

Sr. No.	DESCRIPTION OF WORKS	Make & Model	8 th Floor	9 th Floor	10 th Floor	11 th Floor	Total Qty	Unit	Unit Rate Supply	Total Amount Supply	Unit Rate Labour	Total Amount Labour	Total Amount Supply + Labour	GST %
	v) Painting with Black color paint for duct sides behind the grills.													
	vi) The gasket used in case for all ducts shall be fire retardant type													
	vii) Ducts shall be fully sealed with Silicon Sealant for leak tight installation.													
	Ducts shall be leak pressure tested & leakages should be within acceptable limits as specified at Min. 500 Pa													
1.1	0.50 mm (26 SWG) GSS ducting (upto 600mm)		250	250	250	250	1000	Sq.M.	0		0			
1.2	0.63 mm (24 SWG) GSS ducting (601mm-750mm)		70	70	70	70	280	Sq.M.	0		0			
1.3	0.80 mm (22 SWG) GSS ducting (751mm-1500mm)		75	75	75	75	300	Sq.M.	0		0			
1.4	1.00 mm (20 SWG) GSS ducting (1501mm-2250mm)		10	10	10	10	40	Sq.M.	0		0			
1.5	1.25 mm (18 SWG) GSS ducting (2251mm and above)		0	0	0	0	0	Sq.M.	0		0			
											0			
1.6	GSS Circular Ducting in 24 G upto 22"		10	10	10	10	40	RMT	0		0			
2.0	Sheet Metal Ducting - Site Fabricated													
	Rectangular Ducting in Galvanised Steel													
	Supply, fabrication, installation and testing of GSS metal ducts as per IS-277 (120 GSM both sides, LFQ & confirming to Class VIII) for GS Sheets and IS-655 for fabrication of following thicknesses including necessary G.I. hangers/ supports, volume control duct dampers, accessories, vanes, 3 mm neoprene rubber gasket etc. complete as per specifications in accordance with the approved shop drawings. No slip joints shall be allowed. Flanges shall be Rolamate or equivalent and ducts upto 1500 width shall be with rigid support (Gripple support to be provided wherever required) as per technical specifications.													
	Ducts to be fabricated at the jobsite. Site Fabrication work shall be limited to assembly, installation and suit to site pieces and collars/ droppers.													
	The quoted costs should include:													
	i) Ducts with reinforcement/ strengthening													
	ii) Air tight joints													
	iii) Accessories such as splitter, damper, guide vane etc.													
	iv) Hangers and supports (Gripple Supporting method to be used wherever required)													
	v) Painting with Black color paint for duct sides behind the grills.													
	vi) The gasket used in case for all ducts shall be fire retardant type													
	vii) Ducts shall be fully sealed with Silicon Sealant for leak tight installation.													
2.1	0.63 mm (24 SWG) GSS ducting (upto 750mm)		50	50	50	50	200	Sq.M.	0		0			
2.2	0.80 mm (22 SWG) GSS ducting (751mm-1500mm)		10	10	10	10	40	Sq.M.	0		0			
2.3	1.00 mm (20 SWG) GSS ducting (1501mm-2250mm)		0	0	0	0	0	Sq.M.	0		0			
2.4	1.25 mm (18 SWG) GSS ducting (2251mm & above)		0	0	0	0	0	Sq.M.	0		0			
3.0	Flexible Ducting													
	Supply, Installation, Testing and Commissioning of insulated flexible ducts. The insulated flexible duct shall have inner core made of double lamination of metalized polyester film permanently bonded to a coated spring steel wire helix.													
	Fibreglass insulation of minimum 14 kg.cu.m. density having a R-value 4.2° F-Ft2-hr/btu and 25 mm thk shall be wrapped over the inner core and covered with stronger outer jacket cum vapor barrier made of fibreglass reinforced metalized polyester film laminate.													
	The insulated flexible duct should be fire retardant type. Limit Flexible Duct to not more than 3Ft Length/ Diffuser Connection.													
3.1	Insulated Flexible ducts of 100 mm dia		0	0	0	0	0	RMT	0		0			
3.2	Insulated Flexible ducts of 150 mm dia		0	0	0	0	0	RMT	0		0			
3.3	Insulated Flexible ducts of 200 mm dia		0	0	0	0	0	RMT	0		0			
3.4	Insulated Flexible ducts of 250 mm dia		0	0	0	0	0	RMT	0		0			

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4.0	Charges for Duct Leak Pressure Testing for smoke test as per specifications to demonstrate minimum acceptable leakages to the satisfaction of the HVAC consultant. Duct pressure testing may be carried out in zones to enable initiate further clearances.		1	1	1	1	4	Lot	0		0			
5.0	Accessories Supply, fabrication, assembling, installation, adjusting & testing of air distribution accessories of assorted size as specified and shown on the drawing:													
5.1	Volume Control Dampers Supply, installation and adjusting of GSS Volume Control Damper within ducts complete as specified and with suitable links, levers. Blades should be opposed blade type. The blades should be mounted in nylon bushes operated by an interior wheel gear system. Manual quadrant control with position indicator to be provided to enable adjust volume of air as required.		1.0	1.0	1.0	1.0	4	Sq.M.	0		0			
5.2	Fire and Smoke Dampers with fusible link Fire and Smoke Dampers (FSD) shall be installed in supply air duct when they pass through AHU room walls as shown in the drawings and as per specifications. The Fire Dampers shall be operated with atleast 90 minutes fire rating as per UL-555S-Class I for fire and smoke management rated for 90 min. and UL Stamped. Fusible Link should be rated for 72°C. Each FSD shall be of multi leaf type, low leakage and shall be tested in the factory and will be certified by the manufacturer in form of the test certificate. Each FSD shall be supplied with matching extended sleeve (factory supply) and set of retaining angles for installation on wall / slab as indicated on drawings. [up to max size of 1200 mm x 350 mm - This duct size is given as guideline for estimate, actual duct sizes in the approved drawings shall prevail]. Fire Dampers shall be provided with access doors in ducts / false ceiling.		1.0	1.0	1.0	1.0	4	Sq.M.	0		0			
5.3	Fire and Smoke Dampers - Specifications same as above item B-8.2.but suitable for Motorised Actuator		0	0	0	0	0	Sq.M.	0		0			

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5.4	Motorised Actuator for item B-8.3 The Actuator shall be direct coupled spring return type and motorised. The Actuator shall be in line with the Technical Specifications and shall be maintenance free direct coupled spring return type suitable to work on 24 V electric supply. The torque rating of the actuator shall exceed at least by 15% over torque required to open / close the damper. Shall have manual over ride facility. The selection of actuator size shall be the responsibility of the manufacturer. Power on indicating lamps with 230 V / 24 V transformer, damper close & open indication, reset push button, push button for manual running of actuator for periodic inspection, auxiliary contacts 24V & 230 V, contact points to receive signal from smoke detector / fire alarm panel etc. should be provided.		0	0	0	0	0	Nos.	0		0			
5.5	Back Draft Dampers Supply, installation and adjusting of GSS Back draft Damper - Specifications shall be same as per Volume Control Dampers as mentioned above.		0	0	0	0	0	Sq.M.	0		0			
6.0	Diffusers Supply, fabrication, assembling and installation of aluminium powder coated diffusers as indicated in the drawings and as per specifications. (Color to match as per architects requirements)													
6.1	Supply Air Square Diffuser (with Plenum) The 4-way square supply air terminal should be in Al powder coated construction with easily removable central core & 4-way uniform air distribution complete Volume control damper to be of opposed blade, nylon geared with aerofoil blades & matt powder coated. Factory Installed G.I plenum black painted from inside shall be mounted with a circular neck to accept the insulated flexible duct from side. (Out to Out Size of 24"x24" with required neck size as per approved layouts) & as per approved sample. Diffuser should be suitable for installation in Modular ceiling / Gypsum ceiling as per ceiling requirements. Colour shall be as per architectural requirements.													
6.1.1	18 x 18		0	0	0	0	0	Nos.	0		0			
6.1.2	24 x 24		0	0	0	0	0	Nos.	0		0			
6.2	Supply Air Square Diffuser (without Plenum) The 4-way square supply air terminal should be in Al powder coated construction with easily removable central core & 4-way uniform air distribution complete Volume control damper to be of opposed blade, nylon geared with aerofoil blades & matt powder coated. Diffuser shall be Out to Out size of 24"x24" with required neck size as per approved layouts & as per approved sample. Diffuser should be suitable for installation in Modular ceiling / Gypsum ceiling as per ceiling requirements. Colour shall be as per architectural requirements.													
6.2.1	18 x 18		9	9	9	9	36	Nos.	0		0			
6.2.2	24 x 24		0	0	0	0	0	Nos.	0		0			

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6.3	Return Air Square Diffuser													
	The 4-way square return air terminal should be in Al powder coated construction with easily removable central core & 4-way uniform air distribution with matt powder coated.													
	Diffuser shall be Out to Out size of 24"x24" with required neck size as per approved layouts & as per approved sample.													
	Diffuser should be suitable for installation in Modular ceiling / Gypsum ceiling as per ceiling requirements. Colour shall be as per architectural requirements.													
	Diffuser Size:													
6.3.1	24" x 24"		0	0	0	0	0	Nos.	0		0			
6.3.2	18" x 18"		6	6	6	6	24	Nos.	0		0			
6.4	Supply air Modulinear Slot Diffusers:													
	Slot Diffusers In Extruded Aluminum Sections with Vane Air Pattern Controllers including mitred corners & End flanges as shown in the drawings. Supply Air Slot Diffusers shall be with factory fitted plenums and Spigot / Collar damper. The color shall match the interior requirements.													
6.4.1	2 Slot Diffuser (5" wide)		0	0	0	0	0	RMT	0		0			
6.4.2	3 Slot Diffuser (7" wide)		0	0	0	0	0	RMT	0		0			
6.4.3	2 Slot curved Diffuser		0	0	0	0	0	RMT	0		0			
6.5	Return air Modulinear Slot Diffusers:													
	Slot Diffusers In Extruded Aluminum Sections with Vane Air Pattern Controllers including mitred corners & End flanges as shown in the drawings. The color shall match the interior requirements.													
6.5.1	2 Slot Diffuser (5" wide)		0	0	0	0	0	RMT	0		0			
6.5.2	3 Slot Diffuser (7" wide)		0	0	0	0	0	RMT	0		0			
6.5.3	2 Slot curved Diffuser		0	0	0	0	0	RMT	0		0			
7.0	Grilles:													
7.1	Supply / Return Air L-bar Continous Grill													
	In extruded aluminium construction, powder coated. One way/ 2 way fixed deflection - 15deg. with end flanges as required and as shown in the drawings. The color shall match the interior requirements.													
7.1.1	100 mm wide		0	0	0	0	0	RMT	0		0			
7.1.2	150 mm wide		60	60	60	60	240	RMT	0		0			
7.1.3	200 mm wide		0	0	0	0	0	RMT	0		0			
7.1.4	150 mm Curved Continous Grill		0	0	0	0	0	SQM	0		0			
7.2	Supply /Return / Exhaust Air L-bar Grill													
	In extruded aluminium construction, powder coated. One way/2 way fixed deflection with end flanges -15deg.as required and as shown in the drawings.The color shall match the interior requirements.		1	1	1	1	4	Sq.M.	0		0			

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8.0	Box Type Dampers / Spigot Dampers: Aluminium Box type collar damper with nylon - geared control & with aerofoil blades for above grills in black matt powder coated finish.													
8.1	Box type dampers for S. A. collar		1	1	1	1	4	Sq.M.	0		0			
8.2	Special Collar Damper for Slot Diffuser SA collar		0	0	0	0	0	Sq.M.	0		0			
9.0	Disc Valves For Exhaust Supply, installation and adjusting of disc valves suitable for exhausting toilet foul air ,comprising of an adjustable centre cone and coupling sleeve made of Aluminum sheet duly epoxy painted with approved color. The disc valve shall be fitted with a galvanised steel installation frame and the sleeve shall incorporate a foam-rubber gasket for airtight sealing. The centre cone should be adjustable for balancing and with a locking arrangement to maintain the desired flow rate.													
9.1	100 mm dia		0	0	0	0	0	Nos.	0		0			
9.2	150 mm dia		15	15	15	15	60	Nos.	0		0			
9.3	225 mm dia		0	0	0	0	0	Nos.	0		0			
10.0	Door Transfer Grilles Supply, installation and adjusting of Non Vision transfer grilles in extruded aluminium comprising of a non vision door grille on one side and complete with sliding frame on the opposing side. The assemble shall be suitable for the door thickness as per site conditions. The color shall match the interior requirements.													
10.1	150 x 200		14	14	14	14	56	Nos.	0		0			
10.2	150 x 300		0	0	0	0	0	Nos.	0		0			
10.3	150 x 450		0	0	0	0	0	Nos.	0		0			
10.4	150 x 600		0	0	0	0	0	Nos.	0		0			
10.5	200 x 450		0	0	0	0	0	Nos.	0		0			
11.0	Aluminium adjustable louvre type grills in matt powder coated finishing with volume control damper. The color shall match the interior requirements.		0	0	0	0	0	Sq. m.	0		0			
12.0	Double Canvass Connection Supply, fabrication & installation of double canvass (fire retardant) flexible connection as per drawings & specifications.		2	2	2	2	4	Sq. m.	0		0			
13.0	Al. Louvers for Fresh Air / Exhaust Supply, installation, testing & commissioning of Fresh Air /Exhaust Air Louvers - constructed in Extruded Aluminium Anodised finish. Blades inclined at 45deg. on 40mm pitch complete with: a) Sheet steel enclosure cowl b) Opposed Blade Volume Control Damper c) Bird wire guard in galvanised steel with front flanged frame		1	1	1	1	4	Sq. m.	0		0			

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14.0	Testing, Adjustment, Balancing & Commissioning of complete Air side and Water side for the HVAC System installed which would involve : Involvement of 1 Engineer, 4 Technicians, 4 helpers shall be treated as 1 team-day. # total 45 team days. (The air balancing activity with digital flow measuring hoods of appropriate size, pitot tube, anemometers, digital thermometers, sling psychrometers, pitot tubes etc. is part of scope of low side vendor deliverables and not to be included as part of this item) The scope would also include demonstration of the test readings in random in presence of the HVAC Consultant & Client for final review and sign-off.		1	1	1	1	4	Lot	0		0			
15.0	CO2 Sensor with Modulating type damper for Fresh Air Control ON-OFF type Supply, Installation, Testing and Commissioning of:													
	CO2 Sensor with monitor (with display) with 230V/ 24V transformer, control cabling, module from sensor to F.A. modulating type damper as per specifications mentioned. The cost should include costs for F.A. modulating dampers of required sizes. The vendor shall include necessary integrator, convertor, software, hardware, license's etc. as applicable for the sensors to interact & be controllable thru' central BMS. Necessary protocol for connecting with MODBUS RTU, BACNET, LONWORKS etc. shall also be included.		1	1	1	1	4	Set	0		0			
	The Actuator shall be in line with the Technical Specifications and shall be maintenance free direct coupled spring return type suitable to work on 24 V electric supply. The torque rating of the actuator shall exceed at least by 15% over torque required to open / close the damper. Shall have manual over ride facility. The selection of actuator size shall be the responsibility of the manufacturer. Power on indicating lamps with 230 V / 24 V transformer, damper close & open indication, reset push button, push button for manual running of actuator for periodic inspection, auxiliary contacts 24V & 230 V, contact points should be provided.													
	TOTAL FOR 'B' - AIR DISTRIBUTION										0			

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	b) Thermometers with thermowells													
5.1	Pressure gauge 6" dial (range 0-10kg/cm2g)		2	2	2	2	8	Nos.	0		0			
5.2	Thermometers Dial type - 6" dial (range 0-50deg.C)		0	0	0	0	0	Nos.	0		0			
5.3	Wall mounted digital room temperature Indicators		0	0	0	0	0	Nos.	0		0			
5.4	Immersion type temperature sensors (range 0-20deg.C)		2	2	2	2	8	Nos.	0		0			
6.0	Test Points for Chilled Water Line													
	Supply & Installation of Test points with needle valves & plug at various locations in chilled water line for taking pressures and temperature measurements using portable instruments complete with thermowell etc.		4	4	4	4	16	Nos.	0		0			
7.0	Make up Tank													
	Supply and installation of Make up tank as specified and shown on the drawing complete with:													
	a) Inlet, Make up, overflow & drain nozzle													
	b) Level indicator													
	c) Manhole with cover													
	d) 20 mm ball float valve													
	e) Air release valve													
7.1	1500 litres tank		0	0	0	1	1	No.	0		0			
8.0	Chemical Dosing of Water													
	Chemical Dosing arrangement with approved chemicals, (Pre & Post Treatment) to control water quality as per Specifications. Chemical Dosing kit to be arranged on rental basis as per requirement & to be included in this item.		1	1	1	1	4	Lot	0		0			
9.0	Make up Piping													
	Supply, installation & testing of Mild Steel Medium Duty "B" Class drain piping with elbows, bends, tees, cleanouts etc. without insulation complete as per Technical Specifications.													
9.1	Upto 50 mm dia		0	0	0	36	36	RMT	0		0			
10.0	Insulated Drain Piping													
	GI 'B' class make up / drain piping with U traps, elbows, bends, tees, cleanouts etc. from pipe sizes 19mm upto 40mm dia (without insulation) complete as per Technical Specifications. The piping shall be suitably insulated with 19 mm thk Closed Cell foam insulation Class 'O' (Nitrile Rubber) / 60kg/m3 density stuck with approved adhesive compound. The insulation shall be covered with glass cloth and painted with rubberised paint.													
10.1	50 mm dia		0	0	0	0	0	RMT	0		0			
10.2	40 mm dia		0	0	0	0	0	RMT	0		0			
10.2	32 mm dia		72	72	72	72	288	RMT	0		0			

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11.0	Hard PVC Piping Supply, installation & testing of Hard PVC drain piping with U traps, elbows, bends, tees, cleanouts etc. without insulation complete as per Technical Specifications. The piping shall be suitably insulated with 19 mm thk Closed Cell foam insulation Class 'O' (Nitrile Rubber) / 60kg/m3 density stuck with approved adhesive compound. The insulation shall be covered with glass cloth and painted with rubberised paint.													
11.1	50 mm dia		0	0	0	0	0	RMT	0		0			
11.2	40 mm dia		12	12	12	12	48	RMT	0		0			
11.2	32 mm dia		0	0	0	0	0	RMT	0		0			
11.3	25 mm dia		96	96	96	96	384	RMT	0		0			
	TOTAL FOR 'C' - WATER DISTRIBUTION										0			
D	INSULATION													
1.0	Thermal Insulation of Ducts Supply, fabrication & Installation of thermal insulation on GI ducts complete with Closed Cell Foam with minimum density of 40 Kg/m3 with minimum R Value 4.1/inch & thermal conductivity -0.035 w/mok confirming to Class 'O' & the inner side stuck to the outer facia of the GI ducts with recommended / Proprietary Synthetic adhesive bonding (SR998 or equivalent) & installed as per manufacturers recommendation. The insulation joints shall be sealed with 3" wide Black Tape.													
1.1	9 mm thick Insulation		0	0	0	0	0	Sq.M.	0		0			
1.2	13 mm thick Insulation		435	435	435	435	1740	Sq.M.	0		0			
1.3	16 mm thick Insulation		0	0	0	0	0	Sq.M.	0		0			
1.4	19 mm thick Insulation		0	0	0	0	0	Sq.M.	0		0			
1.5	25 mm thick Insulation		0	0	0	0	0	Sq.M.	0		0			
2.0	Acoustic Lining of Ducts 10 mm thick acoustic insulation with Armasound foam / Thermal conductivity 0.045 W/m deg.K / density 140~180 kg/m3, Stuck to AHU room walls with manufacturer recommended adhesive 520 bonding		40	40	40	40	160	Sq.M.	0		0			
3.0	Acoustic Insulation of Trap doors Supply, fabrication and installation of Acoustic insulation on walls and Trap doors as specified and shown on the drawing complete with:													
	25 mm thick acoustic insulation with Armasound foam / Thermal conductivity 0.045 W/m deg.K / density 140~180 kg/m3, Class1, stuck to AHU room walls with manufacturer recommended adhesive 520 bonding.		25	25	25	25	100	Sq.M.	0		0			

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SUMMARY														
A	Air Conditioning Equipments:													
B	Air Distribution:													
C	Water Desitribution													
D	Insulation													
E	Ventilation & Exhaust													
F	Scaffolding													
TOTAL of 'A' + 'B' + 'C' + 'D' + 'E' + 'F'											0			
TOTAL OF EXCISE DUTY (%)								To be included in respective items as applicable						
TOTAL OF GST AMOUNT (%)														
TOTAL OF ANY OTHER TAXES AMOUNT (%)														
Total All Inclusive														

Note: Rates quoted shall be basic rates inclusive of Excise Duty* and shall be inclusive of overheads and profit, All taxes, duties, levies etc. shall be indicated seperately as above. (Inclusive* of ED for local items, Customs Duty, CVD (as applicable), Port Clearance, Local Freight, Transit Insurance & Any other charges for all imported items), GST shall be extra as applicable.

Terms & Condition :

GST														
Delivery Period:														
Installation Time :														
Payment Terms														
Warrnaty														
Packing, Transportation, Loading, Scaffolding & Unloading Charges														
Security Deposit - 5%														
Time Period for Work Completion														
Penalty if not complete in time period														

Kindly email your lowest quotations for above items with your terms and conditions as well as applicable Brochure / Catalog. Client list with installation Year and their Contact numbers to etenders@mghmuhs.com only.

Date: _____ Signature of Tenderer: _____

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	Seal	<p>Name:</p> <hr/> <p>Designation:</p> <hr/> <p>Email ID:</p> <hr/> <p>Mobile No.:</p> <hr/> <p>Full Address:</p> <hr/>												