

**PRICED BILL OF QUANTITIES FOR AIR-CONDITIONING SYSTEM FOR
VRF SYSTEM FOR TRUST BANK PLC. JOLSHIRI BRANCH**

Annexure-A

Supply, Installation, Testing & Commissioning of VRF Air Conditioning System

Distribution Cooling Load -IDU= 26.76 TR & ODU= 27.10 TR						SUPPLY OF ITEMS (including installation cost)	
SL. NO.	SHORT DESCRIPTION	MODEL	BRAND & ORIGIN	QTY	UNIT	RATE IN TAKA	AMOUNT IN TAKA
1.00	OUTDOOR UNITS						
	Supply, installation, testing and commissioning of Variable Refrigerant Flow (VRF) type air conditioner. Each set shall be comprised of air cooled condenser with propeller type condenser fan(s), inverter controlled scroll compressor(s), built in Oil separator, accumulator, pressure sensors, temperature sensors, control valves and controls. The cooling capacity of the VRF condensing units shall be based on 95°F ambient air temperature. The unit shall operate when supplied with 400±10% V / 50hz / 3 Ph Electric power. Refrigerant Type: R410a						
a)	95 kW, 27.1 TR			1	Set		-
2.00	INDOOR UNITS						
	Fan Coil Units of the following type and capacities shall be operated with Variable Refrigerant Flow (VRF/VRV) outdoor units. Each FCU shall be complete with Electronic refrigerant control valve (EXV), evaporator coils, washable filter, blower, Terminal Box etc. complete in all respect. Each unit shall be compatible with refrigerant R410a. The unit shall operate when supplied with 220±10% V / 50hz / 1 Ph Electric power.						
3.00	4-WAY CASSETTE						
	Supply and installation of 4- Way cassette type indoor units complete with Panel & sensor. Each unit shall operate when supplied with 220V~240V/50Hz/1Ph power.						
a)	4.0 TR, 14.0 kW			1	Sets		-
b)	3.18 TR, 11.20 kW			3	Sets		-
c)	2.55 TR, 9.0 kW			1	Set		-
d)	2.01 TR, 7.1 kW			1	Sets		-
e)	1.6 TR, 5.6 kW			1	Sets		-



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f)	1.02 TR, 3.6 kW			3	Sets		-
4.00	Outdoor Air Processing Unit (OAP)						
	Supply and installation of outdoor Air Processing units. Each unit shall operate when supplied with 220V~240V/50Hz/1Ph power.						
a)	4.0 TR, 14 kW			1	Sets		-
5.00	REFNETS			1	Lot		-
	Refnets/Y- Joint shall be used as per the manufacture's recommendation for the distribution of the refrigerant to the Fan Coil Units.						
6.00	WIRELESS REMOTE			10	Sets		-
7.00	WIRED REMOTE			1	Sets		-
8.00	CENTRALIZED CONTROL SYSTEM			1	Set		-
	The Central Controller controls the system air conditioners individually or in groups to support many other functions. It can control 128 units & necessary functions.						
	AMOUNT					TAKA	-



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Annexure-B

SUPPLY AND INSTALLATION OF LOCAL ITEMS

SL. NO.	SHORT DESCRIPTION	MODEL	BRAND & ORIGIN	QTY	UNIT	SUPPLY OF ITEMS (including installation cost)	
						RATE IN TAKA	AMOUNT IN TAKA
1.00	Split AC (Inverter Type)						
	Supply & Installation of Split AC shall be completed with necessary mounting frame, angle, vibration isolators etc.						
a)	Capacity: 1.5 TR			2	Set		-
2.00	PIPE WITH INSULATIONS						
	Refrigerant Piping shall be medium grade (L) Copper piping with elbow, support, hangers, other accessories.						
a)	34.92 mm dia with 19 mm thick insulation			200	Rft		-
b)	28.57 mm dia with 19 mm thick insulation			70	Rft		-
c)	22.2 mm dia with 19 mm thick insulation			40	Rft		-
d)	19.05 mm dia with 19 mm thick insulation			250	Rft		-
e)	15.87 mm dia with 19 mm thick insulation			165	Rft		-
f)	12.70 mm dia with 19 mm thick insulation			90	Rft		-
g)	9.52 mm dia with 19 mm thick insulation			100	Rft		-
h)	6.4 mm dia with 19 mm thick insulation			50	Rft		-
3.00	DRAIN PIPES			490	Rft		-
	Condensate drain line of 32mm dia uPVC pipe inculated with atleast 12mm thick Nitrile rubber insulation shall be complete with necessary elbow, tee, supports and hangers etc. The drain line shall maintain proper slope for effective removal of condensate drain water.						
4.00	RECTANGULAR DUCTING WITH PE FOAM INSULATION 19MM THICK. FOR VRF A/C						



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SL. NO.	SHORT DESCRIPTION	MODEL	BRAND & ORIGIN	QTY	UNIT	SUPPLY OF ITEMS (including installation cost)	
						RATE IN TAKA	AMOUNT IN TAKA
	Duct works including Tees, bends, elbows, reducers, offsets shall be complete with necessary angle, bracing, stiffeners etc as per SMACNA Standard. Duct inside shall be properly insulated with PE foam Insulation of 19mm thickness with aluminum foil. The insulation joints shall be sealed with aluminum foil tape.						
a)	22G Duct GP Sheet			700	Sft		
b)	Flexible Pipe (Dia: 4")			40	RFT		
5.00	FLEXIBLE CONNECTION			2	Sets		-
	Duct connectable with Fan Coil Units, shall be done with Nylex or equivalent Flexible connection of 150mm width.						
6.00	AIR TERMINALS			1500	Sqin		-
	Supply and installation of Ceiling Mounted/ Wall Mounted Exhaust Air Grilles, Fresh air Diffuser & Z-Louvers made of extruded aluminium having neck size as per the drawing						
7.00	WELDING GAS & NITROGEN FLUSH						
	Nitrogen shall be used while oxy acetylene welding to prevent atmospheric contamination from oxidation to the welding joints. The whole system shall be flushed with nitrogen to remove any sort of dipositon due to welding. A Nitrogen pressure test shall be carried out to find any leak in the system.						
a)	Nitrogen Gas			1	Lot		-
b)	Oxygen Gas			1	Lot		-



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						RATE IN TAKA	AMOUNT IN TAKA
c)	Acetylene Gas			1	Lot		-
8.00	REFRIGERANT CHARGE VRF & Split						
	Extra Refrigerant R410a for additional piping network according to manufacturer's recommendation.						
a)	R410a			14	kg		-
9.00	Outdoor unit Base			1	Set		-
	MS Angle Size: 2.5" x 2.5", 5mm thick. With color paint						
10.00	COMMUNICATIONS CABLE			550	Rft		-
	Supply and laying of Communication Cables along with terminal connections as per drawing and detail technical specification including supply and installation of pvc conduit, fittings, all other incidental materials and pvc conduit, fittings, all other incidental materials and consumable						
11.00	POWER CABLES						
	Supply and installation of electrical cable of proper size shall be complete with flexible pipe/ PVC conduit, conduit bends, tees, cable tray, lugs etc.						
a)	3Cx2.5 rm Flexible Cable (for Each Indoor Unit) (Approx)			3200	RFT		-
b)	4Cx16rm NYY + 1Cx16rm BYA Cable (Main Cable from MDB to SDB) Approx			310	RFT		-
12.00	Air Conditioning Distribution Board						



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						RATE IN TAKA	AMOUNT IN TAKA
	Supply, fabrication and installation of electrical Distribution Board constructed with 16 BWG sheet steel painted with two coats of epoxy paint over a coat of prime. The panel shall house bus-bar, MCCB/MCB for incoming & equipments, earthing block, ampere meter and volts meter, Indicator lamp etc. complete as per standard and direction. The contractor shall select MCCB/MCB as per actual requirement of the equipment.						
	Size: 20"x20"x8" (HxWxD)						
	Incoming Circuit Breaker (80A TP MCCB) Adjustable						
	Outgoing: 1 Set x 80A TP MCCB (for Each Outdoor Unit)						
	Outgoing: 12 Set x 6A SP MCB (for Each Indoor Unit)			1	Job		-
	Copper Bushbar						
	Indicator Lamp						
	Digital Multimeter						
13.00	CIVIL WORKS						
13.1	5" Wall Breaking Work			120	SFT		
13.2	Maintenance Door For AC			1	Set		
15.00	Cable Tray (300 x 100 mm) Without Cover			350	Rft		
	Thickness: 18 SWG						
	Color: Any						



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						RATE IN TAKA	AMOUNT IN TAKA
16.00	TESTING, COMMISSIONING & BALANCING			1	Job		-
	Supply & installation of single / multi-core PVC insulated, PVC sheathed Communication control cable of copper conductor of proper size. Cable work shall be completed with water grade PVC conduit, conduit bends, tees, pull box, circular box, cable tray, fixing wire, marking. etc. Complete as per direction and standard. Cutting of walls, floor, roof etc. mending good damage shall be as per direction. Termination and cable joining shall be done as per standard practise. Cable work shall be done as per drawing and direction. The cable, MCCB etc. shall be selected as per actual requirement of the equipment and as per prior approval by the consultant. Cable and control wiring from floor power panel to units shall be supplied and installed by the implementing organisation while the cable from sub-station to floor panel to Outdoor and Indoor unit shall be supplied and facilitated by the Owner.						
						TAKA	-

