

STATE BANK OF INDIA

**PROPOSED HVAC WORKS FOR STATE BANK OF INDIA – MANGALURU MAIN BRANCH,
RBO-1, AO-6, MANGALURU**

BILL OF QUANTITIES -ELECTRICAL WORKS

SL.NO	Description	Unit	Qty	Rate	Amount
1	Supply Installation, Testing and Commissioning of the following rating of inverter VRF outdoor units (ODUs) of fully inverter type. The specified capacities shall be actual cooling capacities at 36C DBT and 25.6C WBT ambient conditions and 23C / 60% RH Room Conditions. ODU Shall be mounted on suitable cement concrete pedestal duly plastered and painted on the terrace as required.				
a	54 HP Catalogue Rating (32HP & 22HP) Single circuit	Nos	1		
	42 HP Catalogue Rating (1st Floor) (24HP & 18HP) Single circuit	Nos	1		
2	Supply of following capacity Ceiling Mounted Cassette type Indoor Unit with decorative panel,compact cooling coil, electronic expansion valve, Multi speed fan motors, dynamically balanced blowers,provision for Fresh Air Intake,drain pump, synthetic washable media filter including insulation and suitable for operation on single phase AC supply				
a.	3.0 TR CEILING SUSPENDED (3x3)	Nos	6		
b.	2.5 TR CEILING SUSPENDED (3x3)	Nos	4		
c	2.0 TR CEILING SUSPENDED (3x3)	Nos	10		
d	1.5 TR CEILING SUSPENDED (3x3)	Nos	1		
e	1.0 TR CEILING SUSPENDED (2x2)	Nos	2		
f	1.2 TR CEILING SUSPENDED (2x2)	Nos	2		
c.	12.8 TR HI STATIC DUCTABLE CEILING MOUNTED	Nos	2		
3	S,I,T & C Cordless remote controller	Nos	27		
4	S,I,T & C Refnut joint Kits for above combination of machines	Nos	29		
5	S, I, T & C Refrigerant Cu Piping for VRF equipment with Copper pipes, insulated with specified thickness nitrile rubber tubings and joints sealed with black tape.				
a	41.3 mm with 19 mm thick insulation	Rm	40		
b	38.1 mm with 19 mm thick insulation	Rm	40		
c	31.8 mm with 19 mm thick insulation	Rm	30		
d	28.6 mm with 19mm thick insulation	Rm	40		
e	25.5 mm with 19mm thick insulation	Rm	15		
g	22.2 mm with 13 mm thick insulation	Rm	60		
h	19.1 mm with 13 mm thick insulation	Rm	55		
i	15.9 mm with 13 mm thick insulation	Rm	100		
j	12.7 mm with 13 mm thick insulation	Rm	50		
k	9.5 mm with 13 mm thick insulation	Rm	100		
l	6.0 mm with 13 mm thick insulation	Rm	40		
6	S,I,T & C Control wiring / network wiring using recommended quality of multicore wires in PVC Conduit	Rm	350		

7	S,I,T & C Pressure , testing & commissioning of the Air conditioning system with Topping Up of R 410a.include hoisting .	Lot	2		
8	G.S.S DUCTING as per SMACNA Standards.				
	All ducting shall be of factory fabricated completely finished and transported to site in a boxed form. GS sheet shall be Class VIII - with zinc coating of 120 gm / sqmt surface area. TDF type flanges with neoprene rubber gaskets of thickness to match the dimensions of the ducts shall be used for connecting two ducts. The cost of the duct shall include the threaded rod supports, angle flanges, anchor fastners, hot dipped galvanized bolts and nuts etc. The Duct to be manufactured and assembled as per SMACNA standard for Class- 500pascals. 26 G shall not be considered.				
	24 Gauge	sqm	160		
	22 Gauge	sqm	75		
	20 Gauge	sqm	50		
9	ACOUSTIC INSULATION OF DUCTS				
	Supply ,installation and testing of Acoustic lining open cell p insulation for supply and return duct of density 70kg/m3 of Fire Retardant grades with thickness of 10 mm NRC of material should be atleast 0.35 tested as per ISO 354-2000 and calculated in accordance with ASTM C423-90A.	sqm	75		
10	THERMAL INSULATION				
	Thermal insulation of the sheet metal duct with closed cell elastomeric insulation of Class 'O' material with density of 40 - 55 kg/cum as per the thickness mentioned below, with fire retardant adhesive and joints sealed with 3mm thick, 50mm wide nitrile rubber self adhesive tape. 13 mm thick	sqm	200		
11	VOLUME CONTROL OPPOSED BLADE DAMPER				
	The volume control damper shall be of low leakage type with the outer shell constructed of 1.6mm thick galvanized steel frame and the blade/Leaf with 1.6mm thick GSS. And with necessary flanges for connection etc., as per specification.	sqm	10		
12	GRILLES - AL				
	Supply & installation of higher grade Aluminium Extruded powder coated grilles with blade deflection of 0 - 15 deg as required.	sqm	20		
13	COLLAR DAMPER - OPPOSE BLADE TYPE				
	Collar damper shall be constructed out of extruded aluminium alloy with multiple blade of oppose blade type. Shall be used for the Supply air grilles as per the drawings & specifications.	sqm	6		
14	SQUARE DIFFUSER - AL.				
	The Diffuser shall be of removable core type and constructed with high grade aluminum extruded alloy and with powder coated finish (without collar damper). All diffusers shall have a continuous square neck of minimum 32mm height suitable for fixing spill air box. Neck size: 375 x 375mm., Outer size: Standard ~600x600mm	nos	40		

15	ROUND FLEXIBLE DUCTS WITH INSULATION.				
	The round flexible duct inner core should be made of triple lamination of Aluminum Foil, Polyester & Metalized polyester film permanently bonded to a coated spring steel wire helix. Fiberglass insulation shall be of 25mm thick with minimum density of 16 kg/m ³ . The outer insulation jacket vapor barrier shall be made of fiber glass reinforced metalized polyester film laminated with aluminum foil as per the technical specifications. 250mm Dia.	mtr	70		
16	SPILL AIR PLENUM BOX.				
	Prefabricated diffuser boxes made out of 24G sheet suitable for diffusers of the following neck size with circular collar for connecting flexible duct, suspension arrangement using anchor fasteners, threaded rods etc. 450 x 450 mm	nos	40		
17	BUTTERFLY DAMPER - CIRCULAR - SINGLE FLAP-GI				
	The Butterfly damper should constructed with not less than 0.8mm thick galvanized steel sheet, with single flap, necessary stopper, flanges for fastening on to the duct surface and with grooves for clamping the flexible ducts securely. 250 mm dia	nos	40		
18	S,I,T & C MS stands placing AC equipment ODUs	Lot	4		
19	Providing & Supplying Drain pump with UPVC Construction, Min 2ltr holding capacity with float valve, automatic controller etc.	Nos	2		
20	Chlorinated Polyvinyl Chloride pipes (CPVC) pipe up to 50mm dia with Fittings up to 50mm dia SDR.11 with 6mm thick nitrile rubber insulation,, supports etc.				
	32 dia	Rm	75		
	25 dia	Rm	100		
21	Supply, fabrication, installation and testing the flexible connections constructed of fire resistance flexible double canvas sleeve for ductable split and in line toilet exhaust fan .		3		
22	S,I,T & C Acoustically insulated mixed flow inline Fresh air fan with accessories for FA distribution to cassette units ~200cfm 10MM STATIC - (154mm dia coaxial fan)	Nos	2		
23	S,I,T & C PVC pipe for fresh air distribution with necessary fittings and supports reducers, 'Y'joints, 'T's etc.				
a	225 dia	Rm	40		
b	163 dia	Rm	30		
c	110 dia	Rm	20		
d	75 dia	Rm	20		
24	1 no 0-24 hr electronic timer along with 1 no 12A 3-pole air break contactor enclosed in a powder coated MS box fabricated out of 16 Swg CRCA with a screwed front cover plate and mounted on wall. The same shall be completely wired (fresh air fan)	Nos	2		