

BILL OF QUANTITY (BOQ) FOR HVAC WORKS AT SBI ADMINISTRATIVE OFFICE VARANASI.**TECHNICAL SPECIFICATION FOR HVAC WORK**

S.N	DESCRIPTION	QTY.	UNIT	RATE	AMOUNT
	PART - A Supply of Equipments				
	(Carrier, Toshiba, Daikin, O General, Hittachi, Mitshubishi, Voltas, Blue Star, LG.)				
1	Variable Refrigerant Volume/Variable Refrigerant Flow System: Supply of variable refrigerant volume/Variable Refrigerant Flow modular type airconditioning system with individual controller and heating cooling feature as per detail given in specification and dwg.				
	Supply of Variable Refrigerant Flow / Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll/Rotary Compressor (s) , minimum two compressors for above 14 HP modules, microprocessor based Controller, top discharge type condensing unit(s), with R410A Refrigerant, vibration isolators, with suitable foundation etc. complete as required. The unit shall deliver the rated capacity at AHRI Conditions and work even at 54.0°C ambient temperature without tripping. The unit shall be suitable to work on 400V+/-10%, 3Phase, 50Hz AC power supply. The unit shall be filled with first charge of the refrigerant and ready for use as required. The COP at AHRI conditions shall not be less than 3.1 and IEER not less than 6.0 .				
a	Outdoor Unit				
i	22 HP	3.00	No		
ii	34 HP	2.00	No		
b	Indoor Unit +Remote +Refnet				
	Supply of following minimum capacity 4-way flow VRV / VRF Cassette Type Indoor ceiling mounted unit equipped with synthetic washable media pre-filter, fan section with low noise fan / dynamically balanced blower, multispeedmotor, coil section with DX Copper coil, electronic expansion valve, outer cabinet, drainpump, grill, necessary supports, vibration isolation, cordless remote control etc., suitable for operation on single phase 230V ±10%, 50HzAC supply, complete, as required. The unit shall have automatic force shutdown provision in case of fire on receiving signal from BMS System. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree CDB and 19 Degree CWB temperature.				

	Ground Floor				
i	4-Way Cassette Unit 4.0 TR,	12.00	No		
	First Floor				
i	4-Way Cassette Unit 3.0 TR,	1.00	No		
ii	4-Way Cassette Unit 4.0 TR,	8.00	No		
	Second Floor				
i	4-Way Cassette Unit 4.0 TR,	7.00	No		
2	Supply of ceiling suspended energy efficient 4 way air-flow Cooling type single phase 2 Tr, BEE rated 3 Star Cassette type inverter split air conditioner in recessed manner in false ceiling with full function wireless remote and auto restart feature, Copper condenser coils and Copper cooling coils , company provided copper refrigerant, fan and fan motor drain pan and cordless Remote controller pipe complete in all respects with indoor/ outdoor unit, gas charge etc. Acceptable makes of AC:Carrier, Toshiba, Daikin, O General, Hittachi, Mitshubishi, Voltas, Blue Star, LG.	1.00	No		
3	Supply of 2 Tr hi wall type BEE rated 5 star inverter technology split air conditioner with full function wireless remote and auto restart feature, with indoor/outdoor unit, gas charge, Copper condenser coils and Copper cooling coils company provided copper refrigerant pipe complete in all respects. Acceptable makes AC: Carrier, Toshiba, Daikin, O General, Hittachi, Mitshubishi, Voltas, Blue Star, LG.	2.00	No		
4	Supply of 1.5 Tr hi wall type BEE rated 5 star inverter technology split air conditioner with full function wireless remote and auto restart feature, with indoor/outdoor unit, gas charge, Copper condenser coils and Copper cooling coils company provided copper refrigerant pipe complete in all respects. Acceptable makes AC: Carrier, Toshiba, Daikin, O General, Hittachi, Mitshubishi, Voltas, Blue Star, LG.	4.00	No		
	Total Part-A				
	Part-B : SITC of Low side				
1	Installation, testing and commissioning of variable refrigerant volume/Variable Refrigerant Flow airconditioning system complete with indoor and outdoor units with individual controller and cooling feature with refrigerant piping, gas charging R-410 as per detail given in specification and dwg.				
	Variable Refrigerant Flow/ System				

	Lifting, shifting, positioning, installation, testing of indoor units, outdoor units, fittings(Imported Y-joints & header etc.) remote controls of indoor units, complete as per specification and drawings.				
1.1	Outdoor Unit	5	Nos		
1.2	Indoor Units				
a	4-Way Cassettes	28	Nos		
2.0	Commissioning of VRF systems including charging of R410A gas as per site requirements	74	Kg		
3.0	Refrigerant Piping				
	Interconnecting refrigerant pipe work with (19mm/13 mm thick) closed cell elastomeric nitrile rubber tubular insulation between each set of indoor & outdoor units as per specifications, all piping inside the room shall be properly supported				
3.1	41.3 mm	10	Rmt		
3.2	34.9 mm	50	Rmt		
3.3	28.6 mm	65	Rmt		
3.4	22.2 mm	80	Rmt		
3.5	19.1 mm	96	Rmt		
3.6	15.9 mm	112	Rmt		
3.7	12.7 mm	126	Rmt		
3.8	9.5 mm	178	Rmt		
3.9	6.4 mm	244	Rmt		
4.0	Drain Piping				
	Providing and fixing rigid PVC piping complete with fittings, supports as per specifications and duly insulated with 6 mm thick closed cell nitrile rubber insulation. The pipe is to be concealed in wall/floor wherever required with chipping and plaster repairing. The pipe shall be used for VRV/VRF, hi wall split/Cassette AC.				
4.1	25 mm dia	350	Rmt		
4.2	32 mm dia	150	Rmt		
5.0	Control & Transmission Wiring				
5.1	Providing & fixing control cum transmission wiring of 2 core x 1.5 sqmm copper in suitable conduits between indoor and out door unit.	650	Rmt		
6.0	Supply & Laying of M S Slotted Angle for pipes and cables horizontally and vertically along with threaded rod, nut, bolt, saddle, tie etc.	450	Rmt		

7.0	MS Stand for VRV/VRF Outdoor Units	5	Nos		
	Total Part-B				
	Part-C				
	Wall/Ceiling mounting of hi wall/cassette type split Air Conditioner of different make.				
1	Unmounting, servicing and refixing of banks (available on site) split Air Conditioner at marked locations. Including cost of gas filling. AC units may be of different brands, vendor have to coordinate with manufactureres.				
a	1.0 TR HWM Split Indoor Unit + outdoor & stabilizer	7.00	No		
b	1.5 TR HWM Split Indoor Unit + outdoor & stabilizer	19.00	No		
c	2.0 TR HWM Split Indoor Unit + outdoor & stabilizer	13.00	No		
2	Supply, installation, testing and commissioning of insulated copper refrigerant piping set (suction and discharge) duly insulated by nitrile rubber. Size (thickness and dia) of both Copper pipe should as per recommendation of AC manufacturer's technical specification. The pipe is to be concealed in wall/floor wherever required with chipping and plaster repairing. (Old pipe dismantled from branch is also to be used) Makes:Totaline/ Met Tube/ Diamond/ Star/ Camipro. (Only single distance will be measured between Indoor & Outdoor Units)				
a	1.0 TR HWM Split Unit	105.00	Mtr.		
b	1.5 TR HWM Split Unit	285.00	Mtr.		
c	2.0 TR HWM/Cassette Split Unit	195.00	Mtr.		
3	Supply, installation, testing and commissioning of inter connecting wiring/ cabling between indoor and outdoor of hi wall/ Cassette type split AC (Only single distance will be considered)				
a	1.0 TR HWM Split Unit	112.00	Mtr.		
b	1.5 TR HWM Split Unit	304.00	Mtr.		
c	2.0 TR HWM/Cassette Split Unit	208.00	Mtr.		
4	Unmounting AC units (indoor and out door) removing copper pipes and depositing the same to Bank store department.				
a	Split AC (all variant)	15.00	No		
b	window AC (all make and sizes)	15.00	No		
c	Cassette AC (all make and size)	1.00	No		

5	Installation, testing and commissioning of 4/2 TR cassette type air-conditioner with wall cutting/ mounting including making good of damages complete in all respects.	1.00	No		
6	Installation, testing and commissioning of 2/1.5/ 1 TR Hi wall type split/window air conditionewith wall cutting/ mounting, stabiliser and making good of damages complete in all respects.	6.00	No		
7	Supply of 5 KVA, wall mounted hi lo cut off stabiliser with TDR, voltage range 140-280V, complete in all respects. Stabilizer: Servel/ V Gaurd/ Marc/Sen & Pandit/ Stambh/ Inmag/Microtek	3.00	No		
8	Supply of 4 KVA, wall mounted hi lo cut off stabiliser with TDR, voltage range 140-280V, complete in all respects. Stabilizer: Servel/ V Gaurd/ Marc/Sen & Pandit/ Stambh/ Inmag/Microtek	4.00	No		
9	Supply and installation of robust MS angle, MS flat fabricated floor/ wall mounting stand suitable for hi wall split/ cassette outdoor units	7.00	No		
	Total -C				
	Grand Total (SITC of AC system) =A+B+C				
					including GST

Rate quoted should be inclusive of all including GST. However, bill is to be submitted with shwoing GST additionally as per extant rules and applicable rates.