

**TENDER
FOR THE WORK OF SUPPLY,
INSTALLATION, TESTING &
COMMISSIONING OF TOWER(AC) HVAC
AT AMU(JAMA MASJID S.S HALL), AMU
ALIGARH, U.P - 202002**



ISO 9001:2008

**ALIGARH MUSLIM UNIVERSITY
ALIGARH U.P - 202002**

Technical Specifications

A-FLOOR STANDING AC

1. General

Floor Standing AC, Hot & Cool type Air-conditioning System for R-410A refrigerant suitable for $415 \pm 10\%$ volt, 50 Hz., 3 phase AC supply for Outdoor Units and $220 \pm 10\%$ volt, 50 Hz., single phase AC supply for Indoor Units with step less modulation complete with Indoor & Outdoor Units, interconnected refrigerant piping, full charge of refrigerant gas and oil, control cabling etc. as per site requirements & details given in the specifications as listed below complete in all respects including foundation and anti vibration pads.

2. Outdoor Unit

- 1.1 Hot & Cool ODU with EER/C.O.P not less than **2.90** at 100% load.
- 1.2 Pipe length shall not be less than **45m**.
- 1.3 Elevation difference should not be less than **18m**.
- 1.4 ODU should have **R410a** refrigerant.
- 1.5 Compressor should be **scroll** type compressor(s).
- 1.6 ODU should have special heat exchanger, low noise condenser fan, auto check function for connection error, auto address setting and minimum capacity and complete with all accessories.

2. Indoor Units (IDU)

- 2.1 Indoor Units for Tower Air-conditioning System suitable for $220 \pm 10\%$ volt, 50 Hz, 1 phase AC supply.
- 2.2 IDU should be equipped with synthetic washable media type filter arranged for convenient cleaning and replacement.
- 2.3 Fan section with low noise fan, multispeed motor, and coil section with DX (Direct Expansion) coil.
- 2.4 Air volume should be of 1650 CMH.
- 2.5 Sound pressure of 54 dB.

List of Approved 'Makes'

Note :

S. No.	Items	Approved Makes
	EQUIPMENT/UNIT	
1.	Tower AC	Daikin / Mitsubishi Electric / O-Genera / Panasonic.
	PIPING	
1.	Refrigerant Copper Pipe	Mettube/Totaline/Rajco Metals/Jindal Refrigeration
2.	PVC Drain Pipe	Polypack/Supreme/Akg/BEC

Note:

1. The contractor shall supply ISI marked material for the makes/brands indicated above. IN case, the firm is not manufacturing ISI marked material for any of the brands, first quality material shall be accepted. The sample of the material shall in either case have to be got approved from the Engineer – in – charge.
2. Material where no make / brand has been mentioned, IN this case ISI marked samples shall be submitted by the contractor for approval of Engineer.
3. For those class of materials, where no firm exists with ISI approval, sample of the first quality material of the firm shall be submitted for the approval of Engineer – in – charge.
4. Contractor will be responsible to ensure the quality of products listed in approved list of makes/brands. Contractor will have to replace the defective and substandard material at his own cost.

Bill of Quantities

S. No	Description of item	Unit	Quantity	Rate		Amount
				In Figures	In Words	
1.	Supply, installation, testing & commissioning of Hot/Cool Tower AC Type Air-conditioning System for R-410A refrigerant suitable for 415 ± 10% volt, 50 Hz., 3 phase AC supply for Outdoor Units and 220 ± 10% volt, 50 Hz., single phase AC supply for Indoor Units with step less modulation complete with Indoor & Outdoor Units , interconnected refrigerant piping, full charge of refrigerant gas and oil, control cabling etc. as per site requirements & details given in the specifications as listed below complete in all respects including foundation and anti vibration pads.	Nos	10			
2	Refrigerant Piping					
	Supply, installation, testing and commissioning of Interconnecting refrigerant pipe work with (19mm/13 mm thick) closed cell elastomeric nitrile rubber tubular insulation between each set of indoor & outdoor units					
2.1	Pair of refrigerant piping For Tower AC 4.0 TR (insulation : 9 mm)	Metre	100			
	Note: It is to be noted that the refrigerant & drain piping shall be done . It shall ensure that the same shall not be damaged during execution of the work.					
3	Drain Piping					
	Supply, installation, testing					

	and commissioning of rigid PVC piping complete with fittings, supports as per specifications and duly insulated with 6 mm thick cross linked poly ethylene foam .					
3.1	25 mm dia	Metre	50			
4	Electrical & Communication Cable					
	Supply, installation, testing and commissioning of Electrical Cabling in PVC Conduit, complete with fittings, supports as per requirement from nearest available point	Rmt.	100			
5	TPN (Isolator) with weather proof box	Nos	10			
6	MS STAND/STRUCTURE					
6.1	FOR ODU	NOS	10			
6.2	FOR IDU	NOS	10			
6.3	MS Structure for Protection of ODU with Locking Option	KG	500			
7	Miscellaneous Civil Work, including core cutting of wall, chiseling and repairing as per original condition	LOT	10			
Total Amount						

Total Amount in words

(Signature & Stamp of the Bidder)