12			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-6.14	Providing and fixing 3c-4sqmm 1.1 kVsubmersible cable including laying, termination complete as required.	Metre	30			
B-6.15	Providing and fixing butterfly valve with SPS pace.					
	65mm dia	No.	1			
B-6.16	Providing and fixing pvc coated 6mm dia GI wire Rope complete with wire rope clamps for safety of pump set.	Metre	30			
B-6.17	Supplying and laying 1.1 kv grade aluminium conductor PVC insulated and PVC sheathed armoured cables including 8 SWG GI earth wire on surface/cable trays as required.					
	4 core - 2.5 sq.mm	Metre	40			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B-6.18	<p>Providing and fixing dust and vermin proof motor control panel fabricated from 14 SWG CRCA sheet, powder coated with stove enamelled paint and comprising of (for tubewell pumps)</p> <p>One feeder of 20 ampere 4 pole MCB</p> <p>One fully automatic DOL starter with push buttons and indicating lights.</p> <p>One panel type volt meter 96mm square with Rotary selection switch for reading voltage between phase and neutral or incoming feeder.</p> <p>1 Set of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA</p> <p>Three neon phase indicating lights on the incoming main</p> <p>One ampere meter 96mm square panel type of appropriate range.</p> <p>Etched plastic identification plates for all switch gears.</p> <p>Space for liquid level controller</p> <p>All internal wiring should be colour coded from incoming main to switchgear, starters, meters, indicating lights.</p>	Each	1			
	TOTAL OF TUBEWELL AND TUBEWELL PUMPS CARRIED OVER TO SUMMARY OF PLUMBING WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B.7.0	LT CABLES, CABLE TRAYS					
B.7.1	Supply of LT Cables					
	Supply of following sizes 1.1 KV XLPE insulated, FRLS Cu. armoured Conductor, PVC inner sheathed, overall PVC sheathed cable in conformity to the technical specification and as per latest IS - codes.					
a)	3C x 6 sq mm	Metre	30			
b)	3C x 4 sq mm	Metre	80			
c)	3C x 2.5 sq mm	Metre	40			
B.7.2	Cable End Terminations					
	Supply and making end termination with double brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.					
a)	3C x 6 sq mm	Each	8			
b)	3C x 4 sq mm	Each	4			
c)	3C x 2.5 sq mm	Each	4			

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B.7.3	Laying of LT cables					
B.7.3.1	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.					
	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	110			
B.7.3.2	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
	Upto 35 sq. mm	Metre	40			
B.7.5	Cables Trays					
	Fabricating and installing following size of perforated Hot Dip Galvanized cable trays including horizontal and vertical bends, reducers, tees,, cross members and other accessories as required and duly suspended from the ceiling with GI suspenders and including painting with powder coating etc. as required.					
a)	300 mm width x 50 mm depth x 1.6 mm thickness	Metre	20			
a)	150 mm width x 50 mm depth x 1.6 mm thickness	Metre	15			
TOTAL OF LT CABLES AND CABLE TRAYS CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
SUMMARY OF PLUMBING WORKS**

SL. NO	DESCRIPTION	AMOUNT (IN RUPEES)	
		(IN FIGURE)	(IN WORDS)
B-1.0	SANITARY INSTALLATIONS		
B-2.0	WATER SUPPLY		
B-3.0	RAIN WATER PIPES AND FITTINGS		
B-4.0	DRAINAGE		
B-5.0	PUMPING SYSTEM & WATER TREATMENT		
B-6.0	TUBEWELL AND TUBEWELL PUMPS		
B-7.0	LT CABLES, CABLE TRAYS		
	TOTAL OF PLUMBING WORKS CARRIED OVER TO GRAND SUMMARY		

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES ELECTRICAL WORKS - INTERNAL

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-1.0	WIRING					
C-1.1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated stranded copper conductor single core cable in surface / recessed steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC stranded insulated copper conductor single core cable etc as required.					
a)	Group C	Point	4411			
C-1.2	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated stranded copper conductor single core cable in surface / recessed steel conduit and earthing the point with 1.5 sq.mm. FRLS PVC stranded insulated copper conductor single core cable etc as required.					
a)	For Digital Lighting Control System Wiring	Point	422			
C-1.3	Wiring for circuit / submain / power sockets wiring along with earth wire with the following sizes of FRLS PVC insulated stranded copper conductor, single core cable in surface/recessed steel conduit as required.					
a)	4 X 16 sqmm + 2 x 16 sqmm earth wire (for kitchen equipment)	Metre	120			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
b)	4 X 10 sqmm + 2 x 10 sqmm earth wire (submain wiring)	Metre	1200			
c)	4 X 6 sqmm + 2 x 6 sqmm earth wire (submain wiring)	Metre	2000			
d)	2 X 10 sqmm + 1 x 10 sqmm earth wire (Single phase SDB submain wiring)	Metre	490			
e)	2 X 6 sqmm + 1 x 6 sqmm earth wire (Single phase SDB submain wiring)	Metre	640			
f)	2 X 2.5 sqmm + 1 x 2.5 sqmm earth wire (circuit wiring for academic, hostel, MRSS & Pump Room. Wiring for entrance lighting of Hostel and wiring for periphery lighting of MRSS & Pump Room)	Metre	5360			
g)	2 X 2.5 sqmm + 1 x 2.5 sqmm earth wire (circuit wiring for Digital Lighting Control System)	Metre	600			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-1.4	Supply and fixing of suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection, painting etc. as required.	No.	1799			
C-1.5	Supply and fixing following modular switch / socket on the existing modular plate & switch box including connection but excluding modular plate etc. as required. (For classroom and Tutorial Room)					
a)	5/6 amps switch	No.	238			
b)	3 pin 5/6 amp socket outlet	No.	238			
C-1.6	Supplying & fixing 3 module modular base & cover plate on existing modular metal boxes etc. as required. (For classroom and Tutorial Room)	No.	238			
C-1.7	Supply and fixing of suitable size GI box with modular plate and cover in front on surface or in recess including providing and fixing 6 pin 15/16 amps modular socket outlet and 15/16 amps modular switch, connection, painting etc. as required (including hand drier point).	No.	393			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-1.8	Supplying and fixing 20 amps., 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps. 'C' series, SP MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket outlet, and complete with connections, testing and commissioning etc. as required (including gyser, AC point & socket).	No.	13			
C-1.9	Wiring for power plug with 2x4 sq.mm FRLS PVC insulated stranded copper conductor single core cable in surface / recess steel conduit along with 1 no. 4 sq.mm FRLS PVC insulated stranded copper conductor single core cable for loop earthing as required.	Metre	3750			
C-1.10	Supply, installation, testing and commissioning of following for kitchen equipment:					
a)	Supplying and fixing 20 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket outlet and complete with connections, testing and commissioning etc. as required.	Each	1			
b)	Supplying and fixing 30 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket outlet and complete with connections, testing and commissioning etc. as required.	Each	7			
c)	Supplying and fixing 63 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with UPVC cover for the socket outlet and complete with connections, testing and commissioning etc. as required.	Each	4			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-1.11	Supplying and fixing of following sizes of steel conduit along and 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 (for LAN, Telephone, CCTV & TV).					
a)	25 mm	Metre	1950			
b)	32 mm	Metre	1050			
c)	40 mm	Metre	750			
C-1.12	Supplying and fixing metal box of following sizes (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.					
a)	200 mm X 300 mm X 100 mm deep	Point	22			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
b)	250 mm X 300 mm X 100 mm deep	Point	15			
C-1.13	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required. (For Stair case in Academic Block)	Point	30			
C-1.14	Supplying and drawing of 3 X 1.5 sq. mm. FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required. (For 3 pin 5/6 amps sockets connected through trunking system)	Metre	2700			
C-1.15	Supplying and Fixing of cable Cubby consisting of 2 nos 5A socket, 1 no LAN, 1no VGA, 1 no Audio, 1 no USB and 1 no HDMI complete with all accessories as required. (Make Magnum/Best Net)	Point	32			
TOTAL OF WIRING CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-2.0	LIGHT, FAN FIXTURES AND IT'S ACCESSORIES (Inside Buildings)					
A	WITH ELECTRONIC BALLAST Supply of the following light fixtures complete with lamps, electronic ballasts, lamp holder, starter, starter holder, etc. and fan fixtures duly wired complete for use on 240 V single phase 50 Hz AC supply including all accessories required for mounting at surface/recess/wall/suspended as mentioned in BOQ and drawings conforming to relevant IP protection and IS codes.					
C-2.1	3 x 18W TC-L compact fluorescent lamps round surface-mounted luminaire with opal PMMA diffuser. Ceiling mounting. Round, opal diffuser, spherical construction. Diffuser fixing via easy-to-use bayonet fixing mechanism. Luminaire body of sheet steel, white, powder-coated with electronic ballast.(TRILUX Cat No. 7403N / TC18 E or ZUMTOBEL Cat No. HELISSA D450 1/55W T16-R EVG WH)	No.	36			
C-2.2	25W LED recess mounted downlighter with prismatic glass diffuser with white reflector. Narrow wide distribution characteristic. Including decorative ring for accommodating attachments. Tool-free ceiling installation via rapid-mounting springs. With electronic transformer. Separate ballast with integrated cable strain relief system. (TRILUX Cat No. Amatrix C04 WR LED1400nw ET 01 or ZUMTOBEL Cat No. CREDOS E150 1/26W LED940 230V WH)	No.	290			
C-2.3	4 x 14W fluorescent lamps T5 recessed mounted luminaire, exposed grids and cut-out ceiling recess openings. parabolic specular louvre RPX high-purity aluminium, highly specular, with reflection-intensifying silver surface for especially high light output ratios. Suitable for VDU workstations. With electronic control gear. (TRILUX Cat No. 3694D-RPX/14 E or FAGERHULT Cat No. Multifive Basic Beta 4x14)	No.	370			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-2.4	1 x 54W fluorescent lamp T5 Surface-mounted luminaire with parabolic specular louvre. With parabolic specular louvre,highly specular. With reflectionintensifying coated silver surface for high light output ratios. luminaire body, white, with timeless rectangular design. End caps for individual luminaires or for continuous line ends are to be offered separately. (TRILUX Cat No. 5041RPX-L 3300-830 ET or FAGERHULT Cat No. Closs Beta Direct 1X54)	No.	16			
C-2.5	1 x 22 W T5 TR+ 1 x 40 W TR Decorative, square surface-mounted ceiling luminaire. (TRILUX Cat No. Deca WD3 2TR22/40 E Deca or ZUMTOBEL Cat No. Kava 2X32 TC-t)	No.	183			
C-2.6	2 x 54W fluorescent lamp T5 Surface-mounted luminaire with parabolic specular louvre.With parabolic specular louvre,highly specular. With reflectionintensifying coated silver surface for high light output ratios. luminaire body, white, with timeless rectangular design. End caps for individual luminaires or for continuous line ends are to be offered separately.(TRILUX Cat No 5041RPX-L/2x28/54 (54W) E or FAGERHULT Cat No. Closs Beta Direct 2X54)	No.	23			
C-2.7	2 x 13W TC-DEL compact fluorescent lamps surface-mounted luminaire with opal PMMA diffuser.With opal PMMA diffuser. Diffuser in timeless, spherical design. Uniformly illuminated, with finely structured matt decorative surface. Diffuser fixing via easy-to-use bayonet fixing mechanism. Luminaire body in sheet steel, white. With electronic control gear. (TRILUX Cat No. 7401N/2xTCD13 E or We-ef Cat No. 1950214)	No.	19			
C-2.8	1 x 18W recess mounted down lighter with high efficiency optics having decorative PBT housing. (PHILIPS Cat No. FBH145 M 1xPL-C/2P18W or GE Cat No.CFLC1X18DNLR (H) MATT)	No.	157			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-2.9	2 x 18W recess mounted down lighter with high efficiency optics having decorative PBT housing. (PHILIPS Cat No. FBH145 M 2xPL-C/4P18W HF or GE Cat No. CFLC2X18DNR (H))	No.	130			
C-2.10	1X14W wall mounted mirror type luminaire with CRCA sheet steel channel housing with decorative end plates. (PHILIPS Cat No. BN 251W 1xTL 14W HF or GE Cat No. TC1X14MOS HF)	No.	128			
C-2.11	8W LED wall mounted light lixtures a high level durability with high impact resistant and having IP 67 (PHILIPS Cat No. BWS 150 LED200/NW PSU 220-240V 7043 or Schreder Cat No. Voila Power LV1340)	No.	29			
C-2.12	4W LED asymmetric step light with integrated driver having high ingress protection equipped with suitable mounting box. (PHILIPS Cat No. BWG150 LED50/WW PSU 220-240V IP67 7043 or Schreder Cat No. Bloco Square Indirect)	No.	11			
C-2.13	1 X 28W TL5 fluorescent batten type wall mounted light fixture (PHILIPS Cat No. Pentura TMS122 M 1xTL5-28W EBT or GE Cat No. CI 1X28 C/S HF)	No.	93			
C-2.14	2 X 28W TL5 fluorescent batten type surface mounted light fixture (PHILIPS Cat No. Pentura TMS122 M 2xTL5-28W EBT or GE Cat No. CI 2X28 C/S HF)	No.	280			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-2.15	2 X 28W TL5 fluorescent batten type surface mounted light fixture with reflector. (PHILIPS Cat No. Pentura TMS122 M 2xTL5-28W EBT + GMS122 228R or GE Cat No. CI 2X28 C/S HF + Reflector 2X28 ALM)	No.	66			
C-2.16	2 x 28W T5 light fixtures with high strength corrosion resistant stainless steel frame. Providing with EPDM gasketing for lifetime protection. High efficiency with acrylic cover to provide sufficient protection. (PHILIPS Cat No. TCW450 HF Acrylic Cover or GE Cat No. MAR228FTL HF)	No.	11			
C-2.17	4X14 W TL-5 clean room luminaire. (PHILIPS Cat No. TBS651 4xTL5-14W EB CR FOP GT or GE Cat No. CRB 414FTL BO)	No.	15			
C-2.18	2 X 28W T5 surface mounted mirror optics decorative type light fixture with high efficiency with high output level. (PHILIPS Cat No TCS150 2xTL5-28W M1 EBT or GE Cat No. TC2X28MOVXS/R)	No.	17			
C-2.19	2 X 18 W surface mounted downlighter. (Philips Cat No. FCS 518 2X PL-L18W or THORN Cat NO. CORS 218E)	No.	2			
C-2.20	1 X 24 W CFL Surface mounted light fixtures. (Philips Cat No 32081/31/86 or THORN Cat No. CLUB S 218)	No.	172			
C-2.21	1 x 28 W TL5 Wall Mounted Luminaire. (Philips Cat No. Adreno V2 28w TWG207 HF or GE Cat No. LMS 28 DN)	No.	242			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-2.22	10W LED Bulkhead Luminare. (PHILIPS Cat No. WT202W LED6S CW PSU S1 PC or GE Cat No. LBHS808NWWHD)	No.	74			
C-2.23	1 X 28W Surface mounted light fixtures. (PHILIPS Cat No. Miroлта Slim TMS540 HF- 28W or GE Cat No. TC1X28MOS HF)	No.	12			
C-2.24	1 X 150W Metal Helide Flood light luminaire with cast aluminium housing and toughened glass cover.(PHILIPS Cat No. HALOLITE MVC502 1XMHNTD-150W or GE Cat No. TPLF 15M6 MSB SM B)	No.	22			
C-2.25	1 x 18W TC-T wall mounted fixture with IP 65. (PHILIPS Cat No. HWS360 1xPLC/2P18W GR or Schreder Cat No. Bang LB3302)	No.	2			
C-2.26	15W LED Ground recessed Uplighter (PHILIPS Cat No.BBP330 WW / NW or Schreder Cat No. Rocco Midi Monocolor)	No.	14			
C-2.27	2 X 24W TC-L 24 Circular surface-mounted weather-proof luminaire (TRILUX Centa S Cat No 7483PC/2xTCL24 E or BEGA 5518P)	No.	10			
C-2.28	1W LED step light with separate driver having extruded aluminium housing with faceted reflector (BAJAJ Cat No. BGST 01 01 WH or Schreder Cat No. WIPRO LT5)	No.	192			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
B	WITH DIGITAL DIMMABLE BALLAST Supply of the following light fixtures complete with dimmable ballast, lamps, lamp holder, starter, starter holder, etc. and fan fixtures duly wired complete for use on 240 V single phase 50 Hz AC supply including all accessories required for mounting at surface/recess/wall/suspended as mentioned in BOQ and drawings conforming to relevant IP protection and IS codes.					
C-2.29	25W LED recess mounted downlighter with prismatic glass diffuser with white reflector. Narrow wide distribution characteristic. Including decorative ring for accommodating attachments. Tool-free ceiling installation via rapid-mounting springs. With electronic transformer. Separate ballast with integrated cable strain relief system. (TRILUX Cat No. Amatrix C04 WR LED1400nw ET 01 or ZUMTOBEL Cat No. CREDOS E150 1/26W LED940 230V WH)	No.	48			
C-2.30	1 x 28W T5 fluorescent recessed continuous line luminaire. With PMMA cover. Recessed continuous line luminaire. With PMMA cover, opal. For cut ceiling apertures and strip ceilings. PMMA cover, finely structured, uniformly illuminated. Sheet steel luminaire body. Colour white. Elegantly slender, linear luminaire body, solvent-free powder-coated, with extremely flat folded fringe. With electronic control gear, Multi-Lamp. (TRILUX Cat No. Solvan C1-L OTA 128/54 01 (28W) E or FAGERHULT Cat No. Notor recessed Delta 1X28)	No.	24			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C-2.31	1 x 28W T5 fluorescent surface mounted luminaire with parabolic specular louvre. With parabolic specular louvre, highly specular. With reflection intensifying coated silver surface for high light output ratios. luminaire body, white, with timeless rectangular design. (TRILUX Cat. No. 5041 RPX-L 3300-830 ET (28W) or FAGERHULT Cat No. Closs Beta Direct 1X28)	No.	334			
C Fan Fixtures						
C-2.32	Supply of 230 V single phase, 1200 mm sweep double ball bearing ceiling fans, 350 RPM, complete with fan hooks, down rod and other fixing accessories as required. (Crompton Greaves model COOL BREEZ or Usha model SONATA HIGH SPEED/ STRIKER)	No.	242			
C-2.33	Supply of single phase, 450 mm sweep air-circulator wall bracket fan including mounting arrangement and other accessories complete as required. (Crompton Greaves model WMCressida18" or Bajaj model SUPREME or Almonard).	No.	126			
C-2.34	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	No.	202			
C-2.35	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	No.	20			
TOTAL OF LIGHT, FAN FIXTURES AND IT'S ACCESSORIES (Inside Buildings) CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.3.0	INSTALLATION, TESTING & COMMISSIONING OF LIGHT FIXTURES & FANS					
C-3.1	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	3022			
C-3.2	Installation, testing and commissioning of ceiling fan/wall bracket fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	Each	368			
C-3.3	Supplying and fixing extra down rod of 10 cm length G.I. pipe, 15 mm dia, heavy gauge including painting etc. as required. (Note : More than 5 cm length shall be rounded to the nearest 10 cm and 5 cm or less shall be ignored)	Each	15			
TOTAL OF INSTALLATION, TESTING & COMMISSIONING OF LIGHT FIXTURES & FANS CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.4.0	SUB DISTRIBUTION BOARDS (SDB)					
C.4.1	Supply, installation testing and commissioning of following way prewired SPN /TPN distribution board of steel sheet for 240 V / 415 V, on surface/recess complete with loose wire box, terminal connector for all incoming and outgoing circuit, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal block, tinned copper bus bar, neutral links, earth links, din bar, detachable gland plate, blanking plate,interconnections, phosphatised and powder painted including earthing etc. as required below:					
	Note: Height of 4 Way and 6 Way SDB shall be same.					
a)	8 way TPN (8+24) Double Door DB with incomer 32/40A 4P ELMCB (100mA) 10 KA & 24 nos. 6-32A SP MCB, 10 KA as outgoing.	Each	15			
b)	6 way TPN (8+18) Double Door DB with incomer 32A 4P ELMCB (100mA) 10 KA & 18 nos. 6-32A SP MCB, 10 KA as outgoing.	Each	34			
c)	4 way TPN (8+12) Double Door DB, with incomer 25/32A 4P ELMCB (100mA) 10 KA & 12 nos. 6-32A SP MCB, 10 KA as outgoing.	Each	40			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
d)	4 way SPN (4+4) Double Door DB, with incomer 25/32A DP ELMCB (100mA) 10 KA & 4 nos. 6-32A SP MCB, 10 KA as outgoing.	Each	13			
e)	8 way SPN (4+8) Double Door DB, with incomer 32/40A DP ELMCB (100mA) 10 KA & 8 nos. 6-32A SP MCB, 10 KA as outgoing.	Each	14			
TOTAL OF SUB DISTRIBUTION BOARDS (SDB) CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.5.0	LT CABLES, CABLE TRAYS					
C.5.1	Supply of LT Cables					
	Supply of following sizes 1.1 KV XLPE insulated, FRLS Al. armoured Conductor, PVC inner sheathed, overall PVC sheathed cable in conformity to the technical specification and as per latest IS - codes.					
a)	3.5C x 120 sq mm	Metre	40			
b)	4C x 35 sq mm	Metre	320			
c)	4C x 25 sq mm	Metre	240			
d)	4C x 16 sq mm	Metre	180			
C.5.2	Cable End Terminations					
	Supply and making end termination with double brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.					

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
a)	3.5C x 120 sq mm	Each	8			
b)	4C x 35 sq mm	Each	32			
c)	4C x 25 sq mm	Each	24			
d)	4C x 16 sq mm	Each	18			
C.5.3	Laying of LT cables					
	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.					
a)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	670			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
b)	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	Metre	30			
	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.	Metre				
a)	Upto 35 sq. mm	Metre	70			
b)	Above 95 sq. mm and upto 185 sq. mm	Metre	10			
C.5.4	Cables Trays					
	Fabricating and installing following size of perforated Hot Dip Galvanized cable trays including horizontal and vertical bends, reducers, tees,, cross members and other accessories as required and duly suspended from the ceiling with GI suspenders and including painting with powder coating etc. as required.					
a)	600 mm width x 62.5 mm depth x 2.0 mm thickness	Metre	50			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
b)	450 mm width x 50 mm depth x 2.0 mm thickness	Metre	70			
c)	300 mm width x 50 mm depth x 1.6 mm thickness	Metre	90			
TOTAL OF LT CABLES AND CABLE TRAYS CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.6.0	INTERNAL DUCTING					
C.6.1	Supply and fixing of GI Trunking metal ducting made up of 1.6 mm thick with a standard length of 2.5mtrs. Continuously Hot Dipped, Pre Galvanized metal with zinc coated steel sheet double folded and arc welded with all accessories. The trunking is compartmentalized for provision of data, power and voice cables and has a depth of 38mm complete as required. : Raceways as per BS2989 (Indian Standards IS 277:2003). Tensile Strength: 500N/m2					
a)	225 mm x 38 mm x 1.6 mm (3 compartment) (MK Cat No UMDX 225/3/6)	Metre	105			
b)	300 mm x 38 mm x 1.6 mm (3 compartment) (MK Cat No UMDX 300/3/6)	Metre	22			
c)	Jointing sleeves for connecting raceways 225 mm x 38 mm x 1.6 mm (3 compartment)	No.	15			
d)	Jointing sleeves for connecting raceways 300 mm x 38 mm x 1.6 mm (3 compartment)	No.	2			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
e)	Vertical access unit for 90 degree (L) bend for raceways 225 mm x 38 mm x 1.6 mm	No.	19			
f)	Vertical access unit for 90 degree (L) bend for raceways 300 mm x 38 mm x 1.6 mm	No.	1			
C.6.2	Supply, installation, testing and commissioning of following sizes Junction box, suitable for 38 mm depth tripple compartment metal ducting made out of high pressure die cast zink alloy complete with all accesseries such as top cover bare support frame, bore support studs etc. complete as required. Trap Cover is reinforced. Steel plate to withstand upto 3.6 tons of load on the trap. As per IEC 61084 Standards.					
a)	250 mm x 250 mm x 60 mm - 75 mm (Similar to MK Cat No JB - 250)	No.	16			
b)	350 mm x 350 mm x 60 mm - 75 mm (Similar to MK Cat No JB - 300)	No.	1			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.6.3	Supply, installation, testing and commissioning of following sizes cross over box, suitable for 38 mm depth tripple compartment metal ducting made out of high pressure die cast zink alloy complete with all accesseries such as top cover bare support frame, bore support studs etc. complete as required. Trap Cover is reinforced. Steel plate to withstand upto 3.6 tons of load on the trap. As per IEC 61084 Standards.					
a)	250 mm x 250 mm x 60 mm - 75 mm (3 compartment) (Similar to MK Cat No EJB -250/3)	No.	3			
TOTAL OF INTERNAL DUCTING CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.7.0	DISTRIBUTION BOARDS - FLOOR MOUNTED					
	<p>Supplying, installation, testing and commissioning of cubicle type prewired LT Panel suitable for 415 Volt, 3 phase, 4 wire 50 HZ AC supply system, floor mounted, fabricated in compartmentalized design from CRCA steel of 2 mm thick for frame work and covers, 3 mm thick for gland platees, including cleaning and finishing powder coated, dust and vermin proof complete with 7 tank process having extensible type TPN aluminium alloy bus bar of high conductivity, with base frame of M.S. channel section of not less than 75 mm x 50 mmx5mm thick, copper earth bar of size 25mmx 5mm at the rear with 2 No. earth stud, complete with control wire, cable alleys, cable gland plates, including following :</p> <p>All MCCB shall have ICU =100% ICS</p> <p>All MCCBs with Microprocessor release should have adjustable O/L, S/C & inbuilt E/F protections except bus coupler</p> <p>All MFM shall have Ammeter, Ammeter selection switch, Voltmeter, Voltmeter selection switch, kWh meter, frequency meter, P.F. meter, KW meter</p> <p>MCCBs above 200A ratings should be provided with Copper Spreader Links & Phase barriers</p>					
C.7.1	<p>MDBGL (GROUND FLOOR - ACADEMIC BLOCK)</p> <p>Incoming</p> <p>2 no. 630A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings along with mechanical and electrical interlocking arrangement with bus coupler.</p> <p>2 Sets of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 630 /5A 15VA CTs.</p>	No.	1			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	2 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA					
	2 No. Surge Suppressor Class (B & C) as per specification					
	Bus Bar					
	4 Strip aluminium bus bar of 1000 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 35 KA fault - 1 set					
	Outgoing					
a)	2 nos. 200A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 200/5A CTs, class - 0.5 accuracy with digital multifunction meter.					
b)	5 nos. 100A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 100/5A CTs, class - 0.5 accuracy with digital multifunction meter.					
c)	3 nos. 63A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 63/5A CTs, class - 0.5 accuracy with digital multifunction meter.					
d)	10 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA					
	Bus Coupler					
	1 set of 630 A 4 pole 35kA MCCB					

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.7.2	<p>MDBGR (GROUND FLOOR - ACADEMIC BLOCK)</p> <p>Incoming 2 no. 630A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings along with mechanical and electrical interlocking arrangement with bus coupler.</p> <p>2 Sets of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 630 /5A 15VA CTs.</p> <p>2 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA</p> <p>2 No. Surge Suppressor Class (B & C) as per specification</p> <p>Bus Bar 4 Strip aluminium bus bar of 1000 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 35 KA fault - 1 set</p> <p>Outgoing</p> <p>a) 2 nos. 200A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 200/5A CTs, class - 0.5 accuracy with digital multifunction meter.</p> <p>b) 3 nos. 100A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 100/5A CTs, class - 0.5 accuracy with digital multifunction meter.</p> <p>c) 3 nos. 63A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 63/5A CTs, class - 0.5 accuracy with digital multifunction meter.</p>	No.	1			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
d)	8 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA Bus Coupler 1 set of 630 A 4 pole 35kA MCCB					
C.7.3	MDBG (GROUND FLOOR - HOSTEL BLOCK) Incoming 2 no. 630A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings along with mechanical and electrical interlocking arrangement with bus coupler. 2 Sets of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 630 /5A 15VA CTs. 2 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA 2 No. Surge Suppressor Class (B & C) as per specification Bus Bar 4 Strip aluminium bus bar of 1000 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 35 KA fault - 1 set Outgoing a) 10 nos. 100A 4P MCCB, 35 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 100/5A CTs, class - 0.5 accuracy with digital multifunction meter. b) 10 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA Bus Coupler 1 set of 630 A 4 pole 35kA MCCB	No.	1			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.7.4	FDBGF - KITCHEN EQUIPMENT (GROUND FLOOR - HOSTEL BLOCK) Incoming a) 1 no. 100A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections b) 0-100A digital ammeter with 100/5A CTs - 1 set. c) Set of phase indicating lamp (LED Type) with 2A,SP MCB - 1 set. Busbar 4 Strip aluminium bus bar of 150 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 25 KA fault - 1 set Outgoing a) 63 A, 4P MCB, 10 KA - 5 no. b) 40 A, 4P MCB, 10 KA - 3 no. c) 32 A, 4P MCB, 10 KA - 7 no. d) 20 A, 4P MCB, 10 KA - 2 no.	No.	1			
C.7.5	UPS PANEL - 1L & 1R (GROUND FLOOR - ACADEMIC BLOCK) Incoming a) 1 no. 200A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections. b) 1 Set of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 200 /5A 15VA CTs. c) 1 Set of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA Bus Bar	No.	2			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
a)	4 Strip aluminium bus bar of 300 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 25 KA fault - 1 set Outgoing 3 nos. 200A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections.					
C.7.6	UPS PANEL - 2L & 2R (GROUND FLOOR - ACADEMIC BLOCK) 1 no. 200A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections in a sheet steel enclosure	No.	2			
C.7.7	UPSMDBGFL & UPSMDBGFR (GROUND FLOOR - ACADEMIC BLOCK) Incoming a) 1 no. 200A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections. b) 1 Set of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 200 /5A 15VA CTs. c) 1 Set of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA Bus Bar 4 Strip aluminium bus bar of 300 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 25 KA fault - 1 set	No.	2			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	<p>Outgoing</p> <p>a) 2 nos. 100A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 100/5A CTs, class - 0.5 accuracy with digital multifunction meter.</p> <p>c) 4 nos. 63A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 63/5A CTs, class - 0.5 accuracy with digital multifunction meter.</p> <p>c) 1 no. 32A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 32/5A CTs, class - 0.5 accuracy with digital multifunction meter.</p> <p>d) 7 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA</p>					
C.7.8	<p>SOLAR MAIN DISTRIBUTION BOARDS</p> <p>SMDB (ACADEMIC BLOCK)</p> <p>Incoming</p> <p>a) 1 no.100A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings.</p> <p>b) 1 Set of multifunction meter with RS-485 of accuracy class-0.5, with 3 Nos. 100 /5A 15VA CTs.</p> <p>c) 1 Set of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA</p> <p>d) 1 No. Surge Suppressor Class (B & C) as per specification</p> <p>Bus Bar</p> <p>4 Strip aluminium bus bar of 150 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 25 KA fault - 1 set</p>	No.	1			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
a)	Outgoing 4 nos. 63A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings having 63/5A CTs, class - 0.5 accuracy with digital multifunction meter.					
b)	4 Sets of R, Y, B phase indicating light (LED type) with 2A, SP MCB, 10KA					
C.7.9	SMDBGFL & SMDBGFR (GROUND FLOOR - ACADEMIC BLOCK) (FLOOR MOUNTED)	No.	2			
	Incoming					
a)	1 no. 63A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings.					
b)	0-63A digital ammeter with 63/5A CTs - 1 set.					
c)	Set of phase indicating lamp (LED Type) with 2A,SP MCB - 1 set.					
	Bus Bar					
	4 Strip aluminium bus bar of 100 A, 415 V capacity with heat shrinkable coloured sleeves complete for withstanding 25 KA fault - 1 set					
	Outgoing					
a)	7 no. 40A 4P MCCB, 25 KA microprocessor controlled with overload, short circuit and earth fault protections with adjustable settings.					
b)	0-40A digital ammeter with 40/5A CTs - 1 set.					
c)	Set of phase indicating lamp (LED Type) with 2A,SP MCB - 7 set.					
TOTAL OF DISTRIBUTION BOARDS - FLOOR MOUNTED CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.8.0	DISTRIBUTION BOARDS - WALL MOUNTED					
C.8.1	Supply and fixing following way TPN prewired, sheet steel, distribution board, 415V on surface/recess, complete with loose wire box, terminal connector for all incoming & outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal block, tinned copper bus bars, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatised and powder painted including earthing etc. as required encloser shall be suitable with MCCB with overload, short circuit protection and inbuilt earth fault protection.					
a)	4 way TPN vertical type, Double Door DB	No.	9			
b)	8 way TPN vertical type, Double Door DB	No.	19			
c)	12 way TPN vertical type, Double Door DB	No.	7			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.8.2	Providing,fixing,testing and commissioning of following rating MCCB with inbuilt electronic earth leakage module as required in existing vertical distribution board including drilling holes in the vertical distribution board, making connections etc as required as per SLD. All MCCB shall have ICU =100% ICS					
a)	40A 4P MCCB,25kA	No.	10			
b)	63A 4P MCCB,25kA	No.	10			
c)	100A 4P MCCB,25kA	No.	15			
C.8.3	Providing, fixing, testing and commissioning of following rating, 415volts, "C"curve miniature circuit breaker suitable for inductive load of following poles in the existing DB complete with connections testing and commissioning etc as required,					

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
a)	32A DP MCB	No.	26			
b)	32A 4P MCB	No.	108			
c)	40A DP MCB	No.	14			
d)	40A 4P MCB	No.	42			
TOTAL OF DISTRIBUTION BOARDS - WALL MOUNTED CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.9.0	EARTHING SYSTEM					
C.9.1	Earthing with GI earth plate 600 mm x 600 mm x 6 mm thick including accessories & providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) as required.	Set	18			
C.9.2	Providing of chemical for each earth pit will be treated with 20kgs Terec+, ground enhancing material as required. The remaining space of earth pit shall be filled with Alluvial soil and properly compacted.	Set	18			
C.9.3	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 spaced at 50mm)	Metre	180			
C.9.4	Providing and fixing 25mm x 5 mm G.I strip on surface or in recess for connections etc. as required.	Metre	310			
C.9.5	Providing, laying and fixing 50 mm. dia. G.I. pipe (medium class) in ground complete with G.I. fittings including trenching (75 cm deep)and re-filling etc as required	Metre	60			
TOTAL OF EARTHING SYSTEM CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.10	LIGHTNING PROTECTION SYSTEM					
C.10.1	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, copper tube, having single prong at top, with 85 mm dia 3 mm thick copper base plate including holes etc. complete as required.	No.	45			
C.10.2	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required (on parapet and down conductor).	Metre	790			
C.10.3	Supplying and laying 32 mm X 6 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 spaced at 50mm)	Metre	500			
C.10.4	Providing and laying G.I. Strip 32 mm X 6 mm from earth electrode directly in ground as required.	Metre	420			
C.10.5	Providing and fixing testing joint, made of 25 mm X 5 mm thick G.I. strip, 125 mm long, with 4 nos. of G.I. bolts, nuts, chuck nuts and spring washers etc. complete as required.	No.	45			

Item No.	Description	Unit	QTY	RATE IN (RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
C.10.6	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. (but without charcoal/ coke and salt) as required.	Set	45			
C.10.7	Providing of chemical for each earth pit will be treated with 20kgs Terec+, ground enhancing material as required. The remaining space of earth pit shall be filled with Alluvial soil and properly compacted.	Set	42			
C.10.8	Providing, laying and fixing 50 mm. dia. G.I. pipe (medium class) in ground complete with G.I. fittings including trenching (75 cm deep)and re-filling etc as required	Metre	75			
TOTAL OF LIGHTNING PROTECTION SYSTEM CARRIED OVER TO SUMMARY OF ELECTRICAL WORKS						

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
SUMMARY OF ELECTRICAL WORKS - INTERNAL**

SL. NO	DESCRIPTION	AMOUNT (IN RUPEES)	
		(IN FIGURE)	(IN WORDS)
C-1.0	WIRING		
C-2.0	LIGHT, FAN FIXTURES AND IT'S ACCESSORIES (Inside Buildings)		
C-3.0	INSTALLATION, TESTING & COMMISSIONING OF LIGHT FIXTURES & FANS		
C-4.0	SUB DISTRIBUTION BOARDS (SDB)		
C-5.0	LT CABLES, CABLE TRAYS		
C-6.0	INTERNAL DUCTING		
C-7.0	DISTRIBUTION BOARDS - FLOOR MOUNTED		
C-8.0	DISTRIBUTION BOARDS - WALL MOUNTED		
C-9.0	EARTHING SYSTEM		
C-10.0	LIGHTNING PROTECTION SYSTEM		
	TOTAL OF ELECTRICAL WORKS -INTERNAL CARRIED OVER TO GRAND SUMMAY		

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES -LIFT WORKS

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
E-1.0	LIFT					
E-1.1	<p>Supply, Installation, Testing and Commissioning of Passanger Lift with 13 Person / 884kgs / 1.00 mps speed /With Machine room (PMSM Gearless) / Travel- 19 Mtr. (approx)/Floors G + 6 / 07Stops/ 07 Openings/ Shaft Size required: 2500 mm W X 1900 mm D/ Car Size: 2000 mm W X 1100 mm D/ Clear Door Opening: 800mm W X 2100mm H / Center Opening doors / V3F Microprocessor based AC Variable, Variable Freq. Full Collective Simplex Control / Vandal Proof Stainless steel Finish / Handrail /Center Opening Power Operated sliding Car Door in SS Vandeal Proof Finish / Centre Opening Power Operated Landing Door in SS Vandeal Proof Finish / 20mm Granite Flooring / Automatic Rescue Device / Infra-Red Screen Sensor / Floor Annunciator with music / Over Load Warning Indicator / False Ceiling in Car / Digital Floor Position Indicators In Car & Landings - Orange Colour / Push Button - Orange L E D Illumination / Full Car Operating Panel - Press & Speak / Sill Angle / Sill Support / Fireman's Switch At Ground Floor / Battery Operatall complete as per manufacturers printed instructions.</p> <p>steners for installation on a finished plastered masonry wall open</p>	Nos.	1			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
E-1.2	Supply, Installation, Testing and Commissioning of Passanger Lift with 20 Person / 1360kgs / 1.0 mps speed / Without Machine room (PMSM Gearless) / Travel- 17 Mtr. (approx)/Floors G + 4 / 5 Stops/ 5 Openings/ Shaft Size required: 2500 mm W X 2400 mm D/ Car Size: 1700 mm W X 1800 mm D/ Clear Door Opening: 1000mm W X 2100mm H / Center Opening doors / V3F Microprocessor based AC Variable, Variable Freq. Full Collective Simplex Control / Vandal Proof Stainless steel Finish / Handrail / Center Opening Power Operated sliding Car Door in SS Vandeal Proof Finish / Centre Opening Power Operated Landing Door in SS Vandeal Proof Finish /20mm granite Flooring / Automatic Rescue Device / Infra-Red Screen Sensor / Floor Annunciator with music / Over Load Warning Indicator / False Ceiling in Car / Digital Floor Position Indicators In Car & Landings - Orange Colour / Push Button - Orange L E D Illumination / Full Car Operating Panel - Press & Speak / Sill Angle / Sill Support / Fireman's Switch At Ground Floor / Battery Oall complete as per manufacturers printed instructions. steners for installation on a finished plastered masonry wall	Nos.	1			
E-1.3	7297 Granite of any colour, 20 mm thick (slab area above 0.50 sqm)	Sq. mtr	4			
	TOTAL OF LIFT WORKS CARRIED OVER TO GRAND SUMMARY					

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT, KERALA (IITM-K)
CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES - FIRE FIGHTING & FIRE ALARM WORKS

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-1.0	PUMPS & ACCESSORIES					
F-1.1	<p>Supplying, Installation, Testing, & Commissioning of electric driven Hydrant Pump suitable for automatic operation consisting of the following complete in all respects as required.</p> <p>Horizontal type, centrifugal, split casing pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal to ensure a minimum pressure of 3.5 kg/sq. cm at highest and farthest outlet at specified flow of 2850 LPM at 88 M head .</p> <p>Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 V, 3 phase 50 Hz, AC with IP 55 protection for enclosure, horizontal foot mounted type with class F insulation</p> <p>MS fabricated Common base plate, coupling, coupling guard, foundation bolts etc as required.</p> <p>Suitable cement concrete pump foundation duly plastered with anti vibration pads.</p>	Set	1.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-1.2	<p>Supplying, installation, testing, & commissioning of diesel engine driven Standby Pump complete suitable for automatic operation and consisting of the following complete in all respects :</p> <p>Horizontal type, multi stage, centrifugal pump of cast iron body and bronze impeller with stainless steel shaft, mechanical seal to ensure a minimum pressure of 3.5 kg/sq. cm at highest and farthest outlet at specified flow of 2850 LPM at 88 M Head</p> <p>Suitable HP, 1500 RPM water cooled with radiator, diesel engine conforming to relevant BS & IS standarde complete with auto starting mechanism, 12 volts / 24 volts electric starting equipment, Diesel Tank, exhaust pipe extended to 1.0 M outside pump house duly insulated with 50 mm thick glass wool with 1.0 mm thick aluminium sheet cladding, residential silencer, instruments and protection as per specification, stop solenoid for auto stop in the event of fault with audio indications, apinted with post office red colour etc as required.</p> <p>MS fabricated Common base plate, coupling, coupling guard, foundation bolts etc as required.</p> <p>Suitable cement concrete pump foundation duly plastered with anti vibration pads.</p>	Set	1.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-1.3	<p>Supplying, Installation, Testing, & Commissioning of electric driven Pressurisation Pump suitable for automatic operation consisting of the following complete in all respects as required.</p> <p>Horizontal type, single stage centrifugal pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal and flow of 180 LPM at 88 M head conforming to IS:1520.</p> <p>Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 1500 RPM, suitable for operation on 415 V, 3 phase 50 Hz, AC with IP 55 protection for enclosure, horizontal foot mounted type with class F insulation, conforming to IS:325.</p> <p>MS fabricated Common base plate, coupling, coupling guard, foundation bolts etc as required.</p> <p>Suitable cement concrete pump foundation duly plastered with anti vibration pads.</p>	Set	1.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-1.4	<p>Supplying, Installation, Testing, & Commissioning of electric driven Terrace Pump suitable for automatic operation consisting of the following complete in all respects as required.</p> <p>Horizontal type, single stage centrifugal pump of cast iron body & bronze impeller with stainless steel shaft, mechanical seal and flow of 450 LPM at 35 M head conforming to IS:1520.</p> <p>Suitable HP Squirrel cage induction motor, TEFC, synchronous speed 2900 RPM, suitable for operation on 415 V, 3 phase 50 Hz, AC with IP 55 protection for enclosure, horizontal foot mounted type with class F insulation, conforming to IS:325.</p> <p>MS fabricated Common base plate, coupling, coupling guard, foundation bolts etc as required.</p> <p>Suitable cement concrete pump foundation duly plastered with anti vibration pads.</p>	Set	2.00			
F-1.5	Supplying, testing, installation & commissioning of pressure switches (including cut off mini ball valves) for Hydrant, Jockey and Standby Pumps	Set	5.00			
F-1.6	Supplying and fixing air vessel made of 250 mm dia, 8 mm thick MS sheet, 1200 mm in height with air release valve on top and flanged connection to Pump House, drain arrangement with 25 mm dia gun metal wheel valve, with required accessories, pressure guage and painting with synthetic enamel paint of approved shade as required.	Set	3.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-1.7	Providing and fixing 100 mm dia Pressure Guage on Sprinkler Header / Drain Lines including Ball Valve and pipe stem complete as required.	Each	7.00			
	TOTAL OF PUMPS & ACCESSORIES CARRIED OVER TO SUMMARY OF FIRE FIGHTING & FIRE ALARM WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-2.0	ELECTRICALS					
F-2.1	<p>Fabricating, supplying, Installtion, testing and commissioning of electrical control panel of cubicle construction, floor mounted type, fabricated out of 2 mm thick CRCA sheet, compartmentalised with hinged locakable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, inter connection, having switchgears and accessories mounting and inernal wiring, earth terminals, numbering etc. complete in all respects, suitable for operation on 415 V, 3 phase, 50 Hz AC supply with enclosure protection class IP 42 as required.</p> <p>Common panel in Fire Pump House Incommer 600 Amps TP & N SFU with HRC fuses. Digital Voltmeter (0 - 500 volts) with selector switch Digital Ammeter (0 - 600 Amps) with selector switch& CTs etc. Set of 3 phase indicating Lamps LED type with protective fuse. Set of Al. Bus bar of 800 Amps, Outgoing Main Fire Pump & Sprinkler Pump : 2 nos 300 Amps TP&N SFU with HRC fuses with suitable HP fully automatic star / delta starter with overload protection, current sensing type single phase preventor complete with all accessories and internal wiringrequired for automatic operation, selector switch for local / remote, auto / manual / Off operation. Jockey Pump- 2 nos (including spare)</p>	Set	1.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	<p>63 Amps TP&N SFU with HRC fuses with suitable HP fully automatic star / delta starter with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local / remote, auto / manual / Off operation.</p> <p>Diesel Engine Control</p> <p>Control for Diesel Engine comprising :</p> <p>Auto / manual Selector Switch & 3 attempt starting device, timers and relays as required, push buttons, start / stop in manual mode.</p> <p>Indication lamp for High / Low Lube Oil pressure, High water Temperature and Engine ON indication.</p> <p>battery Charger suitable for 12 V / 24 V DC with boost and trickle selector switch, 0 -15 V / 0 - 30 V DC volt meter, 0 - 20 A DC Ammeter.</p> <p>All standard relays and accessories for automatic operation of diesel engine.</p> <p>Designing, supply, installation, testing and commissioning of System Controller to control operation of Main Electric Pump, Diesel Pump, and Pressurisation Pump in sequence as per specifications consisting of relays, timers, sensors, annunciation window for fault indication complete as per specifications.</p>					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-2.2	<p>Fabricating, supplying, Installtion, testing and commissioning of electrical control panel of cubicle construction, floor mounted type, fabricated out of 2 mm thick CRCA sheet, compartmentalised with hinged locakable doors, dust and vermin proof, powder coated of approved shade after 7 tank treatment process, cable alley, inter connection, having switchgears and accessories mounting and inernal wiring, earth terminals, numbering etc. complete in all respects, suitable for operation on 415 V, 3 phase, 50 Hz AC supply with enclosure protection class IP 42 as required.</p> <p>Terrace Pump Panel Incommer</p> <p>63 Amps TP & N SFU with HRC fuses.</p> <p>Digital Voltmeter (0 - 500 volts) with selector switch</p> <p>Digital Ammeter (0 - 600 Amps) with selector switch& CTs etc.</p> <p>Set of 3 phase indicating Lamps LED type with protective fuse.</p> <p>Set of Al. Bus bar of 100 Amps, Outgoing Terrace Pump- 2 nos (including spare)</p> <p>63 Amps TP&N SFU with HRC fuses with suitable HP fully automatic star / delta starter with overload protection, current sensing type single phase preventor complete with all accessories and internal wiringrequired for automatic operation, selector switch for local / remote, auto / manual / Off operation.</p>	Set	2.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-2.3	Fabrication, supply, installation, testing and commissioning of wall mounted remote indication panel for fire fighting system fabricated from not less than 1.6 mm thick CRCA sheet, powder coated of approved shade, complete internal wiring, indicating lamps, relays, accessories, numbering, lettering complete in all respects and consisting of the following as required. ON/OFF indication of Main Electrical Terrace Pump, Audio / Visual indication of operation of Main Fire Pump	Set	3.00			
F-2.4	Supplying and laying of XLPE insulated, PVC sheathed copper conductor 1.1 KV grade armoured Cable of following sizes on surface / in existing cable tray suitably clamped as required :					
F-2.4.1	3 x 95 sq. mm	Mtr.	50.00			
F-2.4.2	3 x 25 sq. mm	Mtr.	60.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-2.5	Supplying and laying control wiring with multicore copper stranded conductor of following sizes PVC insulated, PVC sheathed armoured cable between various sensors and system controller / starter etc. in pump house and out side on surface / existing cable tray complete with connections at both end with glands etc. as required.					
F-2.5.1	2 x 2.5 sq mm	Mtr.	200.00			
F-2.6	Supplying and making end terminations with brass compression gland and Al. Lugs for following sizes of PVC insulated, PVC sheathed / XLPE Al. Conductor cables of 1.1 KV grade as required.					
F-2.6.1	3 x 95 sq. mm	Set	3.00			
F-2.6.2	3 x 25 sq. mm	Set	9.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-2.7	Supplying, Installation and tesing of Earthing Station with GI plate of size 600 mm x 600 mm x 6 mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe including charcoal or coke and salt complete as per specification.	Job	2.00			
F-2.8	Providing and fixing 25 mm x 5 mm GI Strip in 40 mm dia G.I. Pipe from earth electrode as required.	Mtr.	50.00			
F-2.9	Providing and fixing 25 mm x 5 mm GI Strip in on surface or in recess for earth connection etc. as required.	Mtr.	90.00			
F-2.10	Fabrication and installation of following sizes of perforated MS cable trays including horizontal and vertical bends, reducers, tess, cross members and other accessories as required and duly suspended from the ceiling with MS suspenders and including painting with post office red synthetic paint as required.					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-2.10.1	100 mm (W) x 50 mm (D) x 1.6 mm (T)	Mtr.	60.00			
F-2.10.2	300 mm (W) x 50 mm (D) x 1.6 mm (T)	Mtr.	20.00			
	TOTAL OF ELECTRICALS CARRIED OVER TO SUMMARY OF FIRE FIGHTING & FIRE ALARM WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.0	PIPING AND ACCESSORIES					
F-3.1	Providing, laying, testing and commissioning in trenches spigot & socketted ductile iron pipes class K12 of following sizes conforming to IS 8329-2000 (as amended up to date) and ISI marked with rubber ring tyton joints including the cost of rubber ring fitting and standard specials such as tees, bends, collars, trappers, caps, flanged / socketted / spigotted tail pieces, blank flanges, etc (heavy class) conforming to IS - 9523-1980 (as amended up to date) and ISI marked as required including flanged joint wherever required as per manufacturer's specification with neoprene gasket conforming to IS-1568, MS nuts, bolts & washers and necessary excavation for trenches in any type of soil, providing cement concrete blocks as supports and thrust blocks, back filling & disposal of surplus excavated soil.					
F-3.1.1	150 mm dia	Mtr.	975.00			
F-3.1.2	100 mm dia	Mtr.	20.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.2	Providing, laying, testing and commissioning of MS pipe conforming to IS: 3589 including MS fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc., fixing the pipe on pipe on the wall / ceiling with suitable clamps and painting with two or more coats of synthetic paint of required shade complete as required.					
3.2.1	250 mm dia (wall thickness 7 mm)	Mtr.	6.00			
F-3.2.1	200 mm dia (wall thickness 7 mm)	Mtr.	6.00			
F-3.3	Providing, laying, testing and commissioning of Class "C" heavy duty MS pipe conforming to IS:1239 including fittings like elbows, tees, flanges, tapers, nuts, bolts, gaskets etc., fixing the pipe on pipe on the wall / ceiling with suitable clamps and painting with two or more coats of synthetic paint of required shade complete as required.					
F-3.3.1	150 mm dia	Mtr.	190.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.3.2	100 mm dia	Mtr.	40.00			
F-3.3.3	80 mm dia	Mtr.	30.00			
F-3.3.4	65 mm dia	Mtr.	30.00			
F-3.4	Supplying and fixing stainless steel single headed internal and external hydrant valve with instantaneous stainless steel couplings of 63 mm dia with cast iron wheel, ISI marked conforming to IS:5290 (Type A) with blank plastic cap and chain as required.	Each	57.00			
F-3.5	Supplying and fixing orifice plate made of 6 mm thick stainless steel with orifice of required size in between flange and landing valve of external and internal hydrants to reduce pressure to working pressure of 3.5 kg/sq.cm complete as per specifications as required.	Each	12.00			
F-3.6	Supplying and fixing synthetic 63 mm dia, 15 M long synthetic hose pipe with 63 mm dia male and female stainless steel couplings duly binded with GI wire, rivets etc conforming to IS:636 as required.	Each	114.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.7	Supplying and fixing 63 mm dia stainless steel branch pipe with 20 mm (nominal internal diameter) size stainless steel nozzle conforming to IS:903, suitable for instantaneous connection to interconnect hose pipe coupling as required.	Each	57.00			
F-3.8	Supplying and fixing First Aid Hose Reel with MS construction spray painted in Post Office Red, conforming to IS:884 with upto date amendments, complete with the following as required : 36 m long 25 mm (nominal internal) dia water hose thermo plastic pipe 25 mm (nominal internal) dia ball valve and nozzle. Drum and brackets for fixing the equipments on wall. Bracket shall be of aluminium alloy Connections from Riser with 25 mm dia stop valve & MS pipe.	Set	45.00			
F-3.9	Supplying and fixing of hose cabinet of size 900 mm x 600 mm x 450 mm made of 3 mm thick powder coated aluminium sheet with 6 mm thick glazed glass doors including necessary locking arrangement suitable to accommodate external hydrants, 2 nos 15 m long hose pipe, 1 no branch pipe with 4 nos MS angle (40 x 40 x 8) supports grouted in floor and duly powder coated with post office red external and white internal paint complete in all respects, for external hydrant, as required.	Each	18.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.10	Providing & fixing, testing and commissioning of double flanged sluice valve of rating PN 1.6 with rising spindle, bronze / gun metal seat complete with nuts, bolts, washers, gaskets, conforming to IS:780 of following sizes as required :					
F-3.10.1	250 mm dia	Each	2.00			
3.10.2	200 mm dia	Each	3.00			
F-3.10.3	150 mm dia	Each	13.00			
F-3.10.4	100 mm dia	Each	3.00			
F-3.10.5	80 mm dia	Each	3.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.10.6	65 mm dia	Each	3.00			
F-3.11	Providing, installation, testing and commissioning of gun metal ball valves of following sizes as required :	Each	5.00			
	40 mm dia					
F-3.12	Supplying and fixing 3 way Fire Brigade connection of cast iron body with 3 nos gun metal male instantaneous inlet couplings complete with cap and chain as required for 150 mm dia MS pipe connection, conforming top IS:904 complete as required.	Set	6.00			
F-3.13	Providing and fixing gun metal suction coupling 100 mm dia female round thread top for fire brigade drawl of water from tank	Each	1.00			
F-3.14	Providing and fixing gun metal four way Fire Brigade Filling Connection with 4 nos 63 mm dia gun metal female connection in cast iron main unit.	Each	1.00			
F-3.15	Providing and laying 600 mm dia NP II Class Hume Pipes at 1.0 M depth at crossing of Hydrant Pipe below roads including filling of balance area of pipe with sand complete as required.	Mtr.,	80.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-3.16	Providing, Installation, testing and commissioning of non return valve of following sizes confirming to IS:5312 complete with rubber gaskets, GI bolts, nuts, washers etc as required.					
F-3.16.1	150 mm dia	Each	8.00			
F-3.16.2	65 mm dia	Each	3.00			
F-3.17	Providing and fixing 150 mm dia Post Indicator Valve, FM approved, complete including excavation and back filling and connecting toexisting pipes, complete as required. PIV shall have window with "OPEN / CLOSED" marking.	Each	8.00			
	TOTAL OF PIPES AND ACCESSORIES CARRIED OVER TO SUMMARY OF FIRE FIGHTING & FIRE ALARM WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-4.0	PORTABLE FIRE EXTINGUISHERS					
	Providing and fixing with brackets wall mounted / ceiling mounted Fire Extinguishers as per details below ;					
F-4.1	9 litres water type fire extinguisher IS 15683 marked deep drawn cylinder with internal plastic lining and 60 gms CO2 cartridge, siphon tube, plunger (spring operated) and discharge tube	Each	120.00			
F-4.2	Stored pressure ISI 15683 marked fire extinguishers of ABC Dry Chemical powder type 4 Kg capacity made of high pressure steel cylinder complete with wheel type valve, internal discharge tube, 1 M long high pressure wire braided discharge hose, pressure guage and fully charged with UL listed ABC powder.	Mtr.	73.00			
F-4.3	Providing & fixing wall mounted signages consisting of Zinc Sulphide Photo Luminescent coatings on acrylic sheet. Signage shall be any of the following;Exit / Staircase / Extinguisher location / Manual Call Box / Hydrant etc. Signage shall be as per drawing Size 150 x 300 mm	Each	97.00			
	TOTAL OF FIRE EXTINGUISHERS CARRIED OVER TO SUMMARY OF FIRE FIGHTING & FIRE ALARM WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-5.0	FIRE ALARM SYSTEM					
	Providing, installing, testing and commissioning of the following items complete with junction boxes as per specifications & complete as required. Detectors below false ceiling shall have anchoring arrangement of the base with the false ceiling with use of a round / square plate 16 guage plate mounted above false ceiling to which the base shall be screwed.					
F-5.1	Intelligent Addressable Rate of Rise cum Fixed Temperature Heat Detector with inbuilt Fault Isolator, mounting base etc. complete as required.	Each	30.00			
F-5.2	Intelligent Addressable Multi criteria detector with Photo Electric and Rate of Rise type for both Smoke and heat applications, inbuilt Fault Isolator, mounting base.	Each	515.00			
F-5.3	Addressable Manual Call Box made of polycarbonate with plastic break glass front and complete with Monitor Module. MCB shall be recessed in wall with size of 75 x 120. The MCB shall have "IN CASE OF FIRE BREAK GLASS" imprinted on the facia.	Each	58.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-5.4	Addressable Input Module for connecting to Flow Switch and other NO / NC	Each	2.00			
F-5.5	Output Module for tripping of AHU / Hooter / Srobe as required.	Each	21.00			
F-5.6	Fault Isolator Unit	Each	34.00			
F-5.7	Providing, installing, testing and commissioning of Ceiling / Wall mounted baffle speaker of 6 Watt each.	Each	58.00			
F-5.8	Response Indicator	Each	228.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-5.9	Duct Detector with cage, probe tubes and addressable detector	Set	10.00			
F-5.10	<p>Providing, installing, connecting, testing and commissioning of micro processor based 16 bit Logic driven Networkable on Peer to Peer Analogue Addressable 6 Loop (each loop accessing 120 addressable detectors) Fire Alarm Control Panel. The Panel shall be able to give pin point location of all Fire/Fault conditions of addressable units via the address codes for each unit. The Panel shall also be able to automatically switch off all Control Switches when ever any Alarm is triggered. The Panel shall be coupled to the PA System and have sealed maintenance free batteries of 25 Ah capacity of 24 volts capable of running for a minimum of 12 hours with battery charger, rectifier, Loop cards, Keypad operation, L C D unit to indicate Fire / Fault Signal of individual unit, built in built / external printer to log all incoming data etc complete in all respects.</p> <p>The Panel shall also have Logic hardware and software built into it for initiating specific sounderinitiation. Other requirements are given in the Specifications.</p>	Set	1.00			
F-5.10.1	Same as above but for 2 Loop	Set	1.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-5.11	Providing, installing, testing and commissioning of Repeater Panel for Fire Alarm System with piezo sounder, LCD alpha numeric character display with accept / reset buttons for alarm address of any sensor / field device. The Repeater Panel shall only provide field device address with room number.	Each	1.00			
F-5.12	Providing, installing, testing and commissioning of PA System micro processor based Operator Console complete with 4 x 240 W channel mixing Amplifiers (in addition to another 240 W amplifier as hot standby) with 2 channels, 1 no cardoid gooseneck micro phone, 1 no CD Player deck MP3 format, a 10 zone Floor Selector Console, a Change over Panel for connection to the Fire Alarm Panel, a Mains Panel, a standby battery of 25 Ah SMF of 2 x 12 Volts and a Monitor Panel all pre wired and rack mounted complete in all respects & as per specifications. PA System shall be coupled to the Fire Alarm System.	Set	2.00			
F-5.13	Supplying and fixing of following sizes of steel conduit alongwith the accessories in surface / recess including red (fire) / yellow (telephone) factory painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required. 20 mm dia	Mtr	2740.00			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
F-5.14	Supplying, drawing, connecting, testing & commissioning of shielded and stranded insulated zero halogen copper conductor cable in existing conduit of the following sizes : 2 x 1.5 sq mm	Mtr	3288.00			
F-5.15	Providing and fixing flexible 20 mm dia GI steel conduit including all necessary supports, clamps, jointing pieces etc for cable from roof slab to detector on the false ceiling as required.	Mtr.	180.00			
	TOTAL OF FIRE ALARM SYSTEM CARRIED OVER TO SUMMARY OF FIRE FIGHTING & FIRE ALARM WORKS					

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ACADEMIC AND HOSTEL BLOCK (PHASE- I)
SUMMARY OF FIRE FIGHTING & FIRE ALARM WORKS**

SL. NO	DESCRIPTION	AMOUNT (IN RUPEES)	
		(IN FIGURE)	(IN WORDS)
F-1.0	PUMPS & ACCESSORIES		
F-2.0	ELECTRICALS		
F-3.0	PIPING & ACCESSORIES		
F-4.0	PORTABLE FIRE EXTINGUISHERS		
F-5.0	FIRE ALARM SYSTEM		
	TOTAL OF FIRE FIGHTING & FIRE ALARM WORKS CARRIED OVER TO GRAND SUMMARY		

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CONSTRUCTION OF IITM CAMPUS AT TECHNOCITY, THIRUVANANTHAPURAM, KERALA
ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES -HVAC WORKS

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-1.0	SUB HEAD : 'A' MACHINERY					
	Ventilation Fans					
G-1.1	Supply, installation, testing and commissioning of factory built, cabinet type, belt driven supply/exhaust air units in double skin construction of following capacity at required static pressure complete with factory fabricated independent sections, housing the various components e.g. blower, TEFC efficiency 1 blower motor suitable for operation on 415± 10% volts, 3 phase, 50 Hz AC supply, control wiring, and pre filter sets, with anti-vibration mountings etc. as required and as per "Schedule of equipment" and specifications. Fan shall be AMCA certified. Hostel Block					
		AHU Tag.	Air Qty. (CMH)	Static Pr. (mmWG)		
(i)		HB - EAU-01 (Garbage , Dish wash area Exhaust) (Without prefilter)	3000	20	No.	1
(ii)		HB - FAU-01 Kitchen supply air)	23500	30	No.	1

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-1.2	Supply, installation, testing and commissioning, of duct mounted Inline fans complete with direct/belt driven centrifugal fan, TEFC squirrel cage induction motor, direct drive arrangement, heavy gauge sheet metal casing, rubber isolator mounts and other accessories. Inline fans shall be of following capacities:					
(i)	2000 CMH at SP of 20mm WG, 900 rpm	Nos.	12			
(ii)	1800 CMH at SP of 20mm WG, 900 rpm	Nos.	20			
(iii)	1000 CMH at SP of 15 mm WG, 900 rpm	Nos.	3			
G-1.3	Supply, installation, testing and commissioning, of wall/window type exhaust fan complete with CRCA casing, polypropylene blades impeller, motor automatic aluminium louvered shutter with stove enamel paint, nut bolts, for use on 220/240 volts, single phase, 50 Hz, power supply with all accessories, ancillary work, etc.					
(i)	225 mm dia 1300 RPM	Nos.	21			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
(ii)	300 mm dia 1300 RPM	Nos.	3			
(iii)	450 mm dia 1370 RPM	Nos.	8			
(iv)	225 mm dia 1430 RPM (MRSS Room)	Nos.	2			
(v)	300 mm dia 1300 RPM (Pump Room)	Nos.	2			
(vi)	400 mm dia 1360 RPM (MRSS Room)	Nos.	3			

Sl. No.	DESCRIPTION				UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
							(IN FIGURE)	(IN WORDS)	
G-1.4	<p>Supply, installation, testing and commissioning of packaged Air Scrubber comprising of fan section with backward/forward curved centrifugal fan TEFC squirrel cage induction motor and belt drive package (fan motor efficiency exceeding ASHRAE 90.1-2007 Criteria), with in built eliminators, pumps, water distribution system complete with FRP spray headers in two banks, float valve, quick fill, over flow and drain connection and GI medium class piping as required and as per the specifications.</p> <p>The Scrubber enclosure shall be fabricated out of 16 Gauge GS sheet complete with inspection doors wherever required as per the specifications. The blower motor shall be suitable for operation on 415 +10% Volts, 3 phase AC complete in all respects as per specifications and drawings. Capacity as under:</p>								
	Hostel Block								
		Air Scrubber Tag.	Air Qty. (CMH)	Static Pr. (mmWG)					
(i)		HB - SCRIB - 01	27500	50	No.	1			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-1.5	Hi - Wall Mounted Split Unit					
	Supply, installation, testing and commissioning of Hi - Wall Mounted split type air conditioning units of following capacities complete with evaporator, condenser, cooling coil, condenser coil, fans, hermetically sealed compressor, control wiring, remote control unit, suitable automatic voltage stabiliser(s) with high/low voltage cut-out and time delay relay, insulated GI/UPVC condensate drain piping, unit mounting stands requisite power and control cable etc.as per schedule of equipment and specifications. Cooling capacity :					
(i)	2.0 TR (Server Room)	Nos.	4			
(ii)	2.0 TR (Scada Room)	Nos.	1			
	TOTAL OF SUB HEAD : 'A' MACHINERY CARRIED OVER TO SUMMARY OF HVAC WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-2.0	SUB HEAD : 'B' DUCTING WORKS					
G-2.1	Supply, installation, testing and balancing of factory fabricated rectangular / Circular GI ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes, canvas connections etc. complete as per SMACNA specifications and in accordance to the specifications and the approved shop drawings.					
a)	Rectangular					
(i)	1.25 mm	Sqm.	20			
(ii)	1.00 mm	Sqm.	95			
(iii)	0.80 mm	Sqm.	2044			
(iv)	0.63 mm	Sqm.	1712			
(v)	0.50 mm	Sqm.	1834			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
b)	Circular					
(i)	0.63 mm	Sqm.	100			
(ii)	0.50 mm	Sqm.	700			
G-2.2	Supply and fixing of self adhesive Acoustic lining with 15 mm thick open cell Nitrile foam on the inner side of ducting with antimicrobial property complete as per specifications.	Sqm.	550			
G-2.3	a) Supply and fixing of external thermal insulation of Elastomeric closed cell nitrile rubber, UV protected coating with glass cloths pre-laminated at factory with rubber/solvent based adhesive or as per insulation manufacturer, on the supply and return Rectangular air duct with density 32 Kg/CuM as mentioned below:-					
	(i) 25 mm thick insulation	Sqm.	2150			
	(ii) 19 mm thick insulation	Sqm.	1900			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	(iii) 9 mm thick insulation	Sqm.	325			
	b) Supply and fixing of thermal insulation of Elastomeric closed cell nitrile rubber with rubber/solvent based adhesive or as per insulation manufacturer, on the internal periphery of the supply and return circular air duct, with density 32 Kg/CuM as mentioned below:-					
	(i) 25 mm thick insulation	Sqm.	400			
	(ii) 9 mm thick insulation	Sqm.	400			
G-2.4	Providing of spray painting over GI ducts at all level and height of approved makes and shade including primer coating complete in all respect and as per direction of the engineer incharge.	Sqm.	1000			
G-2.5	Supply, installation, testing and balancing of box type GI Volume Control Damper to be provided with suitable links, levers and quadrants for manual control of volume of air flow and for proper balancing of the air distribution complete as per specifications	Sqm.	10			
G-2.6	Supply, installation, testing and commissioning of powder coated extruded aluminium Supply air grilles of various sizes, with volume control dampers and adjustable horizontal and vertical air deflection louvers complete as per specifications.	Sqm.	21			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-2.7	Supply, installation, testing and commissioning of powder coated extruded aluminium Return air grilles of various sizes, without volume control dampers and adjustable horizontal and vertical air deflection louvers complete as per specifications.	Sqm.	21			
G-2.8	Supply, installation, testing and commissioning of circular powder coated extruded aluminium Supply air diffusers of various sizes with volume control dampers complete as required.					
	(i) 250 mm dia	Nos.	5			
	(ii) 300 mm dia	Nos.	75			
G-2.9	Supply, installation, testing and commissioning of circular powder coated extruded aluminium Return air diffusers of various sizes complete without volume control dampers, and as per specifications.					
	(i) 250 mm dia	Nos.	5			
	(ii) 300 mm dia	Nos.	100			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-2.10	Supply, installation, testing and commissioning of square powder coated extruded aluminium Supply air diffusers of various sizes with volume control dampers complete as required.	Sqm.	4			
G-2.11	Supply, installation, testing and commissioning of square powder coated extruded aluminium Return/Exhaust air diffusers of various sizes complete without volume control dampers, and as per specifications.	Sqm.	5			
G-2.12	Supply, installation, testing and commissioning of powder coated extruded aluminium Fresh air louvers with aluminium bird screen and MS volume control damper as per specifications.	Sqm.	3			
G-2.13	Supply, installation, testing and commissioning of powder coated extruded aluminium Exhaust air louvers with aluminium bird screen as per specifications.	Sqm.	2			
G-2.14	Supply, installation, testing and commissioning of GI multi-leaf Motorised Fire Dampers complete with chrome plated spindles in self lubricated bronze bushes, linkages, actuator (to be integrated with fire alarm system), motor, limit switch, control wiring DP Switch etc. complete as per specifications.	Sqm.	3			
G-2.15	Supply and fixing of AHU Room / Partition of Ceiling suspended AHUs, acoustic treatment in areas as shown on drawings with 25 mm thick engineered Elastomeric open cell nitrile rubber with antimicrobial property complete as per specifications.	Sqm.	1000			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-2.16	Supply and fixing of under deck roof insulation with 40mm thick polyisocyanurate machine cut shiplap joint slabs prelaminated with 0.05mm aluminium foil etc. as per specifications.	Sqm.	1250			
	TOTAL SUB HEAD : 'B' DUCTING WORKS CARRIED OVER TO SUMMARY OF HVAC WORKS					

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-3.0	SUB HEAD : 'C' ELECTRICAL WORKS					
	L.T. Panel					
G-3.1	<p>ACDB-H- 01 (HOSTEL BLOCK VENTILATION PANEL) Supply, installation, testing and commissioning of following distribution boards totally enclosed compartmentalized, cubicle floor mounted, indoor type IP:42, factory fabricated with 2 mm thick sheet steel, with aluminium bus bars (both for main and neutral bus bars), complete with following switchgear/ mountings cable terminations, inter-connections as required, for 415 volts, 3 phase, 4 wire 50 HZ. AC supply suitable for 50KA fault level as per specifications and drawings.</p> <p>All Air Circuit Breakers shall be provided with Micro processor based Earth fault, short circuit and over current releases. Moulded case circuit Breakers shall be thermal magnetic trip type. Fault level for all ACB/MCCB and bus bar shall be 35 KA. ICU shall be equal to ICS=100%</p> <p>Note : All metering current transformers shall be Class 1, 15 VA.</p> <p>Incomer</p> <p>a) 100A 4P MCCB - 1 No.</p> <p>i) 0-100 A Ammeter with Ammeter selector switch and 3 Nos. 100/5 C.T.s -1 Set</p> <p>ii) 0-500 V Voltmeter with Voltmeter selector switch and control fuses - 1 Set</p> <p>b) ON/OFF/TRIP Indicating Lights with control fuses - 1 Set</p> <p>c) ON/OFF push button with control fuses - 1 Set</p> <p>d) R, Y, B phase indicating light with control fuses - 1 set</p>	No	1			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
	<p>Bus Bar</p> <p>i) 150 A, 415V, 3ph, 4 wire Aluminium busbar</p> <p>Outgoing</p> <p>i) 63 A 3P MPCB - 2 Nos.</p> <p>ii) 32 A 3P MCCB - 2 Nos.</p> <p>iii) 16 A 3P MCCB - 1 No.</p> <p>iv) DOL/Star Delta starter with ON/OFF indicating light, ON/OFF push buttons, control fuses, timers, contractors, overload relay with built-in single phase preventor, control fuses, wiring, interconnections suitable for following rating motor.</p> <p>a) 0.75 KW motor - 1 Set</p> <p>b) 7.5 KW motor - 1 Set</p> <p>c) 5.5 KW motor - 1 Set</p> <p>v) R,Y,B indication lamps with control fuses - 5 Sets</p> <p>vi) 0-63A Ammeter with ammeter selector switch and 3 Nos.63/5 CT's - 2 Sets.</p> <p>vii) 0-32A Ammeter with ammeter selector switch and 3 Nos.32/5 CT's - 2 Sets.</p> <p>viii) 0-16A Ammeter with ammeter selector switch and 3 Nos.16/5 CT's - 1 Set.</p>					
G-3.2	Providing and fixing locakable type remote ON/OFF push buttons in suitable MS enclosure including mounting arrangement, control cable, etc. as required complete as per specifications.	Nos	3			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-3.3	Cable Trays					
G-3.3.1	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
i)	100 mm width X 50 mm depth X 1.6 mm thickness	M	120			
G-3.3.2	Supplying and installing following size of perforated pre-painted M.S. cable trays bends with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
i)	100 mm width X 50 mm depth X 1.6 mm thickness	Nos	7			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-3.4	Cables					
G-3.4.1	Supply of following sizes of 1.1KV grade XLPE insulated PVC sheathed armoured aluminium, aluminium conductor power cables as per IS:7096 complete as required as per specification.					
i)	3 c x 16 sqmm	M	70			
ii)	3 c x 10 sqmm	M	50			
iii)	3 c x 6 sqmm	M	150			
G-3.4.2	Laying of Cables					
	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 (clamped with 1mm thick saddle)	M	270			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-3.4.3	Supply and making end termination with brass compression glands and aluminium lugs for following size of XLPE insulated and PVC sheathed/ aluminium conductor cable of 1.1 kv grade as required.					
i)	3 c x 16 sqmm	Sets	4			
ii)	3 c x 10 sqmm	Sets	4			
iii)	3 c x 6 sqmm	Sets	6			
G-3.4.4	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.	Sets	4			
G-3.4.5	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	M	25			

Sl. No.	DESCRIPTION	UNIT	QTY	RATE (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
G-3.4.6	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	M	25			
	TOTAL SUB HEAD 'C' ELECTRICAL CARRIED OVER TO SUMMARY OF HVAC WORKS					

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ACADEMIC AND HOSTEL BLOCK (PHASE- I)
SUMMARY OF HVAC WORKS**

SL. NO	DESCRIPTION	AMOUNT (IN RUPEES)	
		(IN FIGURE)	(IN WORDS)
G-1.0	SUB HEAD : 'A' MACHINERY		
G-2.0	SUB HEAD : 'B' DUCTING WORKS		
G-3.0	SUB HEAD : 'C' ELECTRICAL WORKS		
	TOTAL OF HVAC WORKS CARRIED OVER TO GRAND SUMMARY		

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ACADEMIC AND HOSTEL BLOCK (PHASE- I)
BILL OF QUANTITIES -SITE DEVELOPMENT WORKS

Sl. No.	DESCRIPTION	UNIT	QTY	AMOUNT (IN RUPEES)		AMOUNT (IN RUPEES)
				(IN FIGURE)	(IN WORDS)	
H-1.0	SITE DEVELOPMENT WORKS					
H-1.1	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 with lead upto 50 metres.	sqm	2900.00			
H-1.2	Supplying and stacking at site					
(a)	90mm to 45mm size stone aggregate	Cum	468.00			
(b)	63mm to 45mm size stone aggregate	Cum	312.00			
(c)	53mm to 22.4mm size stone aggregate	Cum	312.00			
(d)	d) Stone screening 13.2mm nominal size (Type-A)	Cum	107.00			

H-1.1	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 with lead upto 50 metres.	sqm	2900.00			
(e)	e) Stone screening 11.2mm nominal size (Type-B)	Cum	70.00			
H-1.3	Laying, spreading and compacting stone aggregate of specified sizes to WBM specifications in uniform thickness, hand picking, rolling with 3 wheeled road / vibratory roller 8-10 tonne capacity 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 .	Cum	1015.00			
H-1.4	Supplying & Filling with earth brought from out side (excluding rock) in plinth/under floor in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering complete in all respect as approved by engineer-in-charge	Cum	10475.00			
H-1.5	Providing and laying design mix cement concrete of M-30 grade, in roads/ taxi tracks/ runways, using cement content as per design mix, using coarse sand and graded stone aggregate of 40 mm nominal size in appropriate proportions as per approved & specified design criteria, providing dowel bars with sleeve/ tie bars wherever required, laying at site, spreading and compacting mechanically by using needle and surface vibrators, levelling to required slope/ camber, finishing with required texture, including steel form work with sturdy M.S. channel sections, curing, making provision for contraction/expansion, construction & longitudinal joints (10 mm wide x 50 mm deep) by groove cutting machine, providing and filling joints with approved joint filler and sealants, complete all as per direction of Engineer-in-charge (Item of joint fillers, ealants, dowel bars with sleeve/ tie bars to be paid separately). Note:- Cement content considered in M-30 is @ 340 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately Cement concrete prepared with batch mixing machine	Cum	580.00			

H-1.1	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 with lead upto 50 metres.	sqm	2900.00			
H-1.6	Providing and fixing in position pre-moulded joint filler in expansion joints.	per cm depth per cm width per m length	947.00			
H-1.7	Painting runway/taxi track/apron marking with adequate nos of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge, i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete. New work (Two or more coats)	sqm	100.00			
H-1.8	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete 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).	Cum	72.00			
TOTAL OF SITE DEVELOPMENT WORKS CARRIED OVER TO GRAND SUMMARY						