

**TENDER**

**FOR**

**SETTING UP OF EMERGENCY AND CRITICAL  
CARE DEPARTMENT IN MEDICAL COLLEGES -  
RENOVATION OF EXISTING WARD IN 4TH  
FLOOR OF H1H2 BLOCK TO ACCOMMODATE ICU  
AT TD MEDICAL COLLEGE HOSPITAL,  
ALAPPUZHA**

**PART-III  
PRICE BID**

**TENDER NO. HLL/ID/13 /33 -IIB  
April 2013**

**HLL LIFECARE LIMITED  
INFRASTRUCTURE DEVELOPMENT DIVISION**

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## **1 COMMERCIAL CONDITIONS**

1.0.1 The tendered rate shall inter alia be deemed to include for the provision of all materials, process, operation and special requirements detailed in the particular specification irrespective of whether these are mentioned in the description of equipment schedule and Bill of quantities or not. It is an express condition of the contract that the tendered rates for various items in the Bill of Quantities shall be deemed to include for the full, entire and final condition of the contractor respective items of the works in accordance with the provision of the contract.

1.0.2 The tendered rate shall include for all taxes, duties, etc. as applicable and shall be quoted on the works contract basis for Setting up of emergency and critical care department in medical colleges - renovation of existing ward in 4th floor of H1H2 block to accommodate ICU at td medical college hospital, Alappuzha.

1.0.2 The tendered rate shall remain firm and free from variation due to rise in the cost of materials/equipment, labour or any other reasons whatsoever during the contract period and valid extension on the case may be.

1.0.3 The quantum of excise duty included in the tendered price, the rate at which they were assumed etc. shall be indicated in the tender.

### **1.1 UNIT RATES**

1.12 Only approved work will be measured on completion and priced as per rates quoted against the respective items.

### **1.2 BRIEF DESCRIPTION OF PRICING**

- 1.2.1. Unforeseen difficulties for which provision has not been made in the tender will in no way relieve the successful tenderer from the full execution of the work.
- 1.2.2 The price quoted shall be the final amount for this finished work.

1.2.3 The quoted price shall be inclusive of all taxes and duties whether payable by the contractor or to be deducted at source. This shall include those applicable among VAT, Sales Tax, Income Tax, Customs Duty, Excise Duty, Turnover Tax, Service Tax, Work Contract Tax, Octroi, Labour Welfare Cess or any other Taxes and Duties prevailing in respect of this contract. **ANY BID STATING THAT TAXES ARE EXTRA WILL BE SUMMARILY REJECTED.**

### **1.3 INCOME TAX**

Any payment to the contractor as per contract will be made after deducting income tax as per the rules and regulations.

### **1.4 SALES TAX AND EXCISE DUTY**

The tenderer shall clearly indicate sales tax, Excise and other duties as applicable in his offer for carrying out this work.

### **1.6. SUBMISSION OF BILL**

1.6.1. The contractor shall from time to time prepare and submit interim bills of the work executed and on completion of the contract, he shall prepare and submit the final bill. The measurements sheets in support of the interim and final bills shall be prepared by the contractor on the basis of measurements taken by him jointly with the project engineer and the said measurement sheets shall be submitted by him with the relevant bill.

1.6.2. Within the above frame work of the terms of payment the contract's interim bills -  
As per clause 7 in GCC

### **1.7. EXTRA ITEMS**

The contractor is bound to carry out any items of work necessary for the completion of the job even though such items may not have been included in the schedule of probable quantities or rates, such items being necessary or essential for completing the job. Variation order in respect of such additional items and their quantities will be issued in writing by the employer.

- 1.7.1 All shavings, cuttings and other rubbish as it accumulates from time to time during the progress of work and on completion including that of the sub-contractors and special tradesman and all materials condemned by the project engineer shall be cleared and removed from the site by the contractor without any extra charge.
- 1.7.2 All measuring steel taps, scaffolding, ladders instruments and tools that may be required for taking measurements shall be supplied by the contractor.

## **1.8. OVER TIME WORK**

If the contractor is required to work night or on holidays in order to maintain the time schedule he shall take prior approval from the Engineer-in-charge. He should also provide and maintain at his own cost sufficient lights as may be necessary to enable the work to proceed satisfactorily during the night.

- 1.8.1. The contractor shall give full facilities to all other contractors working on site. He shall also arrange his programme of work so as not hinder the progress of other trades. The decision of the Engineer-in-charge on any point of dispute between the various parties shall be final and binding.
- 1.8.2. It is specifically pointed out that the contractor shall not be entitled to any compensation whatsoever on account of delay in procurement or supply of controlled materials and the rates quoted in the contract are fixed till the completion of the contract.
- 1.8.3. The contractor shall co-operate with other agencies appointed by the owners for the work to proceed smoothly with the least possible delay and to the satisfaction of the owners, architects and the consultants.
- 1.8.4. The owners shall provide a source for power supply at one convenient point at site. The contractor shall at his own cost install a separate meter at the said source and lay additional cables from the said source also at his own cost. For the electricity consumed by the contractor he shall pay the owner the actual cost at the rate charged by the local authority for power for constructional purposes. The contractor shall also obtain the necessary permit for utilizing power for constructional purposes.

## **2. SPECIAL CONDITIONS**

### **2.1. EXECUTION WORK**

- 2.1.1. The whole of the work as described in the contract (including bills of materials, specification and all drawings pertaining thereto) and as advised by the Engineer-in-charge from time is to be carried out and completed in all parts to the entire satisfaction of the Employer. Any minor details of construction which are obviously and fairly intended, or which may not have been definitely referred to in this contract, but which are usual construction practice and essential to the work, shall be included in this contract.

### **2.2. CERTIFICATE OF COMPLETION**

- 2.2.1 The contractor shall intimate to the Engineer-in-charge in writing as and when the works are completed and put into beneficial use in order to enable the consultants to check certify to the owners to take over the plants.
- 2.2.2 The work shall not be considered as completed and put into beneficial use until the consultants have certified in writing that the same has been completed and put into beneficial use.
- 2.2.3 The defects liability period shall commence from date of such completion or any specific date mentioned therein.

**BILL OF QUANTITIES**

**ABSTRACT**

<b>SEC.</b>	<b>DESCRIPTION OF ITEM</b>	<b>AMOUNT (Rs.)</b>
I	CIVIL WORKS	
II	Electrical works	
III	HVAC	
IV	Fire Fighting System	
	<b>GRAND TOTAL</b>	<b>Rs.</b>

Sl.No	Description of Item	Quantity	Unit	Rate	Amount
	<b>CIVIL - Part A</b>				
	<b>SUB HEAD I : Dismantling &amp; Demolishing</b>				
1	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. In cement mortar	96.00	CUM		
2	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead:	161.00	EACH		
3	Dismantling tile work in floors and roofs laid in cement mortar including stacking material within 50 metres lead. 15.23.1 For thickness of tiles 10 mm to 25 mm	2045.79	sqm		
4	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead	37.85	SQM		
5	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in-charge.	4.13	CUM		
6	Dismantling of closet IWC/EWC /Wash basin/ Sink of any size including stacking of useful materials near the site and disposal of unserviceable materials within 50meters lead	21.00	Each		
	<b>SUB HEAD - II - REINFORCED CEMENT CONCRETE</b>				



7	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	8.46	cum		
8	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level. Thermo Mechanically Treated bars	846.00	kg		
9	Centering and shuttering including strutting, propping etc. and removal of form for :				
a	Suspended floors, roofs, landings, balconies and access platform	29.30	sqm		
b	Lintels, beams, plinth beams, girders, bressumers and cantilevers	65.10	sqm		
10	Providing and fixing sheet covering over expansion joints with iron screws as per design. Aluminium fluted strips 3.15 mm thick. 150 mm wide	25.00	M		
11	Providing and filling in position bitumen mix filler of Proportion 80 kg of hot bitumen, 1 kg. of cement and 0.25 cubicmetre of coarse sand for expansion joints.	5.00	per cm depth per cm width per 100 m		
12	Providing and fixing in position 12 mm thick bitumen impregnated fibre board conforming to IS: 1838, including cost of primer, sealing compound in expansion joints.	10.00	per cm depth per 100 m		
	<b>SUB HEAD III : BRICK WORK</b>				
13	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 ).	172.24	Cum		

14	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	106.87	sqm		
15	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.	107.00	sqm		
	<b>SUB HEAD : IV GRANITE WORK</b>				
16	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), 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. Granite of any colour and shade Area of slab over 0.50 sqm	23.00	sqm		
17	Providing edge moulding to 18 mm 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	45.13	m		
	<b>SUB HEAD V: STEEL WORK</b>				
18	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete. Fixed to openings /wooden frames with rawl plugs screws etc	48.00	Kg		
	<b>SUB HEAD VI : WOOD WORK</b>				
19	Providing and fixing 18mm thick marine plywood exsterior grade of approved make for cup board shelves including neccessary screws, nails,gum etc complete asper the direction of engineer-in - charge	45.00	sqm		

20	Providing and fixing cupboard shutters with 18mm thick marine plywood ISI marked exterior grade of approved make including IInd class teak wood lipping of 18mm wide x12 mm thick with necessary screws,75mm stainless steel handle and bright finished stainless steel piano hinges etc. complete as per direction of Engineer -in-charge	22.00	sqm		
21	Providing and fixing 6 brass lever locking mechanism of approved make like godrej etc. for cupboard including all necessary fittings as directed by the engineer in charge	20.00	each		
	<b>SUB HEAD VII : FLOORING</b>				
22	Providing and fixing 1st quality germ free & joint free tiles of minimum thickness 10 mm or nearest size of (size 600x300mm) approved make in all colours, shades except begundy, bottle green, black or 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 @ 3.3 kg per sqm including pointing in white cement mixed with pigment of matching shade complete..[Basic price of tile not less than Rs.650./M2]	531.86	sqm		
23	Providing and fixing 1st quality ceramic glazed joint free wall tiles conforming to IS: 15622 Of thickness 5MM or nearest size of approved make, in all colours, shades except burgundy, bottle green, black of 450 x 250mm 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 : 3coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm, including pointing in white cement mixed with pigment of matching shade complete..[Basic price of tile not less than Rs.400/M2]	986.00	sqm		

24	Providing and laying Ceramic joint free antiskid floor tiles of size 400x400 mm thickness 7.5mm or nearest size of 1st quality conforming to IS : 15622, of make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick bed of cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigments etc., complete..[Basic price of tile not less than Rs.370/M2]	41.00	sqm		
25	Providing and laying vitrified floor tiles in different sizes thickness 10mm or nearest size with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), including grouting the joints with white cement and matching pigments etc., complete. Size of tile 600x600mm or as approved by the engineer in charge.[Basic price of tile not less than Rs.865/M2]	1157.79	sqm		
	<b>SUB HEAD VIII : ROOFING</b>				
26	Providing & Fixing of Armstrong Mineral Fibre Acoustical Suspended Ceiling System with BIOGUARD ISO 5 (CLASS 100) (Tegular) EDGE TILES WITH ARMSTRONG Prelude 38 mm EXPOSED GRID.	1140.59	SQM		

	<p>The tiles should have Humidity Resistance (RH) of 95%, NRC 0.15, Light Reflectance &gt;90%, Thermal Conductivity k = 0.052- 0.057 w/m K, Colour White, Fire Performance Class 0/Class1 (BS476 Pt:6&amp;7) in module size of 600 X 600 X 15 mm with Anti-bacterial coating on the face of the tile, adhering to Clean room requirement of Class 100 as per US Fed Standard 209 E and washability requirement of 500 wash cycles as per ASTM 4828 and suitable for Green Building application, with Recycled content of 24%. The grid should be of “Armstrong” make with 38mm web ht and 24mm wide T - section flanges colour white having rotary stitching on all T sections i.e. the Main Runner with C3 Coupling, 1200 mm &amp; 600 mm with Hardened XL2 Clip Cross Tees. System load carrying capacity of 15.80 kg/m2, with Pullout strength over 100Kg.</p> <p>The Tile &amp; Grid system used together should carry a 15 year warrantee</p>				
	<b>SUB HEAD IX : FINISHING</b>				
27	15mm cement plaster on rough side of single or half brick wall of mix 1:6 (1 cement : 6 coarse sand)	103.86	sqm		
28	12 mm cement plaster of mix : 1:6 (1 cement: 6 coarse sand)	634.77	sqm		
29	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand).	108.50	sqm		
30	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work .	945.83	sqm		

31	White washing with lime to give an even shade:- New work ( three or more coats) .	1239.50	sqm		
32	Finishing walls with Acrylic smooth exterior paint of required shade:- New work (Two or more coats applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.2 kg/10sqm.)	200.00	sqm		
33	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :- ,Two or more coats on new work .	12.19	sqm		
34	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	1145.83	sqm		
	<b>SUB HEAD X : MISCELLANEOUS</b>				
35	Providing and fixing factory made PVC door frame manufa-ctured by M/s Rajshri or equivalent of size 50x47 mm with a wall thickness of 5 mm. made out of extruded 5 rigid PVC foam sheet mitred at corners and joined with 2 Nos. of 150 mm long brackets of 15x15mm M.S. square tube,the vertical door profiles to be reinforced with 19x19 mm M.S. squire tube of 19 guage,EPDM rubber gasket weather seal to be provided through out the frame. The door frame to be fixed to the wall using M.S. screws of 65/100 mm size complete as per manufactures specification and direction of Engineer-in-charge	56.00	m		
36	Providing and fixing 30mm thick factory	17.00	sqm		

	made PVC rigid foam panelled door shutters manufactured by M/s Rajshri or equivalent made from M.S. tube of 19 guage thickness, size 19x19 mm for styles and 15x15 mm for top and bottom rails,covered with heat moulded PVC "C" channel of 5 mm thick and 75 mm wide PVC sheets for top rail,lock rail and bottom rail on either side and 5 mm thick 20mm wide cross PVC sheet as gap insert for top rail and bottom rial,panelling of 5mm thick PVC sheet fitted in the M.S. frame welded/sealed to the styles and rails with 5x30mm PVC sheet beading on either side and joined together with solvent cement adhesive etc., complete as per manufacture specification and direction of Engineer-in-charge fixed to frames with 4 Nos.M.S. powder coated butt hinges (For W.C. and bathroom shutters).				
	<b>SUB HEAD XI : SANITARY INSTALLATIONS &amp; WATER SUPPLY</b>				
37	Providing and fixing white vitreous china pedestal type water closet (European type W.C.pan) with seat and lid, 10 litre low level P.V.C. flushing cistern with manually controlled device ( handle lever ), conforming to IS : 7231, Parryware / Hindware/ Seabrid / Orient ( Coral ) with all fittings and fixtures complete including cutting and making good the walls and flors wherever required :- W.C. pan with ISI marked white solid plastic seat and lid.	11.00	each		
38	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require White Vitreous China Flat back wash basin size 550x 400 mm with single 15 mm C.P. brass pillar tap	11.00	each		

39	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required 510x1040 mm bowl depth 200mm	8.00	each		
40	Providing and fixing P.V.C waste pipe for sink or wash basin, including P.V.C waste fittings complete :-,Flexible pipe :-32 mm dia.	19.00	each		
41	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors a)100mm inlet and 75mm outlet.	5	Each		
42	Providing and jointing PVC pipes of (pressure 10 K g/cm <sup>2</sup> ) for water supply including testing of joints, concealing the pipes , & trenching & refilling wherever required etc complete.				
a	20mm PVC pipe	40	Rm		
b	25mm PVC pipe	80	Rm		
c	32mm PVC pipe	60	Rm		
d	40mm PVC pipe	40	Rm		
43	Providing and fixing PTMT grating of approved quality and colour. 150 mm nominal size square 100 mm diameter of the inner hinged round grating	11.00	NOS		
44	Providing and fixing C.P. brass tap with elbow operation lever of approved quality confirming to IS standards 15mm nominal bore	3.00	NOS		
45	Providing and fixing unplasticised rigid P.V.C pipe conforming to IS Standards (pressure 6kg/cm <sup>2</sup> ) in drainage lines including cutting and making good the walls, cutting and refilling of earth, jointing all etc complete				
a	110mm dia	160.00	Rm		
b	75mm dia	60.00	Rm		
46	Providing & fixing PVC Fittings and fixtures Conforming IS specifications including cutting and making good the walls etc complete				



a	110mm dia plain elbow	10	each		
b	75mm dia plain elbow	7	each		
c	110mm dia door elbow	5	each		
d	75mm dia door elbow	10	each		
e	110mm dia plain bend	5	each		
f	75mm dia plain bend	5	each		
g	110mm dia door tee	5	each		
h	75mm dia door tee	5	each		
i	110mm dia air cowl	5	each		
j	75mm dia air cowl	5	each		
k	110mm dia offset	3	each		
l	75mm dia offset	3	each		
47	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8931 15mm nominal bore	1.00	each		
48	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931. 15mm nominal bore	22.00	each		
49	Providing and fixing unplasticised P.V.C connection pipe with brass unions :- 45 cm length				
a	15MM nominal bore	11.00	each		
	<b>SUB HEAD XII DRAINAGE</b>				
50	Constructing soak pit 1.20x1.20x1.20 m filled with brickbats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.	6.00	each		
51	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing : Rectangular shape 453x357 mm	10.00	each		

52	Providing and fixing PTMT towel rail complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour. 450 mm long towel rail with total length of 495 mm, 78 mm wide and effective height of 88 mm, weighing not less than 170 gms	12.00	each		
53	Providing and fixing PTMT soap Dish Holder having length of 138mm, breadth 102mm, height of 75mm with concealed fitting arrangements, weighing not less than 106 gms.	12.00	each		
54	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15mm nominal bore	11.00	each		
55	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm 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 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design : Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) : With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	5.00	each		
<b>SUB HEAD XIII : ALUMINIUM WORK</b>					

56 A	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : a) For fixed portion . Powder coated aluminium (minimum thickness of powder coating 50 micron) of required colour as directed by the engineer in charge.	5146.00	kg		
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 EPDM rubber / neoprene gasket required (Fittings shall be paid for separately) Powder coated aluminium (minimum thickness of powder coating 50 micron) of required colour as directed by the engineer in charge.	665.00	kg		
57	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type II, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of engineer-in-charge. Pre-laminated particle board with decorative lamination on both sides	159.74	sqm		

58	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):				
a	With float glass panes of 5.50 mm thickness	391.21	sqm		
b	With float glass panes of 4.0 mm thickness	86.00	sqm		
c	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 toughened glass panes of 8.0 mm thickness	7.65	sqm		
59	Providing and fixing aluminium sliding door bolts ISI marked anodised ( anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete- 300x16mm	11.00	each		
60	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 nuts and screws etc. complete-				
a	125 mm	24.00	each		
b	100mm	24.00	each		
61	Providing and fixing aluminium tower bolts ISI marked anodised ( anodic coating not less than grade AC 10 as per IS: 1868) transparent or dyed to required colour or shade with nuts and screws etc. complete-				
a	250 X 10 mm	24.00	each		
b	150x10mm	24.00	each		
62	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	22.00	each		

63	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) Transparent or dyed to required colour and shade, with necessary screws etc. complete. Twin rubber stopper	22.00	each		
64	Providing and fixing frosted/mat film of thickness 25 microns self adhesive of approved colour, shade and quality with cutting as per approved design and pattern including cleaning of glass and making surface smooth for fixing of film all complete as per direction of Engineer in charge to glazed window/doors & partitions	200.00	SQM		
65	Providing, Fixing, supply, Installation and commissioning of 3-Bay ( 2100mm long ) brush finish Scrub station (manual operated) made out of high grade SS 304 1.6mm thk. complete with all accessories i.e. thermostatic mixing valve & bypass system etc.	2.00	each		
	<b>TOTAL - CIVIL</b>				
	<b>Electrical - B</b>				
<b>1</b>	<b>LT PANEL BOARD AND ACCESSORIES</b>				
	<b><u>INCOMER</u></b>				
	1 No. 200A, FP, 35kA, MCCB with Thermal Magnetic release, lcs=lcu, having adjustable over load & short circuit protection.				
	<b><u>BUSBARS</u></b>				
	1 Set of 200 Amp TPN busbars of high conductivity electrolytic quality Aluminium alloy.				
	<b><u>INSTRUMENTS</u></b>				
	1 No 3 phase Digital Multi function meter to read V, A, F with Acc class 1.				
	1 No 3 phase 4 wire CT operated energy meter, 5-10A, Acc. Class 1.				
	1 Set of phase indicating lamps, LED type, RYB.				
	1 Set of 2A 10kA C curve SP control MCB				
	1 Set of 200/5A, Class 1.0, 10VA, Cast Resin CT for metering.				
	<b><u>OUTGOING</u></b>				
	2 Nos. 125A, TPN, SFU with suitable rating HRC fuses				
	1 Nos. 100A, TPN, SFU with suitable rating HRC fuses				

	4 Nos. 63A, TPN, SFU with suitable rating HRC fuses.	1	Job		
	<b>CABLES AND CABLING</b>				
2	Supply of following size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor power cable conforming to IS 7098 (Part 1) amended upto date.				
a	3.5C 70 Sq.mm	130	m		
b	3.5C 50 Sq.mm	100	m		
c	3.5C 35 Sq.mm	100	m		
d	3.5C 25 Sq.mm	150	m		
e	4C 10 Sq.mm	250	m		
3	Supplying and fixing PVC batten/ angle holder including connection etc. as required.	30	Each		
4	Dismantling of ceiling fan complete with motor, double ball bearing, blades, canopy, 30 cm down rod and without speed regulator suitable for 230 V 50 HZ, AC supply as required complete.	40	Each		
5	Dismantling of indoor surface/recess mounted fluorescent / CFL light fitting including lamp, ballast complete with all accessories as required.	30	Each		
6	Supply & installation of 20 pair krone module including its box with all accessories as required.	2	Each		
7	Wiring of group controlled light point one switch controls two or three alternate lights with 1.5 sq. mm. FR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit including earthing the point with 1.5 sq. mm. FR PVC insulated copper conductor single core cable as required. including cost of, modular type 6A switch, GI box etc complete as required	30	point		
8	Supply and fixing FP sheet steel enclosure on surface / recess along with 40/63 amps 415 Volts "C" curve FP MCB complete with connections, testing & commissioning etc as required.	8	nos		
	<b>LIGHT FIXTURES AND FANS</b>				

9	Supply of 2x28W, indoor surface mountable fluorescent CRCA sheet steel power coated body light fixture, 28W T5 lamp, electronic HPF ballast, lamp holder, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Wipro WIF 20228 SG / Crompton T5GP228EB / Bajaj BTIR228)	16	nos		
10	Supply of 1x28W, indoor surface mountable fluorescent CRCA sheet steel power coated body light fixture, 28W T5 lamp, electronic HPF ballast, lamp holder, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Wipro WIF 20128 SG or equivalent)	10	nos		
11	Supply of 2x28W, indoor surface mountable fluorescent CRCA sheet steel power coated body light fixture, 28W T5 lamp, electronic HPF ballast, lamp holder, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Wipro WIF 20228 SG or equivalent)	6	nos		
12	Supply of 2x36W, indoor clean room, recess mounted CFL light fixture with CRCA housing, pre-anodised aluminium reflector and control gear tray duly powder coated, clear acrylic cover, non-hygroscopic gasket to ensure dust proofing, 36 W CFL lamps, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required (Wipro WIP 43236 SGW / Crompton CRFW 12236EB / Bajaj BPRF 236C LHD).	40	nos		
13	Supply of 1x18W, indoor decorative recess mounted fluorescent light fixture having robust housing made of high quality polyester pre-coated galvanised steel, diffuser in extruded acrylic, 18 W T5 lamps, low loss electromagnetic copper wound ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required.	40	nos		

14	Supply of 2x18 W, indoor recess mounted mirror optic CFL CRCA powder coated body light fixture, pre-anodised aluminium reflector, CRCA powder coated frame, 18 W CFL lamps, open type copper ballast, prewired complete with all necessary accessories suitable for operation on 230V, 50Hz AC supply as required.	15	nos		
15	Supply of 250mm sweep, 1250 rpm, louvered ventilating fan suitable for single phase 230 volt, 50Hz AC supply complete with motor, capacitor, louvers/shutters and all accessories as required complete. (Make : Usha Crisp Air or equivalent)	15	nos		
16	Supply of 1200 mm sweep min three star rated ceiling fan complete with motor, double ball bearing, blades, canopy, 30 cm down rod and without speed regulator suitable for 230 V 50 HZ, AC supply conforms to IS 374/1979 as required complete. (Make Usha Technix or equivalent).	40	nos		
17	Supplying and fixing FP sheet steel enclosure on surface/ recess for 100A FP MCCB without MCCB complete with connections, testing and commissioning etc. as required.	4	Each		
18	Supply, installation, testing & commissioning of 25 kVA, 3 phase, input, 3 phase output, true on-line UPS system with 30 minutes back up (full load), output isolation transformer, including all accessories, SMF batteries VRLA type with powder coated MS cabinet including all accessories as required complete having following specification.				
	Fully digital controlled based on DSP				
	Power factor corrected from end > 0.9				
	Pure sine wave output.				
	Full time output voltage & frequency regulation				
	Auto regulation of battery end voltage				
	Intelligent interface with LED/LCD display				
	Static bypass switch & manual by pass switch				
	Auto temperature compensation	1	JOB		



19	Supplying and fixing U-PVC Trunking Type Cable Management System for Power, Data, -(Double Compartment) Cables/wires complete with Cover Plates, End Caps, Internal & External angles, Cable Retainers, cable Dividers, Tees, accessories etc as required. The same shall be suitable for fixing 6A, 16A Sockets, switches, RJ45, with its modular box & front plate etc. The CMS shall conform to BS:4678/ BS:4662 & corresponding BIS.				
	Size 100 x 50 mm	100	Mtr		
20	Supply & installation of following modular type switches & sockets in the existing DLP trunking with all required accessories like modular box, front plate etc as required.				
a	6A socket with switch	90	Each		
b	6/16A socket with switch	60	Each		
c	RJ45 data outlet	30	Each		
21	Providing and fixing testing joint, made of 50x6mm thick GI strip, 125mm long with 4 nos of GI bolts, nuts, check nuts and spring washers etc complete as required.	4	nos.		
	<b>SAFETY EQUIPMENTS</b>				
22	Supply & fixing glass framed standard shock treatment chart in three different languages.	2	JOB		
23	Supply & laying ISI marked following electrical grade chequered type rubber mat.				
	2m x 1m x 6 mm for 415V grade	2	nos		
24	Supplying and making end termination with 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	3.5C 70 Sq.mm	4	nos		
b	3.5C 50 Sq.mm	4	nos		
c	3.5C 35 Sq.mm	6	nos		
d	3.5C 25 Sq.mm	4	nos		
e	4C 10 Sq.mm	20	nos		
25	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
a	Upto 35 sq. mm (clamped with 1mm thick saddle)	450	m		

b	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	230	m		
26	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)	250	m		
b	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	90	m		
27	Providing, laying and fixing following dia G.I. pipe (medium class) in ground complete with G.I. fittings including trenching (75 cm deep) and re-filling etc as required				
a	50 mm dia	20	m		
b	80 mm dia	60	m		
c	100 mm dia	50	m		
28	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
a	100 mm width X 50 mm depth X 1.6 mm thickness	180	m		
b	200 mm width X 50 mm depth X 1.6 mm thickness	60	m		
c	300 mm width X 50 mm depth X 1.6 mm thickness	60	m		
29	Supplying and installing following size of perforated pre-painted M.S. cable trays bends with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
a	100 mm width X 50 mm depth X 1.6 mm thickness	6	Each		
b	200 mm width X 50 mm depth X 1.6 mm thickness	4	Each		
c	300 mm width X 50 mm depth X 1.6 mm thickness	4	Each		
30	Supplying and installing following size of perforated pre-painted M.S. cable trays Tee's with perforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				

a	100 mm width X 50 mm depth X 1.6 mm thickness	3	Each		
b	200 mm width X 50 mm depth X 1.6 mm thickness	2	Each		
c	300 mm width X 50 mm depth X 1.6 mm thickness	2	Each		
	<b>WIRING AND ACCESSORIES</b>				
31	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc as required.				
	Group C	210	point		
32	Wiring for twin control light point with 1.5 sq.mm FR 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. FR PVC insulated copper conductor single core cable etc as required.	6	point		
33	Point Re - wiring: Rewiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable and 1.5 sq.mm. FR PVC insulated copper conductor single core cable as earth wire in existing surface/ recessed steel conduit including dismantling as required.				
	Group C	120	Point		
34	Wiring for light/ power plug with 2X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required.	780	m		
35	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
a	2 x 1.5 sqmm + 1 x 1.5 sqmm earth wire	1350	m		

b	2 x 2.5 sqmm + 1 x 2.5 sqmm earth wire	360	m		
36	Supply and drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface / recessed steel / PVC conduit as required.				
a	3 x 1.5 sqmm	100	m		
b	3 x 2.5 sqmm	150	m		
c	3 x 4 sqmm	200	m		
37	Supply and drawing following pair 0.5 sqmm FR PVC insulated annealed copper conductor, unarmoured telephone cable in the existing surface / recessed steel / PVC conduit as required.				
a	2 pair	200	m		
b	4 pair	60	m		
38	Supply and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface / recessed / steel / PVC conduit as required.	200	m		
39	Supplying and fixing of following sizes medium class PVC conduit along with all accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
a	20 mm	230	m		
b	25 mm	180	m		
c	32 mm	80	m		
40	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	100 mm X 100 mm X 60 mm deep	5	Each		
b	150 mm X 150 mm X 60 mm deep	5	Each		
41	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
a	Telephone socket outlet	5	Each		
b	TV antenna socket outlet	2	Each		
42	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	70	Each		

43	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	50	Each		
44	Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.				
	1 or 2 Module (75mmX75mm)	77	Each		
45	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required.	90	Each		
46	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	40	Each		
47	Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	150	Each		
	<b>ITC of LIGHT FITTINGS &amp; FANS</b>				
48	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 FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	110	Each		
49	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc., including supplying and fixing ball and socket arrangement, 2 no. down rods of 20 mm dia X 1.6 mm thick steel conduit upto 30 cm length, painting and wiring the down rods and connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	45	Each		

50	Providing and fixing extra conduit down rod of 20 mm dia, 2 X 10 cm length wiring with 2 X 1.5 sq. mm FR PVC insulated, copper conductor, single core cable 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)	90	Each		
51	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable etc. as required.	40	Each		
52	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)	80	Each		
53	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.				
	Upto 450 mm sweep	15	Each		
54	Numbering of ceiling fan/ exhaust fan/ fluorescent fittings as required.	210	Each		
	<b>MCBs AND MCB DISTRIBUTION BOARDS</b>				
55	Supplying and fixing following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, with provision of 100 amps TP 16 KA MCCB as incomer, interconnection between incomer MCCB and bus bars (but without MCB's/ MCCB) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
a	4 way	1	nos.		
b	8 way	3	nos.		
56	Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
	100 Amp, 16 KA	4	Each		

57	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	Single pole	15	Each		
b	Double pole	5	Each		
c	Triple pole	20	Each		
58	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	25	Each		
59	Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	4	Each		
b	63 amps	2	Each		
60	Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	4	Each		
b	63 amps	2	Each		
61	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	40 amps	4	Each		
62	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
a	40 amps	4	Each		
b	63 amps	2	Each		
63	Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32amps 240 volts "C" curve DP MCB complete with connections, testing and commissioning etc. as required.	5	Each		

64	Supplying and fixing TPN sheet steel enclosure on surface/ recess along with 16/25/32amps 415 volts "C" curve TP MCB complete with connections, testing and commissioning etc. as required.	20	Each		
65	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	8	Each		
	<b>EARTHING AND SAFETY EQUIPMENTS</b>				
66	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.	4	Set		
67	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required.	60	m		
68	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)	80	m		
69	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	30	m		
70	Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.	40	m		
71	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	150	m		
72	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	150	m		
	<b>TOTAL -ELECTRICAL</b>				
	<b>HVAC SYSTEM - C</b>				
	<b>MACHINERY</b>				



1	Supply, intallation, testing and commissioning (SITC) of 8.5 TR capacity aircooled Outdoor condensing unit with scroll compressor as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads and saftey devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	4.00	Each		
2	Supply, intallation, testing and commissioning (SITC) of 8.5 TR capacity aircooled Ductable split air conditioner with scroll compressor, Ceiling Suspended Indoor Units (IDU) and all standard fittings, with pre & fine filter IDU SS drain pan, suitable static IDU fan, as per specifications complete with suitable capacity drive motor, air cooled condenser with all accessories, hermetically sealed scroll compressor, electronic microprocessor pendant controller with digital display, first charge R 22 refrigerant gas, vibration isolator pads, ODU MS stand and saftey devices like thermal protector, pressure relief valve, over load relays single phase preventor, high-low pressure cut out, suitable for three phase 440V supply.	1	Each		

3	Supply, installation, testing and commissioning of suitable hard drawn copper refrigerant piping for 8.5TR machine with 13 mm nitrile rubber insulation interconnecting the condensing unit to evaporating unit for packaged units as per site condition (in case of multiple compressor machine, unit length will be 1m of multiple pipes as required) .	48	RM		
4	SITC of DX type double skinned air handling units, ceiling suspended type 8.5 TR, 1500 lps capacity complete with suitable DIDW blower (asper approved make), blower section, static pressure of 125mm of water column, built in pre filter(EU4), fine filter(EU7) and HEPA filter(EU13) and controls connected to condensing units, insulated SS drain pan, 6 row cooling coil, electric motor, belt drive package with TEFC motor class 'B' insulation, suitable for 3 phase, 415 V, 50Hz supply, suitable AHU panel, ARI certified, belt guards, thermometers and pressure gauges at the inlet & outlet, suitable supports for suspending from slab, vibration isolator, etc. conforming to specifications. The air handling units shall have 2 inlet refrigerant coils and 2 outlet refrigerant coils suitable for 2 numbers of 8.5 TR capacity ODU and shall conform to specifications.	4	Each		
5	Supply, Laying and Fixing of 4C 4Sq.mm size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor cable conforming to IS 7098 (Part 1) amended upto date with brass compression glands on surface/ cable tray/ wall / build in trench etc as required from the Indoor to outdoor units of all units for control wiring.	24	RM		

6	Supply, installation, testing and commissioning PVC drain pipe of 25mm dia ISI marked, connecting the drain lines from the indoor units to floor sump, with 9mm nitrile rubber insulation as per specification	16	RM		
7	Supply, installation, testing and commissioning of Air Cooled High Wall mounted Split Air Conditioner of following capacity consisting of high wall mounted type room unit (fan coil) with cordless remote control and one number outdoor condensing unit comprising of energy efficient suitable rotary compressor for operation on single phase, 230 V, 50Hz supply, fixing the outdoor unit on a raised platform as per manufacturers recommendation and fixing of room (fan coil) unit on wall, upto 10 m distance refrigerant copper piping with 13mm nitrile rubber insulation, providing and making interconnection between room & condenser as per site conditions, comprising of 1" dia drain PVC pipe with insulation 10m, canvas connections, full electrical cabling from power plug near indoor unit and to outdoor unit, vibration isolators, first charge refrigerant gas, min 4star rated as per BEE suitable stabilizer etc complete as required.				
a	1.5 TR	6	Each		
8	Supply and fixing Heater package with Humidistat and contactor for humidity control	2	Each		
	AIR DISTRIBUTION				

9	Supply, installation, testing and commissioning of factory fabricated rectangular GSS sheet metal ducting for Supply/return/fresh air duct/collar connecting to indoor unit as per ducting specifications and with suitable supports using MS angles, channels, rods, anchor bolts, etc to roof /truss as per IS 655 and as per specifications.				
a	20 G	3	SQM		
b	22 G	17	SQM		
c	24 G	190	SQM		
10	SITC of External thermal insulation on supply air ducts using min 12mm thick nitrile rubber class "O" closed cell type with antimicrobial protection as per specifications	204	SQM		
11	Supply, installation, testing and commissioning of Acoustic duct lining using 10mm nitrile rubber insulation open cell type inside the ducts, antimicrobial protection at the outlets of all indoor units upto 4m distance from fan outlet as per spec provided.	13	SQM		
12	Supply, fabrication, installation, testing of flexible connections made out of fire resistant flexible double canvas sleeve.	4	Set		
13	Supply, installation, testing and comissioning of Powder coated extruded aluminimum Continuous grilles 16mm frame, 15deg deflection for supply / return air 150mm wide as per spec	16	SQM		
14	SITC of Powder coated extruded aluminimum supply air diffusers 4 way both side coated with collar damper aluminuim extruded black anodized . (300mmX300mm/600mmx600mm)	2	SQM		

15	SITC of Powder coated extruded aluminium return air diffusers 4 way both side coated without VCD.(300mmX300mm/600mmx600mm)	2	SQM		
16	SITC of Fire Control Damper made of 16G GSS sheet blade and frame with 165mm casing, heavy duty interlocking blades and fully enclosed blade linkage mechanism, SS lateral seal blade seals, self lubricating sintered bronze bushes, fire rating as per UL555-1995 tested as per BS-476 part 20 with 18G extended sleeve 450mm and with fusible link, spring mechanism control panel temp sensor, smoke sensor, limit switch with lever for auto shut off in case of fire/smoke as per specifications.	1	SQM		
17	SITC of multi blade type volume control dampers made of extruded aluminium for ducts/ collars to be provided with suitable links, levers and quadrants for manual control of volume of air flow and for proper balancing of the air distributions system in main ducts & other area as per specification.	2.16	SQM		
18	SITC of Fresh air GI louvers of size 300x300 mm with wire mesh and birds screen for IDUs/AHUs as per specifications.	1	SQM		
	<b>TOTAL HVAC</b>				
1	<b>FIRE ALARM SYSTEM</b>				
a	Supply, installation, testing and commissioning of Conventional type Manual Call Point (break glass type) complete with push button, enclosed in box with provision for cable or conduit coupling. The unit to be painted fire red outside, white inside and written 'In case of fire break glass'.	2.00	no		

b	Supply, installation, testing and commissioning of Conventional Hooter cum Speaker at different locations complete with all fixing accessories, etc. under false ceiling, roof, wall, etc, with a time delay of max 30sec, interconnecting lo loop cable complete as required.	2.00	no		
c	Supply, installation, testing and Commissioning of automatic main fire alarm control and indicating panel of 4 zones micro processor based complete with charger , rectifier, alarm display connections etc.	1.00	no		
d	Supply, installation, testing and commissioning of Conventional type Smoke Detector complete with all accessories like base. base box, etc. to be installed under/above false ceiling, roof and concealed space, etc. interconnecting to loop cable complete as required.	34.00	no		
e	Supply, installation, testing and commissioning of Conventional type Heat Detector with range unto 60 deg C complete with all fixing accessories like base, base box, etc. to be installed under/above false ceiling, roof and concealed space, etc. interconnecting to loop cable complete as required.	8.00	no		
f	Supply and laying of 2x 1.5sq.mm copper armoured FRLS cable ISI marked with proper clamping, supports and terminations.	594.00	m		
2	PORTABLE FIRE EXTINGUISHERS				

a	Supply and fixing of Water type Fire Extinguisher 9 litres on wall with hook plate and anchor fastening of ISI marked with internal plastic lining and solid drawn body with 60 grams CO2 cartridge with gun metal plunger and 1.0 M long discharge hose confirming to IS 940 and complete in all respects including initial fill with CO2.	8.00	no		
b	Supply & fixing of Carbon-dioxide extinguisher on wall of ISI marked 4.5 Kg capacity made of high pressure seamless steel cylinder (CCE marked ) confirming to IS 2878, 8149. complete with wheel type valve with one meter long braided high pressure discharge hose complete in all respects including initial fill with CO2 gas.	1.00	no		
	<b>TOTAL FIRE</b>				
	<b>GRAND TOTAL</b>				