

FINANCIAL BID

Name of Work: Design, Supply, Installation, Testing and Commissioning of HVAC Work (VRV/VRF Air Conditioning) and False Ceiling Work at Central Instrumentation Building, Central University of Rajasthan.

S. No.	Description of Work	Qty.	Unit	Rate (in Rs) Incl. GST	Amount (in Rs) Incl. GST
	OUTDOOR UNIT				
1	Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Flow/Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), minimum two compressors for above 14 HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R 410 A Refrigerant, vibration isolators, with suitable foundation etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400V +/- 10%, 3 Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.5 (Make- Hitachi/ Daikin/ O-General/ Mitsubishi / Carrier/ Bluestar)	100	per HP		
	INDOOR UNIT - DUCTABLE TYPE				
2	Supply, installation, testing and commissioning of following minimum capacity and external static pressure VRV/VRV ceiling mounted ductable type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, corded remote control, outer cabinet, vibration isolators, drain pan, other necessary supports etc., suitable for operation on single phase AC supply 230 V ± 10%, 50 Hz complete as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make- Hitachi/ Daikin/ O-General/ Mitsubishi / Carrier/ Bluestar)				
2.1	Mid Static Ductable units (minimum 45 pascal external static pressure - 4 TR	20	Each		
	INDOOR UNIT - HIGH WALL TYPE				
3	Supply, installation, testing and commissioning of following minimum capacity VRV/VRF High wall type Indoor unit equipped with washable synthetic media pre-filter, fan section with low noise fan/dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cord less remote control, drain pan, necessary accessories etc., suitable for operation on 230 V ± 10%, 50 Hz, single phase AC supply, complete as required. The unit shall have automatic force shut down provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make- Hitachi/ Daikin/ O-General/ Mitsubishi / Carrier/ Bluestar)				
3.1	2TR Capacity	2	Each		

REFRIGERANT COPPER PIPE					
4	Design, Supply, Installation, testing and commissioning including vaccumiazation and Nitrogen testing of following nominal sizes of soft/hard drawn copper refrigerant piping for VRV/VRF system, complete with fittings, with suitable adjustable ring type hanger supports, jointing/brazing including accessories, insulated with XPLE Class-O tubular insulation/with Class-O closed cell elastometric nitrile rubber tubular sleeves sections of specified thickness as given below for Suction and Liquid lines, all accessories as per specifications etc. as required : NOTE:- 1)The Copper Piping & Piping Circuit should be with Minimum Number of joints, which shall be attained by : (i) Using One End Expanded Tubes (ii) Bending the tubes instead of using elbow joints wherever 90 degree bending is required. (2) Piping should be routed at site in such a manner, that brazed joints in the refrigeration piping are kept to a minimum. (3) The makes of tube fittings shall be same as that of tubes. (4) The thickness of fittings used shall be same as that of the pipe				
4.1	6.4 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	50	Mtr		
4.2	9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	200	Mtr		
4.3	12.7 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	50	Mtr		
4.4	15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	200	Mtr		
4.5	19 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	200	Mtr		
4.6	22.2 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	120	Mtr		
4.7	25.4 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	25	Mtr		
4.8	28.58 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation	120	Mtr		
4.9	31.8 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	25	Mtr		
4.10	34.9 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	40	Mtr		
4.11	38.1 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	20	Mtr		
4.12	41.27 mm dia (OD) (Hard drawn) with tube thickness 1.62 mm with 19 mm thick insulation	50	Mtr		
DUCTING WORK					
5	Design. Supply, installation, balancing and commissioning of fabricated at site GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.				
5.1	Thickness 0.80 mm sheet (22 Gauge)	200	sqm		
5.2	Thickness 0.63 mm sheet (24 Gauge)	350	sqm		

SUPPLY & RETURN AIR ALUMINIUM GRILLS:					
6	Design, Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers as per specifications. (Joints to be adjusted as per architectural requirements, random joints will not be permitted)	20	sqm		
7	Design, Supplying & fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers complete as required. (Joints to be adjusted as per architectural requirements, random joints will not be permitted)	20	sqm		
INSULATION:					
8	Supplying and fixing of 13 mm thickness duly laminated aluminium foil of mat finish open cell Nitrile rubber (Class "O") insulation of duct after applying suitable adhesive for Nitrile rubber. The joints shall be sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.	100	sqm		
9	Supplying and fixing of 13/19 mm thickness duly laminated aluminium foil of mat finish closed cell Nitrile rubber (Class "O") insulation on duct after applying suitable adhesive for Nitrile rubber. The joints shall be sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.	600	sqm		
DRAIN PIPE					
10	Providing & Fixing of IS : 4985 - 2000 Class -4 (10 Kgf / Sqcm) UPVC drain water piping with fittings (IS:7834 & 10Kgf/sqcm) like elbow, socket, Tee, solvent cement jointing, support with MS hanger on ceiling or recessed in wall with chasing & plastering with 6 mm thick closed cell elastomeric nitrile rubber insulation including leakage testing etc. as required of following Nominal sizes. All as per pre-approved by Engineer in charge				
10.1	32mm	50	Mtr		
10.2	25mm	200	Mtr		
11	Providing & Fixing of Fire retardant flexible canvass connection made of fibreglass weave having silver grey silicon rubber coating, of height 200 mm with sufficient fold to avoid transmission of vibration with GI frame ,Gasket Nut Bolts for air cooling Plants/AHU/FCU etc as required. All as per pre-approved by Engineer in charge	15	sqm.		
12	Supplying and installation of high-pressure grade required size OEM make copper connection Y or T Joints / refnet for liquid and suction line complete erected on wall/ceiling with supports/raceways, Nitrile rubber insulation, painting etc. with brazing and testing for leakages confirming the normal operation of the VRV / VRF air conditioning system. All as per pre-approved by Engineer in charge Material of construction for fitting shall be similar to refrigerant piping. (both for branch distribution indoor to outdoor and between outdoors of VRV/VRF system)	25	Each		
ELECTRICAL WORK					
13	SITC of 30-40W. 2*2 Size Panel LED cool Day light suitable for single phase, 220-240 V, 50Hz, AC Supply with minimum 02 years warranty as per IS & directions of Engineer-In-Charge	120	Each		

14	Supply & Fixing of microprocessor based communication copper cables PVC insulated FRLS of suitable size as per manufacturer's norms interconnecting outdoor to indoor, as per directions of Engineer-in-charge.	600	Mtr		
15	Providing & Laying P.V.C. / XLPE insulated & P.V.C. sheathed Armoured Copper cable conforming to IS:1554 P-I / IS :7098 P - I of 1.1 KV with electrolytic grade Copper made of copper rods conforming to IS 613-1964, of purity >99.7 %, round / flat strip armouring, Inner / outer sheath conforming to IS:5831 in existing RCC/ Hume / Stoneware / PVC pipe/ open duct/cable trench / Cable tray(with cable tie) including testing etc. as required of following size.				
15.1	4 X 16 sq. mm	200	Mtr		
15.2	3½ X 120 sq. mm	15	Mtr		
16	CENTRALISED REMOTE CONTROLLER Supply, Installation, Testing & Commissioning of main Centralised remote controller as per specifications to hook up indoor units as mentioned above. Controller shall however, be suitable for all installed indoor units groups & compatible with BMS system. The cost shall be inclusive of wiring & conduits.	1	Each		
17	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.				
17.1	Upto 35 sq. mm (clamped with 1mm thick saddle)	200	Mtr		
18	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required				
18.1	Above 95 sq. mm and upto 185 sq. mm (3½ X 120 sq. mm)	15	Mtr		
19	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				
19.1	4 X 16 sq. mm (28mm)	10	Each		
19.2	3½ X 120 sq. mm (45mm)	2	Each		
	HOT DIPPED GALVANISED IRON CABLE TRAY				
20	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
20.1	300 mm width X 50 mm depth X 1.6 mm thickness	200	Mtr		
21	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
21.1	300 mm width X 50 mm depth X 1.6 mm thickness	2	Each		
22	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
22.1	300 mm width X 50 mm depth X 1.6 mm thickness	2	Each		

23	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
23.1	63 A,10KA,FPMCB	5	Each		
23.3	250 A,36KA,FPMCCB	2	Each		
24	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
24.1	4 way (4 + 12), Double door	1	Each		
	CIVIL WORK				
25	Providing and laying in position cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) in foundation of outdoor unit of VRV AC System etc including form work etc as required at site and directions of EIC.	2	cum		
26	Structural steel work riveted, bolted or welded in built up section, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (designed such as to bear the load of outdoor VRV units on it).	200	Kg		
	FALSE CEILING:				
27	Design, Supply & fixing mineral fibre false ceiling tiles at all heights of size 595X595mm of approved texture, design and pattern. The tiles should have Humidity Resistance (RH) of 99%, Light Reflectance > 85%, Thermal conductivity k = 0.052 - 0.057 w/m K, Fire Performance as per (BS 476 pt - 6 &7)in true horizontal level suspended on interlocking T-Grid of hot dipped all round galvanized iron section of 0.33 mm thick (galvanized 120 gsm) comprising of main T runners of 15x32 mm of length 3000 mm, cross T of size 15x32mm of length 1200 mm and secondary intermediate cross T of size 15x32 mm of length 600 mm to form grid module of size 600x600 mm suspended from ceiling using galvanized mild steel item (galvanised@80gsm) 50 mm long 8mm outer diameter M-6 dash fasteners, 6 mm diameter fully threaded hanger rod up to 1000 mm length and L-shape level adjuster of size 85x25x2 mm, spaced at 1200 mm centre to centre along main 'T'. The system should rest on periphery walls /partitions with the help of GI perimeter wall angle of size24x24X3000 mm made of 0.40 mm thick sheet, to be fixed to the wall with help of plastic rawl plug at 450 mm centre to centre & 40 mm long dry wall S.S. screws. The exposed bottom portion of all T-sections used in false ceiling support system shall be pre-painted with polyester baked paint, for all heights. The work shall be carried out as per specifications, drawings and as per directions of the engineer-in-charge. (Make - Armstrong)				
27.1	With 20 mm thick beveled tegular mineral fibre false ceiling tile (NRC 0.7)	600	Sq.m.		

28	Design, Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with: (Make - Armstrong)				
28.1	12.5 mm thick tapered edge gypsum plain board conforming to IS: 2095- (Part I) :2011 (Board with BIS certification marks)	150	Sq.m.		
	Total Amount of Item 1 to 28 (in Rs.) Incl. GST				

Seal & Signature of Bidder :

Name of Firm:

*****END OF FINANCIAL BID*****