

HVAC work at Warehouse,Ground floor BoQ							
SR. NO	DESCRIPTION	QTY	UNIT	SUPPLY		INSTALLATION	
				Rate (KES)	Amount (KES)	Rate (KES)	Amount (KES)
					A		B
1	HVAC SYSTEM						
1.1	AIR HANDLING UNIT (AHU)						
	Citizen/Zeco/JPC/Nexgen						
	Sheet metal sectionalised cabinet type air handling unit in double skin construction fabricated from Al extruded section frame structure.						
	The inner skin 0.6mm Plain GI & outer skin 0.6 mm Precoated GI construction with 45± 2 mm thick PUF/Rockwool insulation panel , with internal coving and in thermal break construction complete with following section:						
	Mixing Chamber						
	Prefilter section with Pre filter EU-04.						
	Coil section with 4 or 6 rows deep DX type cooling coil (copper coil with Aluminium fins).						
	Blower section with plug fan type						
	Intermediate Fine filter section EU-07						
	Fresh air Section with,manual volume control damper						
	Purge air section with manual volume control damper						
	Sandwich type insulated drain pan ,drain pan will be 18G SS 304 construction						
	There will be opening for cable entries in AHU for blower section & in mixing chamber section for humidity & temp. sensors.						
	There will be access door across every section of AHU with FLP lamp at blower section						
	Necessary openings for electrical connections						
	There will be ports for magnehelic gauge across prefilter & Fine filter.						
	The air handling units should have aluminium aerofoil blade volume control dampers at supply, return , fresh air & purge air.						
	AHU shall be place on MS or cement block 300X300mm,vendor scope						
	Note:						
	1) Motor shall be flame proof type.						
	2) Fan shall be spark proof type.						
	3) Motor shall be VFD compatible						
	4)Limit switch & Lights shall be FLP type						
	5) Antivibration pad shall be provided						
	(Temperature NMT-25 Deg C and RH - NMT 70%)						
1.1.1	AHU-01						
	Supply air quantity (CFM) : 25000	1	Nos.		0.00		0.00
	Dehumidified air quantity (CFM) : 25000						
	Return air quantity (CFM) : 23682						
	Static pressure (MM OF WG) : 150						

	Cooling capacity (TR)	: 40					
	Heater (kW)	: 12					
1.1.2	AHU-02						
	Supply air quantity (CFM)	: 25000	1	Nos.	0.00		0.00
	Dehumidified air quantity (CFM)	: 25000					
	Return air quantity (CFM)	: 23682					
	Static pressure (MM OF WG)	: 150					
	Cooling capacity (TR)	: 40					
	Heater (kW)	: 12					
1.1.3	AHU-03						
	Supply air quantity (CFM)	: 25000	1	Nos.	0.00		0.00
	Dehumidified air quantity (CFM)	: 25000					
	Return air quantity (CFM)	: 23682					
	Static pressure (MM OF WG)	: 150					
	Cooling capacity (TR)	: 40					
	Heater (kW)	: 12					
1.1.4	AHU-04						
	Supply air quantity (CFM)	: 25000	1	Nos.	0.00		0.00
	Dehumidified air quantity (CFM)	: 25000					
	Return air quantity (CFM)	: 23682					
	Static pressure (MM OF WG)	: 150					
	Cooling capacity (TR)	: 40					
	Heater (kW)	: 12					
1.1.5	AHU-05						
	Supply air quantity (CFM)	: 9000	1	Nos.	0.00		0.00
	Dehumidified air quantity (CFM)	: 9000					
	Return air quantity (CFM)	: 8250					
	Static pressure (MM OF WG)	: 150					
	Cooling capacity (TR)	: 16					
	Heater (kW)	: 6					
1.1.6	AHU-06						
	Supply air quantity (CFM)	: 11000	1	Nos.	0.00		0.00
	Dehumidified air quantity (CFM)	: 11000					

	Return air quantity (CFM) : 10160						
	Static pressure (MM OF WG) : 150						
	Cooling capacity (TR) : 19						
	Heater (kW) : 6						
1.2	Supply and Exhaust Blower for Chemical Room						
	FLP/PPFRP body/centrifugal fans (supply & exhaust) - 2000CFM	2	Nos		0.00		0.00

2	CONDENSING UNIT (Blue star/Voltas)					
	Supply of air cooled condensing unit of absolute capacity given comprising of scroll compressor. M.S stand for mounting outdoor unit, expansion valves, Driers with first charge of refrigerant.oil & necessary controls of following absolute Capacity.					
2.1	11 TR (AHU - 01, 02, 03, 04, 05, 06)	15	Nos.	0.00		0.00
2.2	8.5 TR (AHU - 01, 02, 03, 04, 05)	5	Nos.	0.00		0.00
3	REFRIGERENT PIPING - Copper hard type.					
3.1	Supply, Installation and Commissioning of Refrigerant piping for above Condensing Units with 13/9 mm superton insulation for supply & return line (including dryer.Expansion valve and valves etc)					
3.1.1	1 1/8 inch	100	Rmt	0.00		0.00
3.1.2	5/8 inch	100	Rmt	0.00		0.00
4	G.I DUCTING					
	Supply, installation, testing and commissioning of site fabricated GI sheet ducting with MS flange, silicone sealant, double neoprene gaskets, GI threaded rod & supports. Ducts shall be designed as per SMACNA standard.The open ends of the ducts to be sealed after installation and cleaning of ducts. (Tata/Jindal/Uttam					
4.1	24 G	1700	Sqmt	0.00		0.00
4.2	MS flanges 25*25*3mm angle flange with paint,etc	1200	KG	0.00		0.00
5	FABRIC DUCTING					
	Supply air duct fabric type 100% polyester,endless fiber,multi filament,weight 225 gm/2,thickness 0.31mm,permeability 0 m3,washable in washing machine,hooks should be plastic coated without ring with same color.Nozzle with ultrasound welding mode of air distribution through nozzle.(BOD - 10mtr)	2500	Sqmt	0.00		0.00
6	THERMAL INSULATION (K flex/Armaflex/Aerolam/Supreme)					
	XLPE insulation iclad/aeroclad class -0					
6.1	SA Duct with 19 mm thick	550	Sqmt	0.00		0.00
6.2	RA Duct with 13 mm thick	1100	Sqmt	0.00		0.00
	(The qty may vary as per the actual site conditions)					
6.3	Supply & Return Air Grilles (MS Powder coated)	10	Sqmt	0.00		0.00
7	DAMPERS & FIRE / SMOKE DAMPER					
7.1	Opposed blade Extruded Aluminum damper for main duct / branch duct. Aluminum aerofoil blades & gear operated suitable for manual operation.	8	Sq.mt	0.00		0.00
7.2	Fire Damper with Fusible Link, Limit switch and Wiring. The Damper frame, louvers to be fabricated in GSS of 1.63 mm / 16 swg. with Top and bottom Stop seal and dual side linkage. Dampers shall have 1.63 mm / 16 G frame, 1.22 mm / 18 G blades. Fire dampers shall be approved by CBR.	13	Sq.mt	0.00		0.00
8	Design, supply, unloading, rigging, lifting, shifting, installation, testing & commissioning of one Electrical panel for each System. The Panel should consist of Incomer MPCB/MCCB, Voltmeter, Ammeter digital type, phase indicator, Contactors, DOL / Star - Delta starters, Relays, Push button (On / Off / Reset).					
8.1	AHU-01/02/03/04	4	Nos	0.00		0.00
8.2	AHU-05	1	Nos	0.00		0.00
8.3	AHU-06	1	Nos	0.00		0.00

8.4	PLC control common panel	1	Nos		0.00		0.00
9	INSTRUMENTS						
9.1	Temperature & Humidity sensor -FLP type (Honey well/seimens/Omicron or equivalent)	6	Nos		0.00		0.00
9.2	Supply & installation of Air Curtain as per specification.-1200mm/Door height 3 mtr (Technocrats/tronics)	18	Nos		0.00		0.00
9.3	Supply & installation of Air Curtain as per specification.-1200mm/Door height 4 mtr	2	Nos		0.00		0.00
9.4	Supply & installation of PVC Curtain as per specification.(2500mm widthX3000mm length)	16	Nos		0.00		0.00
9.5	Supply & installation of PVC Curtain as per specification.(2500mm widthX4000mm length)	1	Nos		0.00		0.00
9.6	Supply & installation of PVC Curtain as per specification.(4000mm widthX4000mm length)	4	Nos		0.00		0.00
9.7	Static PassBox Size : 600x600mm	2	Nos		0.00		0.00
9.8	Door Interlock with door closure	2	Sets		0.00		0.00
9.9	Drain line work till main drain - 32mm,UPVC line with clamping and underground excavation work	100	Mtr		0.00		0.00
10	OLD WORK / REPAIRING WORK / REFIXING WORK						
10.1	Roof ventilators removal and cutout closing (Client Scope)	16	Nos		0.00		0.00
10.2	Existing fan units removal	17	Nos		0.00		0.00
10.3	Scaffolding/Scissor ladder placement and refixing for ducting/old material removal etc (Client Scope)	1	Job		0.00		0.00
10.4	Civil Cutouts with civil finishes as per site requirements	20	Sq.mt		0.00		0.00
11	POWER & CONTROL CABLE (poly cab/RR cable/Kei cable or equivalent)						
11.1	Supply & Installation of Aluminium Power cable (Armoured)						
11	4C X 16 YWY (For Ahu Motor, Condensing Unit)	100	Rmt		0.00		0.00
11.3	4C X 10 YWY (For Ahu Motor, Condensing Unit)	400	Rmt		0.00		0.00
11.4	4C X 4 YWY (For Ahu Motor, Condensing Unit)	0	Rmt		0.00		0.00
11.5	3.5C X 150 YWY (For Feeder Panel)	50	Rmt		0.00		0.00
11.6	3.5C x 50 YWY (For Feeder Panel)	500	Rmt		0.00		0.00
12	Supply & Installation of Flexible cable for control Cabling						
12.1	3C X 1.5 YWY	300	Rmt		0.00		0.00
12.2	2C X 1.5 YWY	100	Rmt		0.00		0.00
12.3	6C x 1.5 YWY (shielded cable for PLC)	500	Rmt		0.00		0.00
	(The qty may vary as per the actual site conditions)						
13	CABLE TRAYS (GI, With Cover)						
	Depth of cable tray 50mm,1,2mm						

13.1	Upto 100 mm wide perforated type	50	Rmtr		0.00		0.00
13.2	Upto 150 mm wide perforated type	550	Rmtr		0.00		0.00
13.3	Upto 300 mm wide perforated type	100	Rmtr		0.00		0.00
14	EARTHING						
	Double Earthing cable of 10 Guage GI with underground conduit pipe	200	Rmtr		0.00		0.00
15	FRAME WORK /PLATFORM (Tata/jindal or equivalent)						
15.1	Structural steel platform / support for AHU	15	Tonn		0.00		0.00
15.3	Rain shed for AHU covering. With GI Corrugated 0.8mm sheet. With supports and drain pipe	210	sqmtr		0.00		0.00
15.4	300*300*300mm pedestal/RCC with anchor bolts	36	Nos		0.00		0.00
16	DOCUMENTATION WORK						
	Prepare documentation for DQ, IQ, OQ with certificates of all broughtout items.	1	Lot		0.00		0.00
17	TESTING,COMMISSIONING & VALIDATION						
17.1	1) Air velocity & CFM measurement 2) Duct light test for duct header. 3) Pressure balancing and Air balancing	1	Lot		0.00		0.00
17.2	Temperature Mapping for 72 Hrs (24*7)	1	lot		0.00		0.00
	Total 50 racks (Size 2.5mtr X 1.2mtrX 8.75mtr - both side entry)						
	Total stand alone data logger - 2100 Nos						
18	AS BUILT DRAWING (DUCTING CONTRACTOR SCOPE)						
18.1	Preparation of all HVAC as Built drawings, but not limited to duct drawings, AHU layouts, HVAC equipment layout, typical installation details and other HVAC related drawings.	1	Lot		0.00		0.00
	Sub Total				0.00		0.00
	Basic Total						\$ -
<p>Note :</p> <p>1) This quantity is on approximate basis and may vary based on actual construction drawing prepare at the time of execution</p> <p>2) Vendor has to visit site and quote as per exact qty based on actual requirements</p> <p>3) Vendor to note its shutdown job,so need to do planning accordingly</p> <p>4) Measurements should be at an actual qty supplied & installed.</p>							

5) Rtae or quote validity one month only as raw material prices changes frequently.

6) Extra power/Electricity capacity to be check as per new load as well as feeders.

7) Required storage area for raw material storage