

HVAC

**D41 & D41A AT LUCKNOW AIRPORT
SUMMARY TO SCHEDULE OF PRICES**

A	Part A: HVAC Equipments
B	Part B: Low Side Works
C	Part C: Electrical Works

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The prices are to be quoted in the below mentioned form and shall include the supply, installation, Testing and Commissioning at site of all the equipments, ancillary materials except where specified

S.No.	Description	Unit	Qty.	Length	Width	Height	Qty	Total
Part A HVAC Equipments								
1.0 Air Handling Units (Indoor Type)								
	Supply, installation, testing and commissioning of factory built Air handling units in Double skin type with 40 mm thick panels consisting of G.I casing of thickness 0.6 mm outside layer and 0.6 mm inside layer with 27% GSM zinc coating and polyurethane foam(PIUF) insulation having density of 42 kg/m3 complete with Backward curved DIDW Blower, chilled water cooling coil with aluminium finned copper tubes with face velocity 500 FPM. Filter section having 50 mm thick pre filters, IE3 motor suitable for 415 +10% volts, 50 Hz, 3 phase AC supply, drain connections with 18G stainless steel drain pan and necessary vibration isolation arrangement to avoid any vibration etc. complete as per specifications and drawings. Suitable acoustic to be done inside the AHU to limit the noise of assembly to 55Db @ 1.5 mtr.							
	Design Parameters: 25 deg C -R.A.Temp, 55% RH, 7.0 deg C- CHW IN							
	Water Flow Rate: 2.4 GPM/TR							
	Blowers upto 80 mm Total Static Pressure shall be Forward curved and above 80 mm shall be Backward curved.							
1.1	Ceiling Suspended Type							
1.1.1	3400 CMH(2000 CFM) at 35 mm Total Static Pressure with Single blower, 6 RD Cooling Coil, Approx 5.0 TR, 1 x 1.1 KW Motors	Nos	1				1.00	1.00
								1.00
	Total Bill Qty							1.00
	Previous Bill Qty							1.00
	Present Bill Qty							1.00
1.2	Digital Heating/Cooling Thermostat for Air Handling Units	Nos.	1				1.00	1.00
								1.00
	Total Bill Qty							1.00
	Previous Bill Qty							1.00
	Present Bill Qty							1.00
1.3	Fire Retardant Canvas							
1.3.1	Supply & Installation of fire retardant canvas connections for Air Handling Units	Sqm.	5				1.00	5.00
								5.00
	Total Bill Qty							5.00
	Previous Bill Qty							5.00
	Present Bill Qty							5.00
Part B Low Side Works								
1.0 Chilled Water Piping conforming to IS 1239 / IS3589 code with Nitrile Rubber Insulation								
	Supplying, laying/ fixing, testing and commissioning of MS C class chilled water piping (cut of required length and installed with welded joints. The necessary fittings such as elbows, tees etc. shall all be included in this item). The insulation shall be Class O nitrile Rubber pre-slit, pipe sleeve upto 100 mm dia and sheet for bigger dia with factory Laminated 7 mil woven glass cloth of thicknesses as specified, with approved adhesive. Manufactured supplied, suitable sized nitrile rubber pipe supports with PUF/PIR inserts shall be used. Thermal conductivity should not exceed 0.035 W/MK at 0 degree celsius and water vapor resistance > 7000. Manufactures tapes and adhesive to used only. The pipe supports should also be of nitrile rubber with PUF/PIR inserts and are to be installed as per manufacturer's recommendation. The pipe fittings shall be MS, class for pipes upto 150 mm and for 200mm and above, same material of the pipe shall be use all bends/ Reducers/ Tee upto 150 mm shall be factory fabricated ready made MS 'C' class Note : Use proper template for marking block colour Arrows also for supply/return							
i	32mm dia with 32 mm thick insulation with factory Laminated 7 mil glass cloth upper layer	Mtrs.	15				14.00	14.00
								14.00
a	Tap off point to AHU							14.00
	Total Bill Qty							14.00
	Previous Bill Qty							14.00
	Present Bill Qty							14.00
ii	20mm dia with 32 mm thick insulation with factory Laminated 7 mil glass cloth upper layer	Mtrs.	RO					14.00
2.0 Insulated Valves								
2.1 Dynamic Balancing Valve-PID type								
	Supply & installation, testing and commissioning of BMS Compatible electronic self balancing valve with integrated two way modulating control valves in a single body. The actuator shall be capable of accepting 230V/ 24V/ 2-10VDC/4-20 mA electrical signal and shall provided similar transduced feed back output signal to control system. The minimum close off pressure of actuator must be 1.5 times shut of head of pump as per Specification of following size. The actuator shall be microprocessor based with self calibration feature. All the valve shall be complete with step down transformers, thermostat, control wiring and probe							
i	10-20 USGPM - (Insulation as per Chilled water pipe)	Nos.	1					
a	Balancing Valve-PID type						1.00	1.00
	Total Bill Qty							1.00
	Previous Bill Qty							1.00
	Present Bill Qty							1.00
2.2	Providing and Fixing digital type thermometers with copper well, valve & probe suitable for binder test point application.							1.00
2.2.1	6" long - (Insulation as per Chilled water pipe)	Nos.	2					
a	Fixing digital type thermometers						2.00	2.00
								2.00
	Total Bill Qty							2.00
	Previous Bill Qty							2.00
	Present Bill Qty							2.00
2.3 Ball valves with Strainer (Insulated)								
	Providing and Fixing of the following insulated ball valve having a heavy duty forged body as per approved make. The ball shall be of bronze construction duty chrome plated.							
5.1	32 mm dia - PN-16 with insulation same as Chilled water piping	Nos	1				1.00	1.00
								1.00
a	Ball valve							1.00

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	Total Bill Qty							
	Previous Bill Qty							
	Present Bill Qty							
2.4	Ball valves without Strainer (Insulated)						1.00	1.00
	Providing and Fixing of the following insulated ball valve having a heavy duty forged body as per approved make. The ball shall be of bronze construction duty chrome plated.	Nos.	1					
2.4.1	32 mm dia - PN-16 with insulation same as Chilled water piping							1.00
	Ball valves without Strainer							1.00
	Total Bill Qty							1.00
	Previous Bill Qty							
	Present Bill Qty							
2.5	Dial Pressure Gauges (glycerine filled Type) with SS Encasing with Isolating valve & piping etc. The gauge should be with appropriate range and valve and fitted with probe suitable for binder test point application as well.						2.00	2.00
2.5.1	4" Dial - (Insulation as per Chilled water pipe)	Nos.	2					
								2.00
	Total Bill Qty							2.00
	Previous Bill Qty							
	Present Bill Qty							
2.6	Providing and Fixing of automatic air vent of approved make with insulation valves as per specifications/drawings						2.00	2.00
2.6.1	20mm dia	Nos.	2					
								2.00
	Total Bill Qty							2.00
	Previous Bill Qty							
	Present Bill Qty							
3.0	Drain Piping							
	Supply, installation, testing and commissioning of UPVC condensate drain pipe along with necessary clamps, fittings such as bends, tees, etc. It shall be insulated with 8 mm thick nitrile foam insulation in tubular form as per specifications.							
3.1	32 mm dia	Mtrs.	RO					
3.2	20 mm dia	Mtrs.	10				9.00	9.00
								9.00
	Total Bill Qty							9.00
	Previous Bill Qty							
	Present Bill Qty							
4.0	DUCTING							
4.1	Factory Fabricated Ducting (GSS)							
	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.							
4.1.1	0.5 MM (26 Gauge)	Sqm.	10					
	a							
	b							
	c							
	4.1.2	Sqm.	60					
	a				2.0	0.4	4.0	3.20
					2.0	0.3	4.0	2.00
	b				0.5	0.4	4.0	0.80
					0.5	0.3	4.0	0.50
	c				0.4	0.3	4.0	0.40
					0.4	0.3	4.0	0.40
	d				4.0	0.3	4.0	4.00
					4.0	0.3	4.0	4.00
	e				1.0	0.3	4.0	1.00
					1.0	0.3	4.0	1.00
	f				0.3	0.3	4.0	0.30
					0.3	0.3	4.0	0.30
	g				0.3	0.3	4.0	0.30
					0.3	0.3	4.0	0.30
	h				0.2	0.3	4.0	0.20
					0.2	0.3	4.0	0.20
	i				0.3	0.3	4.0	0.30
					0.3	0.3	4.0	0.30
	j				0.6	0.3	4.0	0.60
					0.6	0.3	4.0	0.60
	k				2.8	0.4	4.0	4.48
					2.8	0.3	4.0	2.80
	l				0.4	0.5	4.0	0.80
					0.4	0.3	4.0	0.40
	m				1.2	0.4	4.0	1.92
					1.2	0.3	4.0	1.20
	n				0.3	0.4	4.0	0.48
					0.3	0.3	4.0	0.30
	o				1.0	0.4	4.0	1.60
					1.0	0.3	4.0	1.00
	p				0.2	0.4	4.0	0.32
					0.2	0.3	4.0	0.20
	q				0.4	0.4	4.0	0.64
					0.4	0.3	4.0	0.40
	r				0.4	0.3	4.0	0.40
					2.0	0.3	4.0	2.00
	s				2.0	0.2	4.0	1.60
					0.2	0.3	4.0	0.20
	t				0.2	0.2	4.0	0.16
					0.3	0.3	4.0	0.30
	u				0.3	0.2	4.0	0.24
					1.2	0.3	4.0	1.20
	v				1.2	0.2	4.0	0.96
					0.2	0.3	4.0	0.20
	w				1.2	0.3	4.0	1.20

						1.00	1.00
6.2	Supply, Installation, Testing and Commissioning of multiblade AI volume control Collar / Grille / exhaust Air Opening damper complete with suitable links, lever and quadrants for manual control of airflow and with suitable links, lever and quadrants for manual control of airflow and neoprene rubber gaskets, nuts, bolts, screws, flanges etc., as per specifications.	Sqm	1.0				1.00
							1.00
							1.00
	Total Bill Qty						1.00
	Previous Bill Qty					1.00	
	Present Bill Qty						1.00
6.3	Supply, Installation, Testing and Commissioning of GI multiblade volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc., as per specifications.	Sqm	1.0				1.00
							1.00
	Total Bill Qty						1.00
	Previous Bill Qty					2.50	2.50
	Present Bill Qty						2.50
6.4	Supply, Installation, Testing and Commissioning & fixing of powder coated extruded aluminium Supply / Exhaust Air Grille with aluminium volume control dampers as per specifications.	Sqm	3.0				2.50
							2.50
	Total Bill Qty						2.50
	Previous Bill Qty					1.00	1.00
	Present Bill Qty						1.00
6.5	Supply, Installation, Testing and Commissioning & fixing of powder coated extruded aluminium Return Air Grille without aluminium volume control dampers as per specifications.	Sqm	1.0				1.00
							1.00
	Total Bill Qty						1.00
	Previous Bill Qty						1.00
	Present Bill Qty						1.00
6.6	Supply, Installation, Testing and Commissioning of Exhaust Air Opening damper complete with suitable links, lever and quadrants for manual control of airflow and with suitable links, lever and quadrants for manual control of airflow and neoprene rubber gaskets, nuts, bolts, screws, flanges etc., as per specifications.	Sqm	1			1.00	1.00
							1.00
	Total Bill Qty						1.00
	Previous Bill Qty						1.00
	Present Bill Qty						1.00
Part C	Electrical Works						
1.0	Electrical Control Panel						
	Supply, installation, testing and commissioning of panel boards made of 2.0 mm thick steel sheet duly powder coated with voltmeter, ammeter, electronic energy meter, indicating lights, Stop/manual /Auto selector switch in each, outgoing current operated single phase preventer. The starters should have potential free contacts for connection to Building Automation System. The panel shall include contactors /over load relay with built in single phase protection / Time delay relay for delayed automatic start of the motor. All panels should have spare NO/ NC Contacts for BMS applications as required.						
1.1	Panel-P01 (Ceiling Suspended AHU- 2000 CFM)						
	OUTGOING						
	1 No. 16 Amps TP MCB Outgoing for AHU Fans - 1.1 KW Each						
	1 Nos On/ Off Indicating Lights and Push Buttons for each Outgoing						
	1 Nos. DOL starter for 2.25 KW of Fan Motors						
	1 Nos. of single phase preventor (current based-MPRD2)						
	Panel Shall have suitable provisions for installation of VFDs, Spare NO / NC Contacts for BMS Integration, Looping with Fire Alarm Panel to trip the AHU and Exhaust Fan in case of Fire.	Set	1			1.00	1.00
	Total Bill Qty						1.00
	Previous Bill Qty						
	Present Bill Qty						1.00
2.0	Cables						
2.1	Supplying, laying, testing and commissioning of XLPE insulated aluminium conductor armored cables of 1.1 KV grade of following sizes directly on wall/structural frame/ cable trays or racks using approved type of clamps, End terminations with Double Compression type glands on both ends, double earthing with GI strip/wire of suitable size and hardware as per specifications						
	3 C x 4 Sq. mm	Mtrs	10			10.00	10.00
	Total Bill Qty						10.00
	Previous Bill Qty						
	Present Bill Qty						10.00
3.0	Earthing						
	Supplying and laying of the following earthing clamped to wall with suitable clamps saddles and fixing bolts/ in ground including the cost of digging and back filling as required and complete as required to comply with IS 3043:1987. All copper joints shall be tinned. The rates shall be inclusive of making test joints where ever required						
3.1	25 mm x 3 mm GI strip	RM	10			10.00	10.00
	Total Bill Qty						10.00
	Previous Bill Qty						
	Present Bill Qty						10.00
3.2	8 SWG GI Wire	RM	10			10.00	10.00
	Total Bill Qty						10.00
	Previous Bill Qty						
	Present Bill Qty						10.00