

DEPUTY HIGH COMMISSION OF CANADA, LAGOS

HVAC REFURBISHMENT

Bill of Quantities

February, 2019



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MFA PARTNERSHIP
2nd Floor,
Plot 10B, Block 132, DCS Street,
U3 Estate, Lekki Phase 1, Lagos.

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PREPARED BY: A.O
CHECKED BY: C.A

ITEM	DESCRIPTION	MAKE & CATALOGUE REF	RATE DELIVERED TO SITE		RATE FIXED		QTY	TOTAL COST		
			=N=	K	=N=	K		=N=	K	
B.	<u>DECOMMISSION AND UN-INSTALLATION OF EXISTING CHILLED WATER HVAC SYSTEM WITH FANCOIL UNITS</u>									
1	Decommissioning of HVAC Chiller System through procedure for Plant Shutdown to recover and trap all refrigerants, oil, brine and system chemicals and solvents where applicable						lot			
2	Mechanical Dismantling of all AHUs, DX Systems, extract fans, Dampers, Controllers , chilled water pipes, etc						lot			
3	Electrical Decommissioning and re-Engineering of Panel Boxes, Control Wires and Power Cables for VRF Application						lot			
4	Dismantling and Recovery of all existing registers, diffusers, grilles Including chemical cleaning and polishing. Items are to be re-used for VRF system air distribution.						lot			
5	Servicing of existing ductwork with all Fiberglass Insulation including Clips and Hangers. Items are to be re-used for VRF system air distribution.						lot			
6	Packing and Storage of uninstalled Fancoil Units & salvaged items, Disposal of waste materials and discarded pipes etc. Storage space to be provided by the client.						lot			
7	Chiller and fancoil loading/offloading, hoisting, scaffolding, sanitation and and general cleaning works of workspaces.						lot			
		Total to summary								

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			=N=	K	=N=	K		=N=	K
C.	DUCT WORK/DUCT ANCILLARIES AND VENT SYSTEMS Air ductlines; galvanised sheet metal low velocity ductwork plain rectangular;lockseam or welded seam joints along running lengths as specification notes;supported from floor slab, fixed to slotted insert; rate to include for joints in running lengths, stiffeners and spigots to receive grilles, diffusers or registers as appropriate; Also rates to include for Thermal insulation to air ductlines; 25mm mineral wool 16Kg/m3 density; fixing with aluminium bands reinforced with and including mesh galvanised with netting; lined with accoustic anti-vibration material;finished with foil aluminium;								
1	Guage 22 Air ductline; galvanized sheet metal for extract air. (Ductwork not insulated)						26	m2	
2	Gauge 22 Air ductline; galvanized sheet metal for fresh air units (Insulated)						82	m2	
3	Flexible, circular; pre-insulated fibre reinforced aluminum foil duct connections average 1500mm long complete with approved galvanised steel clamps						39	Nr	
4	Flexible connectors for VRF Ceiling Concealed Unit						10	Nr	
5	Flexible connector for Inline extract fan						6	Nr	
	VENTILATION FANS - EXTRACTION Supply, install ,test and commission the following:								
6	Ventilation Equipment Type: Inline Type Extractor Fan c/w fitting kits Capacity: 250 m³/hr	BLAUBERG FANS					2	Nr	
7	Ventilation Equipment Type: Inline Type Extractor Fan c/w fitting kits CAPACITY: 150 m³/hr	BLAUBERG FANS					4	Nr	
8	Allow for support, brackets, cabling from switches, backshutters and other accesories etc.						lot		
	Air Terminals (BLAUBERG VENTILATOREN) Air terminals; complete with all necessary accessories, including Opposed Blade Damper mounted to flush to opening and fixed to air duct with flanged and bolted joints with mastic sealant								
8	350 x 200mm Over flange; Wall air grille (WAG1)	BLAUBERG VENTILATOREN					6	Nr	
9	Fresh air supply grille (SAG-1) - 326mm x 326mm	BLAUBERG VENTILATOREN					11	Nr	
10	Extract return air grille (SRG-1)- 326mm x 326mm	BLAUBERG VENTILATOREN					4	Nr	
11	Wall Mounted Fresh Air Weather louvre - 500mm x 300mm	BLAUBERG VENTILATOREN					10	Nr	
12	Ceiling mounted 426mm x 426mm air return grille	BLAUBERG VENTILATOREN					4	Nr	
13	150mm Dia. extract air disc valve Flow rate 50l/s (EADV)	BLAUBERG VENTILATOREN					7	Nr	
14	Typical 300x300 opposed-blade damper for all existing supply air diffusers c/w installation and accessories	BLAUBERG VENTILATOREN					61	Nr	
	Total to summary								

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D.	<u>VRF AIR CONDITIONING EQUIPMENT</u> Supply and install the following : Variable Refrigerant Flow (VRF) system comprising of Air cooled Outdoor units, Ceiling Concealed indoor Units with R410a Refrigerants. System shall include remote controllers and all other accessories for a functional and efficient system with Factory Coated Blue Fin Anti-corrosion Protection								
1	<u>VRF OUTDOOR UNIT</u> MITSUBISHI CITY MULTI, VARIABLE REFRIGERANT FLOW SYSTEM - VARIABLE INVERTER SCROLL COMPRESSOR with 2-Pipe Zone system c/w relevant indoor capacities comprising and c/w all installation accessories, main and branches pipework connections with R410-A refrigerant.								
i	CityMulti -Y Series Outdoor Unit(PUHY-P900YSK-A-BS) -Cooling cap:101.kw. Mitsubishi Electric CityMulti VRF System	MITSUBISHI ELECTRIC					1	Nr	
ii	CityMulti -Y Series Outdoor Unit(PUHY-P700YSK-A-BS) -Cooling cap:80.kw. Mitsubishi Electric CityMulti VRF System	MITSUBISHI ELECTRIC					1	Nr	
2	<u>VRF INDOOR UNITS - (Mitsubishi Indoor Units)</u> Airconditioning units complete with Armaflex insulated refrigerant & condensate pipework, with pipeconnectors all in accordance with Engineer's drawings and specification including LCD wireless/wired remote control and all accessories. Indoor Units c/w all installation accessories, main and branches pipework connections along with internal condensate pumps. Unit shall be VRF Ceiling Concealed Unit c/w medium to high static indoor ceiling units with low noise levels, complete with all necessary accessories (CCU-1)								
i	Equipment Model No: PEFY-P140VMA-E Capacity: 16kw Gas - R410A	MITSUBISHI ELECTRIC					7	Nr	
ii	Equipment Model No: PEFY-P100VMA-E Capacity: 11.2kw Gas - R410A	MITSUBISHI ELECTRIC					1	Nr	
iii	Equipment Model No: PEFY-P63VMA-E Capacity: 7.1kw Gas - R410A	MITSUBISHI ELECTRIC					2	Nr	
iv	Fresh Air Intake Unit Equipment Model No: PEFY-P80VMA-E-F Capacity: 9kw Gas - R410A	MITSUBISHI ELECTRIC					4	Nr	
v	Wired Remote Controllers with accessories (PAR-21MAA)						14	Nr	
Total to summary									

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D	<u>COMMUNICATION & ELECTRICAL INTER-CABLING CABLING</u>									
i	4Core x 10mm ² pvc/pvc copper cable on 300mmx 50mm galvanise steel cable tray from outdoor unit to ELCB point complete with all accessories for installation	COMETSTAR OR NIGERCHIN					5			
ii	4Core x 6mm ² pvc/pvc copper cable on 300mmx 50mm galvanise steel cable tray from outdoor unit to ELCB point complete with all accessories for installation	COMETSTAR OR NIGERCHIN					15			
iii	3Core x 2.5mm ² pvc/pvc copper from indoor unit to switch or isolator provided by contractor in 25mm dia. Rigid pvc conduit complete with all accessories like looping box coupler etc.	COMETSTAR OR NIGERCHIN					30			
iv	2Core x 1.5mm ² pvc/pvc screened copper in 20mm dia. Rigid pvc conduit complete with all accessories like looping box coupler etc.	COMETSTAR OR NIGERCHIN					180			
v	Allow for galvanized steel cable tray for external pipes between the VRF indoor and outdoor units, and hanging or clipping accessories						lot			
E	<u>REFRIGERANT AND CONDENSATE PIPING</u>									
	REFRIGERANT PIPEWORK									
	Supply and install copper pipes between air-conditioning system outdoor condensing unit and indoor evaporator unit, complete with fittings insulation, supporting hanger and bracket, complete with power, control and communication cable, complete with 25mm thick Armaflex Insulation	MAKSAL(SA) or MULLER(USA)								
1	Coil copper pipe (soft)									
i	6.35mm						11	m		
ii	9.52mm						135	m		
iii	12.7mm						46	m		
iv	15.88mm						158	m		
2	Straight copper pipe (hard)									
i	19.05mm						166	m		
ii	22.22mm						123	m		
iii	28.58mm						64	m		
iv	31.75mm						34	m		
v	34.92mm						31	m		
vi	38.10mm						11	m		
3	Copper pipe elbow fitting									
i	19.05mm						8	Nr		
ii	22.22mm						4	Nr		
iii	31.75mm						1	Nr		
iv	34.92mm						2	Nr		
4	Copper pipe Y branch fitting (Refnet joint)									
i	CMY-Y302S-G2						1	Nr		
ii	CMY-Y202S-G2						5	Nr		
iii	CMY-Y102LS-G2						2	nr		
iv	CMY-Y200VBK2						1	Nr		
v	CMY-Y100VBK3						1	Nr		
5	MISCELLENOUS									
i	Refrigerant pipe sleeve - Ø3" (75mm)							Lot		
ii	Refrigerant pipe tray, bracket, hanger and support.							Lot		
iii	Allow for additional refrigerant charge Refrigerant shall be R410A type						54	kg		
Total to summary										

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6	<p>CONDENSATE PIPE/FITTINGS, INSULATION AND SLEEVE INSTALLATION</p> <p>Supply and install PVC condensate pipes from air-conditioning system indoor evaporator unit to drainage system network, complete with fittings, 25mm thick Armacell insulation, supporting hanger and bracket, complete with sleeve as follows:</p> <p>Pipes</p> <p>i 25mm</p> <p>ii 50mm</p> <p>iii Miscellaneous Items Allow for elbows, tees, tangit gums, reducers, sockets, brackets anchors, etc</p> <p>Allow for 25mm thick Armacell Thermal Insulation compatible with specified condensate pipe sizes</p>	TIGER OR PANAR								
		TIGER OR PANAR					25 70	m m		
		ARMAFLEX					Lot			
							Lot			
Total to summary										

SUMMARY

ITEM	DESCRIPTION	TOTAL COST	
	<u>SUMMARY</u>	N	K
A.	PRELIMINARIES		
B.	DECOMMISSIONING AND UN-INSTALLATION OF EXISTING SYSTEM		
C.	DUCT WORK/AIR DUCTLINE ANCILLARIES		
D.	VRF AIR CONDITIONING EQUIPMENT		
E	INSTRUMENTATION, CABLING AND PIPING WORKS		
	SUB-TOTAL		
	ADD 5% VAT		
	TOTAL TENDER PRICE		

AMOUNT IN WORDS:

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SIGNED

FOR & ON BEHALF OF:

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DATE