LODHA PLOT C SALES GALLERY INTERNAL HVAC BOQ-R01

Item	Description	Qty	Unit	Unit rate for Supply (Rs)	Total amount for Supply (Rs)	Unit rate for Labour (Rs)	Total amount for Labour (Rs)
A	**AIR SIDE**						
1	**Indoor Units For VRV/VRF System**						
1.1	Supply,instllation in position ,testing,commissioning of **Hi-wall type** room unit for **Show flat area** suitable for wall mounting, complete with filters, DX cooling coils with anti corrosive coating,refrigerent piping and accessories with insulation,connected to variable refrigerant volume / flow system, fans, 3speed motors, power wiring from nearby socket, with necessary valves and internal piping insulated Condensate drain pan and connection , copper connections, IR Sensors, RA sensors, remote control with associate cabelling, vibration isolators and in accordance with specification, drawings and equipment schedule.						
i	SF-IDU-001	1	Nos.				
ii	SF-IDU-002	1	Nos.				
iii	SF-IDU-003	1	Nos.				
iv	SF-IDU-004	1	Nos.				
v	SF-IDU-005	1	Nos.				
vi	SF-IDU-006	1	Nos.				
1.2	Supply,installation in position ,testing,commissioning of **Ducted type** room unit suitable for ceiling mounting, complete with filters, DX cooling coils with anti corrosive coating refrigerent piping and accessories with insulation,connected to variable refrigerant volume / flow system, fans, 3speed motors, necessary valves with piping,power wiring from nearby socket, insulated drain pan with extended insulated drain tray,RA sensors, IR sensors (Receiver kit with remote) with associated cabelling, copper connections, vibration isolators,etc. and in accordance with specification, drawings and equipment schedule.						
i	SG-IDU-L0001	1	Nos.				
ii	SG-IDU-L0002	1	Nos.				
iii	SG-IDU-L0003	1	Nos.				
iv	SG-IDU-L0004	1	Nos.				
v	SG-IDU-L0005	1	Nos.				
vi	SG-IDU-L0006	1	Nos.				
vii	SG-IDU-L0007	1	Nos.				
vii	SG-IDU-L0008	1	Nos.				
ix	SG-IDU-L0009	1	Nos.				
x	SG-IDU-L0010	1	Nos.				
xi	SG-IDU-L0011	1	Nos.				
xii	SG-IDU-L0012	1	Nos.				
xiii	SG-IDU-L0013	1	Nos.				
xiv	SG-IDU-L0014	1	Nos.				
	To Collection					Rs.	
2	**Variable refrigerant flow condensing units**						
	Supply,installation in position ,testing of **Variable refrigerant flow / volume outdoor condensing unit** complete with compressors, air cooled condensers, motors, with anti-corrosive coating on coils for minimum life of 5 years,starters, gauges, necessary valves and accessories along with internal and external refrigerent piping connected between FCUs and out door unit,controls in microprocessor based control panels (starter panel), necessary hook up with indoor units / IR sensors with control cables, R410 as refrigerant, Refrigerant used shall be Ozone friendly and should not contain HCFCs and Halons, power peak control unit and all other standard accessories whether specifically mentioned or not including mounting on a rigid steel base frame with spring isolators of 25mm static deflection as detailed in specification and drawings and complying to necessary requirement with COP at ARI conditions. Unit control panel shall have the necessary provision in accordance with specification, drawings and equipment schedule.						
	SG-ODU-L0001	1	Nos.				
	SG-ODU-L0002	1	Nos.				
	SG-ODU-L0003	1	Nos.				
	To Collection					Rs.	
3	Supply, installation, testing and commissioning of direct driven **Circular Inline Fans** for Toilet exhaust & Fresh air as shown in drawings.Each fan shall be complete with permanent split capacitor or shaded pole motor, mounting plate, accessories like wire guard and gravity louvers for weather protection as required. The motor shall be suitable for 230 V + 6% volts, Single phase 50cycle, AC supply.The fan shall be low RPM and capacities based on minimum 25 mmwg ESP.						
3.1	SG-TEF-L0001	1	Nos.				
3.2	SG-FAF-L0001	1	Nos.				
3.3	SG-TEF-L0002	1	Nos.				
3.4	SG-FAF-L0001	1	Nos.				

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Item	Description	Qty	Unit	Unit rate for Supply (Rs)	Total amount for Supply (Rs)	Unit rate for Labour (Rs)	Total amount for Labour (Rs)
4	Supply, installation, testing and commissioning of belt driven **SISW Centrifugal fan** for Kitchen exhaust as shown in drawings.Each fan shall be complete with permanent split capacitor or shaded pole motor, mounting plate, accessories like wire guard, bird screen and gravity louvers for weather protection as required. The motor shall be suitable for 230 V + 6% volts, Single phase 50cycle, AC supply.The fan shall be low RPM and capacities based on minimum 35 mmwg ESP.						
4.1	SG-KEF-L0001	1	Nos.				
B.	**PIPE & ACCESSORIES**						
1	Supplying, installing, testing and commissioning of **Refrigerant Copper Liquid piping** for connection between indoor and outdoor units of the capacities mentioned above with refnet joints & gas charging whenever required. Refrigerant piping shall be conforming to ASTM B68 / 1995 and ASTM – B75/1983 with 19mm thick nitrile rubber insulation including supports, necessary fittings, joints, brazing connections and necessary arrangement as per specification and to make system complete.						
	Length of pipe	174	RM				
2	Supplying, installing, testing and commissioning of **Refrigerant Copper Gas piping** for connection between indoor and outdoor units of the capacities mentioned above with refnet joints & gas charging whenever required. Refrigerant piping shall be conforming to ASTM B68 / 1995 and ASTM – B75/1983 with 19mm thick nitrile rubber insulation including supports, necessary fittings, joints, brazing connections and necessary arrangement as per specification and to make system complete.						
	Length of pipe	174	RM				
3	Supplying, installing, testing and commissioning of **High Pressure UPVC** conforming to IS:4985 complete with fittings and 'U' traps for Condensate Drain Piping with supports,necessary fittings to connect to **PP/UPVC pipe** , 9mm thick **Nitrile rubber** thermal insulation and suitable to withstand pressure rating of 2.5 bar to 12.0 bar as per specifications.						
	Length of pipe	109	RM				
B	**DUCTS**						
1	**Normal Ducting**						
	Supply, installation in position and testing of G.I. sheet metal Factory fabricated ducts in accordance with SMACNA complete with nuts,bolts,flanges,washers,sealents,spliter dampers,guiding vanes,access doors,non return dampers,elbows,supports,as per drawings and as required for air distribution. in accordance with the approved shop drawings and as required by the specifications.The rate shall include all materials and labour for galvanised steel suspension and supporting arrangement for Plenums, ducts complete with necessary arrangements as per specifications and drawings.						
1.1	26 Gauge	885	Sq.Mtr.				
2	Supply,installation,testing and commissioning of flexible connection from each Equipment intake/outlet to duct as indicated on drawings and wherever necessary along with necessary arrangement.	25	Sq.Mtr.				

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C	**THERMAL/ACOUSTIC INSULATION**						
1.0	Supply and installation in position testing of **External Thermal insulation with closed cell nitrile rubber** with 30 micron aluminium foil with thermal conductivity of not less than 0.037w/mK with gasket ,sealent,fixing clips etc as per specifications drawings and sutaible for AC duct application. Insulation material shall be non-toxic, chemically inert, non-combustible as per BS 476: Part 4, non-ignitable as per BS 476: Part 5, and class 'O' as per BS 476 Part 6 &7 and also shall confirm IS 8183 as per specifications.						
1.1	19 mm thick for Supply air Duct	705	Sq.Mtr.				
1.2	19 mm thick for Return air Duct	180	Sq.Mtr.				
2	Supply and installation in position testing of **Nitrile rubber Accoustic insulation for supply air ducts** with density and thickness as per specification, complete with sealent,fixing clips etc. complete in all respect and in accordance with specification and drawings. Insulation material shall be non-toxic, chemically inert, non-combustible as per BS 476: Part 4, non-ignitable as per BS 476: Part 5, and class 'O' as per BS 476 Part 6 &7 and also shall confirm IS 8183 as per specifications. The thickness of the insulation shall be as per specifications						
1.1	19 mm thick for Supply air Duct	37	Sq.Mtr.				
D	**DAMPERS**						
	VOLUME CONTROL DAMPERS						
1	Supplying Installation,Testing &commissioning of opposed blade type **volume control dampers** of robust 16 G GSSconstruction with all necessary links,accessories,suporting arrangement,nuts,bolts,gasket etc. in supply air, return, Fresh air & Extract air duct collars as per approved drawings and specifications and as required to do the sucessful commissioning and balancing of the air side of the system and to suit the following duct size.	23	Nos				
	To Collection					Rs.	
E	**GRILLES & DIFFUSERS**						
1	Supply,Installation ,testing and commissioning of **linear bar grille** complete with Collar dampers,accoustic lined plenum,nuts,bolts, gaskets,screws,supportis,fixing clips,with powder coated aluminium construction,with 6.4 mm wide bars on 12.5 mm centres pressed into notched steel retaining bar and in accordance with specification and drawings. Colour to be coordinated with architects.						
1.1	150 mm Wide	192	RM				
	To Collection					Rs.	
2	Supply, installation in position , testing and commissioning Powder Coated Extruded Aluminium **Air transfer door grilles** with powder coated extruded aluminium construction,with rear side frame as per approved shop drawings and specification.Colour to be coordinated with architects.						
2.1	500 mm X 300 mm	1	No				
2.2	400 mm X 300 mm	3	No				
2.3	300 mm X 200 mm	2	No				
2.4	750 mm X 450 mm	1	No				
F	**LOUVERS**						
1	Supply, installation in position, testing and balancing of air **louvers** with bird screen and volume damper for **fresh air intake** along with,nuts,bolts,gaskets,flanges,as per specifications and approved shop drawings with minimum 50% free area.Colour to be coordinated with architects.	38	Sq.Mtr.				
	Powder coated/Anodised extruded aluminium construction.						
2	Supply, installation in position, testing and balancing of air **louvers** with bird screen and volume damper for **exhaust air along** with,nuts,bolts,gaskets,flanges,as per specifications and approved shop drawings with minimum 50% free area.Colour to be coordinated with architects.	38	Sq.Mtr.				
	Powder coated/Anodised extruded aluminium construction.						
3	Supply,Installation,testing and commissioning of **Galvanised Iron** safety wire mesh at inlet/outlet of open supply/extract ducts complete with necessary nuts,bolts,gaskets,screws,supports and in accordance with speciifcation and drawings	10	Sq.Mtr.				
	To Collection					Rs.	

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G.	**ELECTRICAL WORK**						
	XLPE un-armoured control cabling						
1	Cable terminations for XLPE insulated, PVC sheathed, 1100 V, un-armoured copper conductor, control cables including stripping of cable insulation, supply and fixing of tinned plated Copper lugs and crimping the same to the conductor, supply and fixing of double compression cable glands of the following cables complete as per technical specifications, drawings, relevant standards & site conditions.						
i	2C X 1.5 sq mm Cu	28	Nos.				
2	Supply, install, test and commission of XLPE insulated, PVC sheathed, 1100 V, un-armoured copper conductor, control cables including stripping of cable insulation, supply and fixing of tinned plated Copper lugs and crimping the same to the conductor, supply and fixing of double compression cable glands of the following cables complete as per technical specifications, drawings, relevant standards & site conditions.						
i	2C X 1.5 sq mm Cu	258	RM				
3	**Cable Trays**						
	Design, Manufacture, Supply, Unloading, Handling, & Installation of heavy duty hot dipped galvanised cable tray of the following sizes, suspended from ceiling or fixed vertically on wall / column as per route directed at site, including requisite supports, hardware, elbows, bends, offsets, transitions, reducers, EMC straps, equipotential bonding etc. etc. All supporting structure & hardware including nuts & bolts etc. shall be hot dipped galvanised as approved complete as per technical specifications, drawings & relevant IS standards & site conditions. Fabricated accessories shall not be allowed with written permission from client .						
	For all containment ≥ 600mm web height should be 75mm and all containment <600mm web height should be 50mm						
	For all containment up to and Including 300mm , Thickness of Material to be 1.5mm						
i	50 mm web height	258	RM				
	TO COLLECTION					Rs.	
H	**SUNDRIES**						
1	Allow for all adjusting , Balancing, inspections, testing and commissioning including all off-site and factory testing to determine compliance with relevant specifications and standards of operating the completed installation and submitting all relevant test record.	1	Item				
2	Allow for providing all tools, spare parts and consumables .	1	Item				
3	Allow for provision of working and as built drawings.	1	Item				
4	Allow for providing comprehensive equipment documentation including operating instructions ,maintenance manuals, record documents, warranties, guarantees, drawings and the like	1	Item				
5	Allow for tagging labelling for pipe / duct identification/ painting	1	Item				
6	Allow for general provision for pipe / duct work installations including sleeves, seals, flashings, pipe stacks, ceiling eqpts, protection, painting and all other related works.	1	Item				
7	Allow for coordination with other service contractors.	1	Item				
8	Allow for necessary electrical connections to all HVAC equipments.	1	Item				
9	Contractor shall list here any other items not included above but necessary for the complete and satisfactory completion of each section of the work. Such items shall deemed to be included in other rates unless specifically listed here	1	Item				
10	Cutting and forming holes, mortises, chases or the like and making good	1	Item				
11	Allow for CFD analysis for the complete installations.	1	Item				
	TO COLLECTION					Rs.	

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