

Annexure - C TO TENDER BAP/CAPITAL/2012-13/OT-4

TECHNICAL SPECIFICATION FOR VRF AC IN MDP HALL

S.no	DESCRIPTION	VENDOR'S CONFIRMATION	REMARKS
1	VRF SYSTEM DESCRIPTION		
	Supply, installation, testing & commissioning of Microprocessor control based VARIABLE REFRIGERANT FLOW Air-Conditioning system complete with indoor units, outdoor units, refrigerant, control cabling, earthing, insulation works and the required controls for room temperature etc. in MDP HALL.		
	Cooling Range by the VRF unit in the MDP hall shall be 22 (+ or -) 2 deg cel		
2	REFRIGERANT:		
	Refrigerant should be of R410a including full charging of refrigerant gas		
3	INDOOR UNITS:		
	Supply, installation, testing and commissioning of VRF high static indoor units including shifting, supports. Indoor units shall be of 34- 36TR capacities with drain water line and corded remote control.		
3.1	No of indoor units		
3.2	Indoor unit shall be floor mounting type		
3.3	Corded Remote Controls for the indoor units		
3.4	Required number of Refnet Joints for all the above Indoor units		
4	OUTDOOR UNITS		
4.1	Variable Refrigerant Flow Outdoor unit consists of digital scroll compressor, air cooled condenser, fan motor, stands for outdoor units, vibration isolation pads, etc.		
4.2	No of Outdoor Units		
5	Central Monitoring Unit shall be provided for monitoring and controlling of all outdoor and indoor units.		
6	PIPING DETAILS:		
6.1	The refrigerant piping shall be hard drawn heavy duty copper of various sizes with necessary supports, fittings between condensing unit & indoor units along with suitable insulation.		
6.2	The drain piping shall be hard PVC of various sizes complete with supports, clamps etc		
6.3	All Piping shall have adequate insulation or Lining to avoid condensation.		
7	CABLING:		
7.1	3C * 1.5 sq. mm. unarmoured copper cable in 20 mm dia FRLS PVC conduit for communication between indoor and outdoor units of VRF system.		

7.2	3C * 1.5 sq. mm. unarmoured copper cable in 20 mm dia FRLS PVC conduit between indoor unit and corded remote.		
8	AIR DISTRIBUTION SYSTEM:		
8.1	Existing Distribution Ducting, dampers, louvres/grill system in the MDP hall is to be used as a air distribution system. [Only for joining the individual Unit Outlet air ducts to Inlet air Distribution duct at AHU room as per item no 8.2 is vendor scope. Vendor to confirm and prove the performance with the existing Air Distribution System.		
8.2	For joining the individual unit Outlet air ducts to Inlet air distribution duct at AHU room: Supply air duct of Machine fabricated GSS Ducting with angle iron flanges, GI full threaded rods and slotted rail support of 22 G. Galvanized sheet steel duct work of suitable thickness with TDF flanges of different width along with duct stiffeners etc., of required quantity with acoustic lining of ducts to be carried out with 25 mm thick, 24kg/cum density, Aluminum foil faced rubber insulation with necessary accessories. Acoustic Insulation shall be stuck to the inside of the ducting with adhesive. Bolt and nuts with washers shall be fixed.		
9	DAMPERS:		
9.1	Required GI dampers at the outlet ducts of the individual units for Volume Control, dampers of 16G sheet with rubber gasket of 4 sq.m		
9.2	Aluminium powder coated Fresh air / Exhaust air louvers of non vision type with nylon mosquito net etc of 1 sq.m at AHU room.		
9.3	Anti Vibration pads,6"x6"x 3/4"		
9.4	MS channel for Outdoor unit.		
9.5	MS Catwalk for Copper pipe Terrace floor only.		
9.6	FRP Paint for hard drawn refrigerant pipes Terrace only.		
9.7	Fire retardant double Canvas connection		
10	DISMANTLING AND HANDING OVER: (Existing PAC Units)		
10.1	Dismantling of Package AC units at AHU room. (10TR x 3 Nos and 5TR x 1 No = 35 TR)		
10.2	Dismantling of water line Pipings		
10.3	Dismantling of water Pump motor		
10.4	Dismantling of Cooling Tower		
11	Guarantee period		
12	Vendor to provide the Offer of AMC (after completion of guarantee period)		
13	Detailed heat load calculations to be furnished along with technical bid.		
14	Vendor to furnish the price list of mandatory spares required for VRF AC unit for two year maintenance.		

15	DOCUMENTATION (To be furnished along with supply): Three sets of Operating & Maintenance Manuals (Hard copies) in English language should be supplied along with the VRF unit.		
16	ERECTION & COMMISSIONING		
	Supplier shall be responsible for carrying out dismantling of the existing Package units, erection, testing and commissioning of the AC plant. Required technical personnel and labour required for the same shall be borne by the vendor. Tools, tackles, required for the same shall be arranged by the vendor. Crane, if required, will be provided by BHEL free of cost. Service requirement like power, air & water shall be provided by BHEL at only one point free of cost. BHEL will provide necessary power supply near the installation area. Vendor should arrange the necessary cable required from isolator to equipment. Both indoor units and outdoor units shall be factory assembled, tested and filled with first charge of refrigerant before delivering at site. All workmanship and materials used in the installation shall be of the highest quality and, where not fully covered by this Specification, shall conform with best modern practice. Final acceptance will be after the equipment is installed and tested at site to give satisfactory performance.		
17	TIME PERIOD FOR SUPPLY AND E&C:		
	Vendor shall confirm that the time period of supply of VRF AC equipment along with accessories shall be within 03 months from the date of placing the Purchase order.		
	Vendor shall confirm that the time period of erection and commissioning of VRF AC shall be within 01 month from the date of supply of VRF AC to BHEL Ranipet.		
17	Original test certificates for VRF unit to be furnished.		
18	The details of the MDP HALL required for the design of VRF are listed below: Length: 24.55m Width: 11.4m Height: 2.8m Total Volume: 783.636 cubic meters Total Area : 279.87 sq meters Number of participants in the hall: Maximum 250 persons Outside Temperature: 44 deg. Centigrade Inside Temperature : 22 +/- 2 deg. Centigrade		
	Inside Relative Humidity: 55% +/- 5% RH Total no of tube lights/fittings: 26 X 80 = 2080 W Inside Lighting Load: 1.5 Watts/Sq.ft		

Suppliers' signature with seal