

BOQ FOR AIR-CONDITIONING WORKS AT 3rd FLOOR (RIGHT SIDE WING), A - BLOCK AT SBI LHO, NEW DELHI					
S. No.	Description	Unit	Qty.	Rate	Amount
1	OUTDOOR UNIT: Supply Installation, Testing & Commissioning of modular type Variable Refrigerant Flow/ Variable Refrigerant Volume air cooled Outdoor units suitable for cooling and heating, having all hermetically sealed inverter type Scroll Compressor(s), microprocessor based Controller, side discharge type condensing unit(s), with R-410 A Refrigerant, vibration isolators, with suitable foundation etc. complete as required. The unit shall deliver the rated capacity at AHRI conditions and work even at 50°C ambient temperature without tripping. The unit shall be suitable to work on 400 V+/-10%, 3 Phase, 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 6.5. (Acceptable make: Toshiba/ Mitsubishi/ O-General). Note: The shop drawing before commencement of works shall be submitted for approval of Bank/ Architect.				
(a)	Outdoor units				
(i)	8 HP	Nos.	2.00		
(ii)	10 HP	Nos.	3.00		
2	Indoor units				
(i)	INDOOR UNIT HIGH WALL TYPE: Supply, installation, testing and commissioning of following minimum capacity VRV/ VRF High wall type Indoor unit equipped with washable synthetic media pre filter, fan section with low noise fan/ dynamically balanced blower, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, cordless remote control including batteries, drain pan, necessary accessories etc., suitable for operation on 230 V \pm 10%, 50Hz, single phase AC supply, complete as required. The cooling capacity of indoor unit will be at air inlet conditions of 27 Degree C DB and 19 Degree C WB temperature. (Make of the indoor unit shall be same as outdoor unit).				
a	1.0 TR Nominal Capacity Split	Nos.	1.00		

(ii)	INDOOR UNIT CASSETTE TYPE: Supply, installation, testing and commissioning 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, multispeed motor, coil section with DX copper coil, electronic expansion valve, outer cabinet, drain pump, grill, necessary supports, vibration isolation, cordless remote control (with batteries) etc., suitable for operation on single phase 230 V \pm 10%, 50 Hz ac supply, complete as required. The cooling capacity of indoor unit will be at air inlet conditions of 27 degree centigrade dry bulb (DB) and 19 degree centigrade wet bulb (WB) temperature. (Make of the indoor unit shall be same as outdoor unit).				
a	min 1.2 TR Cassette Unit	Nos.	8.00		
b	min 1.5 TR Cassette Unit	Nos.	1.00		
c	min 2.0 TR Cassette Unit	Nos.	12.00		
3	SITC of Refrigerant 'Y' Joints Required for distribution of refrigerant in copper piping etc. all complete as per specifications.	Nos.	17.00		
4	<u>Refrigerant Piping</u>				
	Supply/ Installation of interconnecting refrigerant piping with 13/19 mm thick closed cell elastomeric nitrile rubber tubular insulation between each set of indoor & outdoor units with 16 G slotted channel (at every 8ft distance), HILTI Fasteners, threaded rod, nut, bolt washer etc and all external piping shall run in covered slotted tray and as per given specifications and approved make list. The piping between outdoor and indoor unit shall be extended up to 165 M with maximum 50 M level difference without any oil traps.				
a	22.20 mm OD (insulation 19 mm)	Mtr	210.00		
b	19.05 mm OD (insulation 19 mm)	Mtr	50.00		
c	15.90 mm OD (insulation 19 mm)	Mtr	90.00		
d	12.7 mm OD (insulation 19 mm)	Mtr	5.00		
e	9.50 mm OD (insulation 13 mm)	Mtr	345.00		
f	6.40 mm OD (insulation 13 mm)	Mtr	5.00		
5	<u>Drain Piping</u>				
	Supplying and laying of ISI marked PVC drain pipe as per the manufacturers specification of the above Units for draining of sweated water from AC evaporator (indoor) unit including providing tee, joints, elbows, supports, etc. insulated with XLPE class - O tubular insulation/ with Class-O closed cell elastomeric nitrile rubber tubular sleeves sections etc. complete as required. Make as approved by Architect/SBI.				
a	25 mm dia	Mtr	40.00		
b	32 mm dia	Mtr	150.00		

6	Supply and laying following sizes of FRLS PVC insulated flexible copper conductor cable of 1100 Volts grade for Control/ Communication including providing and laying of 20 mm ISI marked medium class pvc conduit on surface/ recess, cutting the wall and making good the same so as to match with the original finish, where ever required etc. as required (Between Indoor & Outdoor Units and for remote control units).				
a	3C X 1.0 sq. mm shielded unarmoured communication cable.	Mtr	350.00		
b	3C X 2.5 sq. mm power cable for IDUs (from VRV l/p socket to IDU)	Mtr	50.00		
7	MS Stand for ODU				
	Providing and fixing heavy duty Stand with anti rust coating for following ODU along with anti vibration rubber pad as per approved drawing:				
	8 HP	Nos.	2.00		
	10 HP	Nos.	3.00		
8	Providing and fixing of cable tray GI perforated type cable tray of approved make. The cable tray shall be fixed to ceiling/ wall with suitable size of GI clamp, appropriate dia. threaded rod and C Channel putty/ suitable size of MS angle support painted with 2 coats of paint. Item to include provision of scaffolding etc. as required for works.				
a	150 mm wide and 50 mm high	Mtr	100.00		
b	300 mm wide and 50 mm high	Mtr	50.00		
	CASSETTE TYPE AIR CONDITIONERS				
9	Supplying, erection, testing and commissioning following wall mounted Split/ Root mounted cassette units of (Toshiba/ Mitsubishi/ O-General) with cordless remote complete with all necessary fittings duly insulated with 9 mm thick nitrile rubber pipe insulation with (All coils – copper only) , fan and fan motor, machine control panel improved Refrigerant Joints, .Air conditioners shall be fitted with hermetically sealed type suction cooled reciprocating or discharge cooled rotary compressor or scroll compressor. Compressor unit operating on R32/ R-410. All complete as per drawing, approval and instructions of the Architect/ Employer. Item to include powder coated outdoor stands as per the manufacturer specifications.				
a	2.0 T Cassette AC Ceiling suspended Cassette (inverter type minimum 3 star rating) with 4 way/ round air flow including all necessary fittings and mountings as specified by the manufacturer.	Nos.	1.00		
10	EXTRA REFRIGERANT PIPING				

	Supplying and laying of Extra copper refrigerant piping with nitrile rubber pipe insulation, both of size as specified by the manufacturer suitable for 2.0 TR Cassette AC - From Indoor to Outdoor Units (make as approved by Architect/ Bank)				
a	For 2.0 TR Cassette AC as specified by the manufacturer	Mtr.	25.00		
11	Providing and fixing of lockable caging for outdoor unit grouted on wall or on roof with open able shutter made of combination of 25 X 25 X 3 mm MS angle and 25 X 3 mm MS flat along with welded mesh all complete. Item includes all necessary hardware, priming coat, synthetic enamel paint, hanger, clamps other accessories etc. all complete as per approval and instructions of the Architect/ employer.				
a	For 2.0 TR ceiling mounted cassette unit	Nos.	1.00		
12	Supplying and laying of Extra Electrical interconnecting control cable from indoor to outdoor of size as specified by the manufacturer suitable for 2.0 TR Cassette AC (make as approved by Architect/ Bank).	Mtr.	25.00		
13	Supplying, installation and commissioning of voltage stabilizer of range 170-280 V for Acs (V-guard/ Livguard/ Kirnotics make as approved by Architect/ Bank).				
	5 KVA for 2.0 TR Cassette AC	Nos.	1.00		
14	Automatic 3 Phase sequence corrector of make as approved by the Architect/Bank and compatible with the VRV units as per manufacturer specification	Nos.	5.00		
	<u>Air Purification Plasma ionization</u>				
15	The Active Air Purification system should consist of Supply, Installation, Testing and commissioning of Bipolar Ionisation System. The Bipolar Ionisation System must be a combination of Tube Based Model and Needle Point Model (Needle Point should have Nitinol (nickel titanium) Needles) and Carbon Fibre Brush Model, System should produce positive and negative ions for creating a Bio Climate rich in ions and hence neutralising harmful pollutants including pathogens, Volatile Organic Compounds and Particulate Matter.				
	The System should be capable of providing periodic Preventive maintenance for automated after sales support service in form of notification/alerts and user interaction through dashboard application. Supplier must have experience of more than 3 years of executing projects with the same technology products. and have done at least 3 multi-location projects (Private Or Government) Pan India and Minimum Value of each project must be at Least 50 Lac.				

	<p>Following Certifications are mandatory to produce The Carbon Brush and Self Cleaning nickel titanium based Needle Point Bipolar Ionizer must be UL 2043 and UL 1995 certified. The Carbon Brush and Self Cleaning nickel titanium based Needle Point Bipolar Ionizer must have UL-2998 Certification for Safety against Zero Ozone Emission as per recommendation by ASHRAE. The Carbon Brush and Self Cleaning nickel titanium based Needle Point Bipolar Ionizer and Tube Based Model Should be tested on UL or Intertek/ETL to prove conformance to UL 867 for electronic devices. Other Product Certifications required are ISO16000 , CSA C22.2# 187, and CARB.</p> <p>Manufacturers shall provide Test report from Internationally/Nationally recognized Lab for proven efficacy on below pathogens with minimum kill rates for the following pathogens given the allotted time and in a space condition:</p> <p>a) SARS-CoV-2 (COVID-19) Human Strain b) MS2 Bacteriophage (Surrogates COVID-19) c) Omicron Variant of SARS-CoV-2 d) H1N1 e) Total Bacterial Count Reduction rate of more than 90% from NABL Accredited Lab f) Yeas & Mold/Total fungal count Reduction rate of more than 90% from NABL Accredited Lab</p> <p>Make :-IntelliGreen/Air Ultra/ A K Enterprises</p>	Nos.	22.00		
16	<u>CTFA (Fresh Air fan filter unit)</u>				
	<p>Supply, installation, testing & commissioning of centralised treated fresh air ceiling suspended unit for CO2 dilution inside apartment in each room accordingly the system should have a Pre filter \+ HEPA filter + Active carbon filter for purifying the intake air which help in maintaining the PM 2.5 levels inside the apartment.</p> <p>The Centrally Treated fresh air Technology must deliver fresh air into indoor and provides air filtration through different stages of purification. Motor should be BLDC type</p> <p>The CTFA shall come with an LCD-Programmable controller to switch On/Off the machine based on the CO2 levels and shall vary the fans speed to low, medium and high accordingly. Air Flow capacity of machine shall be 850 CMH</p> <p>The supplier shall carry out the necessary low side work required to make system functional the cost of same shall be included in CTFA cost.</p> <p>Make :-IntelliGreen/Air Ultra/ A K Enterprises</p>	Nos.	2.00		
17	<u>Indoor Air Quality Monitoring System</u>				

	Supply, Installation, Testing & commissioning of IAQ Monitor to remotely measure the levels of PM 2.5, VOCs, CO2, Temperature, Humidity on a real time basis. The IAQ Monitor shall be capable of getting connected with Wi-Fi. The Monitor should be capable of sending the indoor air quality information on display Screen/Mobile/Workstation as per Client's requirement. The Monitor should indicate the quality of air through changing the colours on the display screen as per the NAAQS standards and should meet the WELL building standards. The monitor should be a 3 tier architecture including sensor Hardware, secure cloud infrastructure, monitoring apps including dashboard, android/IOS. Quoted price shall be inclusive of all necessary arrangement as required to make the unit proper functional. The System should provide Soft Assistance in form of Notifications and Alerts for Periodic Preventive Maintenance. Make :-IntelliGreen/Air Ultra/ A K Enterprises	Nos.	1.00		
	TOTAL				
Note:- The rates quoted includes all other taxes , duties , loading, unloading , transportation, other expenses etc to site. only GST will be paid Extra					