

Bill of Qty HVAC

N/W Construction of Cafeteria at Visitor Hostel - 1 , IIT KANPUR.
NIT No. 47/Composite/D1/2025-26

17	HVAC WORKS				
17.1	VRF SYSTEM VRF OUTDOOR UNITS 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 . (16415/HP) (a) 8 HP (6.4 TR) nominal capacity (Side Discharge).	1	Each	131320.00	131320.00

17.2	<p>VRF INDOOR UNITS</p> <p>Wall Mounted type Hi-wall Units</p> <p>"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 \pm 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."</p>	4	Each	22100.00	88400.00
17.3	<p>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 :</p> <p>(A) 9.5 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation</p>	65	Metre	331.00	21515.00

17.4	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 : (b) 15.86 mm dia (OD) (Soft drawn) with tube thickness 1.2 mm with 19 mm thick insulation	50	Metre	588.00	29400.00
17.5	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 : (c) 19.1 mm dia (OD) (Hard drawn) with tube thickness 1.2 mm with 19 mm thick insulation .	15	Metre	707.00	10605.00

17.6	Supply, Installation , Testing and Commissioning of following imported fittings to be provided in refrigerant pipe line. Material of construction for fittings shall be similar to refrigerant piping. (a) Y- joints for refrigerant piping (pair).	3	Each	4500.00	13500.00
17.7	Supply, Fabrication and Installation of MS frame using channels/angle iron sections as required for mounting of air cooled remote condensers of split units. The frame work shall be applied with red oxide primer and thereafter, two coats of enamel paint of approved colour. The general arrangement drawing for frame work shall be got approved from the Architects/Structural Engineers prior to commencement of fabrication.	60	Kg	150.00	9000.00
17.8	CONTROL WIRING Supply, laying, affecting connections and testing of the following sizes of control cum transmission wiring to be laid in MS conduits between indoor units and outdoor units. a. 2C x 1.5 Sqmm cable (Copper)	110	Metre	200.00	22000.00

17.9	<p>"Providing, jointing and fixing of uPVC/ CPVC Condensate drain piping with all fittings conforming to IS: 15778:2007 of SDR 11 Grade. Fittings shall include all standard moulded fittings elbows, tees, couplers, reducers, unions, plugs, adaptors with brass threaded insertions and specials. The Solvent Cement for jointing shall be of make and grade as specified by the manufacturer of uPVC/ CPVC piping system.</p> <p>The installation shall be complete in all respects including cutting chases / holes in walls, slabs and making good, etc The entire uPVC/ CPVC piping system shall be installed, tested and commissioned following the recommendation of the manufacturer including provision of expansion loops. All pipework in shafts, ceiling voids and terrace shall be fixed on MS brackets and hangers with U-clamps made from 10 mm dia galvanised steel rod complete with nuts and washers. Cost for MS structural work for supports shall be included in the rates. All horizontal and vertical crossings of building structure (slabs, walls, beams, column etc), the space between pipe and the structure shall be made good and water tight with concrete.</p> <p>"</p> <p>The annular space between the pipe and the sleeves shall</p>	30	Metre	350.00	10500.00
17.1	<p>Supplying, laying, fixing, testing and commissioning of following thickness closed cell elastomeric nitrile rubber of class 'O' applied by suitable adhesive, as per specifications and as required complete in all respect for condensate drain pipes.</p> <p>a. 19mm</p>	10	Sqm	665.00	6650.00

17.11	<p>CABLE TRAYS</p> <p>Supplying & Fixing of following sizes of GI cable tray duly painted perforated type along with necessary elbows, bends, reducers etc. anchored along the wall / suspended from the ceiling with necessary MS supports. Supports shall be in the form of 40mmx40mmx5mm angles and provided at a distance of 1200mm including grouting in the wall and making good as well.</p> <p>a. 50 x 100 x 50 x 1.6mm</p>	10	Metre	543.00	5430.00
17.12	<p>POWER CABLING</p> <p>Supply, laying, affecting connections & Testing of the following sizes of 1.1 KV armoured PVC insulated aluminium/ copper conductor cables. Cables shall be inclusive conductor cables. Cables shall be inclusive of all clamps, saddles, screws, cable identification tags, cable terminal joints including terminal lugs, insulating tapes, affecting terminal connections to the equipment as per the specifications and as required.</p> <p>Normal Cables</p>	15	Metre	500.00	7500.00
17.13	<p>EARTHING</p> <p>Providing & fixing in position the following bare GI tape/ Cu wire including providing all fixing accessories & effecting proper connections.</p> <p>a. 6 SWG GI Wire</p>	10	Metre	70.00	700.00

17.14	<p>Providing and fixing in position the following size HDPE pipe for enclosing Refrigerant pipes, cut to required lengths and installed with required joints. Providing & fixing in position the necessary fittings like elbows, tees, reducers, etc. as required. Quoted price shall be inclusive excavation, construction of basic trench, sand filling on the base and back filling and compaction of earth post installation and testing of buried pipes, finishing of landscape above backfilled earth shall be done by other agencies.</p> <p>a. 150mm dia</p>	15	Metre	1000.00	15000.00
	Total				371520.00