

**RENOVATION OF ITANAGAR BRANCH  
BOQ FOR VRF/VRV AIR CONDITIONING INSTALLATION WORK**

S. No.	Description	Qty.	Unit	Rate Rs.	Amount Rs.
	<b>PART 'A' (SUPPLY)</b>				
1	<b>Variable Refrigerant Volume / Flow System (VRF/VRV)</b>				
	Supply of Variable Refrigerant Flow / Volume SYSTEM (VRF) ( with Hot & Cooling facility ) comprising of 100% DC inverter based scroll compressor Outdoor unit only connectable to multiple indoor units as per specification. Outdoor units shall be factory assembled weather proof. Casing constructed from heavy gauge mild steel(sheet metal material is hot zinc plate & sheet metal thickness is 1 mm) ,must have 100% DC Inverter Scroll compressor in each module & with top Air discharge through. The outdoor unit should contain error code LED display for ease of operation. The system should be equipped with eco - freindly refrigerant R 410A. The system should be suitable for operation within the ambient temperature range of 40 to 56 deg The outdoor unit shall be complete with safety devices . The outdoor unit should be fitted with low noise fan with multiple speed DC motor and large air flow.The unit should also be capable to deliver at least 70pa external static pressure to avoid short cycling of hot exhaust air. t. Air-cooled condenser along with in built Micro Processor Panel. Units should be capable to handle incoming voltage fluctuation during operation it should have a voltage operting range from 320V - 460 V 3 phase 50Hz, balanced volt. Considering the long length piping the unit should have a good oil management system to ensure reliability. The unit should have oil separator to ensure oil recovery in the system. To maintain the oil balance in the system the units should have a facility of swapping the oil on the next ODU on a regular basis. Units should capable to operate on very low load condition upto 5%. To handle extreme climatic condition, corrotion and polluted atomshpheres unit should have powder coated GI sheet metal cabinets,all hardware of anti rust quality ,conformal coating on PCBs to protect from dust and humidity,hydrophilic blue fins for better corrosion resistance, weather - proof enclosures for critical components. The minimum COP of the modules should be 3.5 at 100% load at ARI conditions. Units should be of 5th generation variant.				
	<b>Outdoor Unit</b>				
a.	32 HP	2	Nos		
2	<b>Indoor Units</b>				
	Supply of ductable type unit of following Capacities. The unit is having inbuilt drain pump.				
a.	Capacity 8.0 TR	6	Nos		
3	Supply of Refnet Joints (Y-Branch)	6	Nos.		
4	Wired remote controls	8	Nos.		
5	Supply of Treated Fresh Air Unit- 1.5 TR capacity with min 500 CFM Airflow	2	Nos		
6	"Supply of 2.0 TR 4-way Cassette Type Inverter AC, 5 STAR with Copper Condensor Coiland refrigerant (R32 or R 410A) Indoor unit ceiling hung comprising cooling coil, evaporator fan with motor, filters, insulated drain pan, drain pump, expansion valve, refrigerant filter drier with codeless remote control unit, etc. Outdoor unit comprising single phase hermetically sealed scroll / rotary compressors, condenser coil with fan & motor, starters / controls / cutouts / relays etc., mounted inside a powder coated sheet metal cabinet of 2mm thick, duly treated for corrosion protection complete, mounted on ribbed rubber pads. AC Make, Voltas/Blue Star/Carrier/Daikin /LG"	1	Nos		
7	Supply of group controller having touch scren based user freindly controller upto 10 indoor units and 3 systems can be controlled , parameters for individual indoor units can be set,remote sheilding of machines can be performed,parameters like on/off status ,mode of peration temp setting can be viewed and set.	No	1		
<b>Sub Total Part 'A' Rs.</b>					
	<b>PART 'B' (INSTALLATION)</b>				
	<b>Lowside Work: Supply and installation of auxiliaries and commissioning of units</b>				
6	<b>Variable Refrigerant Volume System</b>				
	Installation, testing and commissioning(Including Lifting at roop level) of variable refrigerant volume type airconditioning system complete with indoor and out door units with individual controller and with refrigerant piping, control cabling, MS channel for mounting of outdoor units with rubber pads as required including pressure testing & flushing of pipeline system with nitrogen, etc. as per as per detail given in specifications and having following items:				
	<b>Outdoor Unit</b>				
a.	32 HP	2	Nos		
7	Installation, testing and commissionig of Ductable type unit of following Capacities.				
a.	Capacity 8.0 TR	6	Nos		
8	Installation, Testing & Commissioning of Refnet Joints (Y-Branch)	6	Nos.		

S. No.	Description	Qty.	Unit	Rate Rs.	Amount Rs.
9	Installation, Testing & Commissioning of 2.0 Tr cassette Air conditioning Unit	1	No		
10	<b>Refrigerant Pipe</b>				
	Supply, installation, testing & commissioning of interconnecting refrigerant copper pipe (Hard/ Soft) work with 19mm/ 13mm thick closed cell tubular nitril rubber insulation between each set of indoor & outdoor unit for suction and liquid line as per specifications, all piping inside the room shall be properly supported on with MS/GI Studs/ Clamps/				
a.	34.90 mm O.D.(insulation : 19 mm) (Wall Thickness 1.2mm)	75	Rm		
b.	28.58 mm O.D.(insulation : 19 mm) (Wall Thickness 1.0mm)	15	Rm		
c.	22.20 mm O.D.(insulation : 19 mm) (Wall Thickness 1.0mm)	15	Rm		
d.	19.05 mm O.D.(insulation : 13 mm) (Wall Thickness 1.0mm)	80	Rm		
e.	15.88 mm O.D.(insulation : 13 mm) (Wall Thickness 1.0mm)	60	Rm		
f.	12.70 mm O.D.(insulation : 13 mm) (Wall Thickness 0.8mm)	15	Rm		
g.	09.52 mm O.D.(insulation : 13 mm) (Wall Thickness 0.8mm)	45	Rm		
h.	06.35 mm O.D.(insulation : 13 mm) (Wall Thickness 0.8mm)	8	Rm		
11	<b>Drain Piping</b>				
	Supply & installation of CPVC piping complete with fittings, supports and duly insulated with 9 mm thick closed cell nitril rubber insulation.				
a.	25 mm dia	30	Rm		
b.	32 mm dia	40	Rm		
12	<b>Control &amp; Transmission Wiring</b>				
	Providing & fixing control cum transmission wiring of 2 core X 1.5 sqmm shielded copper cable in suitable conduits between indoor and out door unit and between corded remote				
a.	2 core X 1.5 sqmm shielded	250	Rm		
13	<b>Duct work</b>				
	Supply & fabrication of 24G (Tata) GI sheet rectangular duct complete with MS angle support as requiredetc complete as per IS 655.	350	Sqm		
14	Supply and fixing of thermal insulation with 13mm thick nitril insulation	350	Sqm		
15	Supply and fixing of duct acoustic insulation with 25 mm thick glass-wool with AL perforated sheet for duct plenum.	70	Sqm		
16	Supply and fixing of canvass connection in the Ductable IDU and duct	8	Nos		
17	Supply and fixing of Aluminium Grill/Diffuser for supply air and R/A				
a.	with damper (600x600 mm)	15	Sqm		
b.	Without damper	20	Sqm		
18	Installation of Non-VRF Hi-wall indoor unit with 7 mtr copper pipe and cable each, and MS stand.	1	Nos		
19	<b>Refrigerant Gas</b>				
	Supply of R-410A Refrigerant Gas	40	KG		
				<b>Sub Total Part B</b>	
				<b>Grand Total Part (A + B)</b>	

GST on work contract will be extra as applicable.