



**SUBURBAN INDUSTRIAL
WORKS PVT. LTD.**



BASEMENT VENTILATION SYSTEM



SMOKE SPILL AXIAL FLOW FAN
JTF SERIES - IMPULSE JET FAN
JCF SERIES- INDUCTION JET FAN

ABOUT US

SUBURBAN INDUSTRIAL WORKS PVT. LTD. was incepted in the year 1981 for manufacture of Centrifugal and Axial Flow Fans with complete infrastructural setup with design, man power, plant and machinery. Personnel with experience of decades in respective field along with technically and qualified support staffs soon changed the complexion of the organization. Mingled with the product quality and a strong marketing network within a short span of time the company emerged as a force to reckon with HVAC, Processing and other core sector industries.

COMPANY PHILOSOPHY

With our established product credibility throughout the country our mission is to keep pace with the continuous and up-gradation of technology as per demands of different segment of industry and excel with the product quality simultaneously. In support of our mission we are already an ISO 9001:2015 Certified organization.

QUALITY MANAGEMENT

SIWL has adopted very strict quality measures to ensure the uniform acceptable quality keeping in view the requirement of products and the application are met all times. Right from inputs to finished products the raw materials are tested from reputed and Govt. Approved test house before processing the finish products.

During manufacture all products are subject to DP, Radiographic, Ultrasonic, X-Ray Tests as and when required. All Rotor portion are subject to Dynamic Balancing before assembly as per ISO: 1940.

Any further tuning required is carried out by our additional facility of Portable Dynamic Balancing Machine. To ensure meeting guaranteed performances of products we have Testing Laboratory/ Test Beds for testing of fans as per AMCA, BS and IS Standards supported with varied range of measuring instruments with updated calibration



An ISO 9001 : 2015
Certified Company

CONCEPT OF MODERN CAR PARK VENTILATION SYSTEM

The Ductless Ventilation system has been developed to ventilate the Undergrounds both for Carbon Monoxide (CO) removal during Normal Condition and extracting smoke during an Emergency Situation, typically in case of fire. This can be handled by using a single system using Jet Fans.

The complete system consists of Jet Fans (Impulse or Induction Type), Main Supply and Exhaust Fans (Axial Type), Carbon Monoxide Sensors, Control Panel and for the authentication of the system design a CFD Analysis is provided for support and selection for the most suitable option.

ADVANTAGES OF MODERN CAR PARK VENTILATION

Compared to a ducted ventilation system, the innovative Jet Fan System ensures multiple benefits over the conventional Ducted System in terms of low cost and efficiency associated with its design, installation, operation and usage.

Design



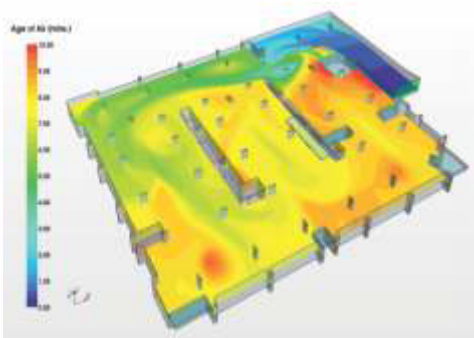
- The compact size of the Jet fans allows to optimise the spaces and their flexibility of installation both when building new properties and / or refurbishing and or certifying existing building
- It saves design time as it does not require a complex ducted system to be designed and implemented
- The system effectiveness can be measured with CFD (Computational Fluid Dynamics) modeling
- It allows the project designer to benefit from a better pre-sales customer service
- The project's final cost are in line with expected cost.

Installation



- It removes the need for costly and complex ducted and grilled systems
- The fans are easy to install, ensuring time saving in terms of hours of work
- The reduced size of the jet fans eases installation of other systems (sprinklers, lighting etc.)
- Ease of schedule and breakdown maintenance.

Operation



Major savings in running costs ensured by this non-duct jet fan ventilation system distinctive features.

- Ventilation can be fully or partly operated: the CO Sensors and the Smoke detectors in fact ensure that only the ventilators located in the areas where pollution levels are exceeded or where a fire has started are enabled.
- Less total power required as the accurate design ensures the optimal size of the ventilation system, more specifically, the inlet and exhaust fans can be smaller as the jet fans generate a negligible pressure drop compared to ducted system.

CFD SIMULATION

Computational fluid Dynamics can simultaneously predict airflow, heat transfer and contaminant transport in and around building. A CFD model is built upon fundamental physical equation of fluid flow and energy transfer. The technique is capable of providing time dependent and as well as steady state solutions to the coupled differential equations that govern fluid flows.

HOW IT WORKS

The objective of the CFD is to design of ventilation system for the basement car parking area using jet fans. The specific aim is to find the optimal location, number and configuration of the jet fans required for the ventilation of the car parking, for the given positions of inlets and exhaust, and given configuration of the exhaust fans, such that it meets requirements of CO exposure limit set by health and safety regulations.

CFD Calculation is essential to ensure that all areas of the car park are correctly ventilated and in the event of fire, fume extraction is optimised. It is also required to establish the accurate size of the ventilation system and the correct position of the jet fans and of other exhaust and or inlet fans

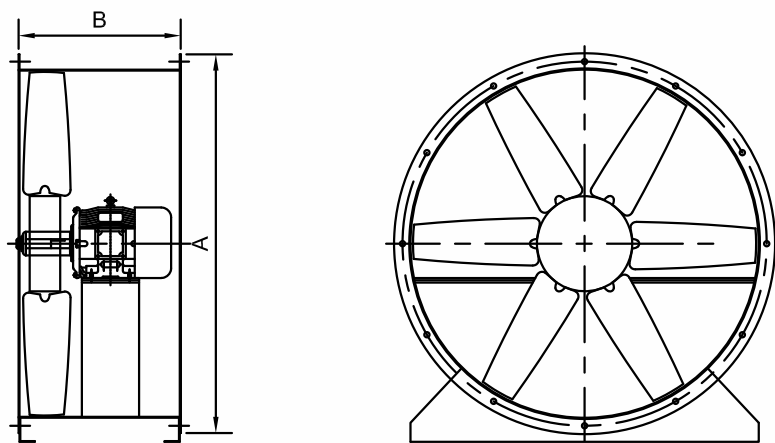
This calculation is based on simulation, combining variables such as the required number of air changes per hours, air volume and direction and structural features of each car park (in 3D Model). The processed data generate dynamic scenarios based on air speed profiles, particle movement and airflow distribution. This allows a customised solution to be produced. This methodical approach ensures not only to assess the system effectiveness by also the most cost effective solution as oversized projects are avoided.

SMOKE SPILL AXIAL FLOW FAN (TLJ Series)

Smoke Spill fans are used for smoke exhaust system at commercial buildings, shopping malls, hospitals, etc. These fans are placed on the ramp opening to the environment which extracts smoke and releases it in the environment.



- Dual use: For daily ventilation and smoke extraction in case of fire. Symmetrical Aero-Dynamic adjustable blades for maximum efficiency.
- Motors IP55 insulation class H (smoke extract);
- Motors IP55 insulation class F (CO-exhaust), according to EN 60034-5/IEC 85
- Casing manufactured from galvanized steel or mild steel (as per requirement).
- Conforming to EN 12101-3 (300 °C for 120 mins/ 2hrs)
- Fan size from 315 to 1600 mm diameter.



DIMENSIONAL DETAILS OF FIRE RATED TUBE AXIAL FAN									
MODEL	WHEEL DIAMETER	A	B	MOTOR FRAMESIZE	MODEL	WHEEL DIAMETER	A	B	MOTOR FRAMESIZE
TLJ-315	315	390	340	71 - 80	TLJ-1120	1120	1238	570	132M
TLJ-355	355	430	340	71 - 80				700	160L
TLJ-400	400	475	375	90S				760	180L
TLJ-450	450	525	340	71 - 80				800	200L
			400	90S - 90L	TLJ-1250	1250	1370	700	160L
TLJ-500	500	591	400	90S - 90L				760	180L
TLJ-560	560	652	400	90S - 90L				800	200L
TLJ-630	630	724	465	112M				760	180L
TLJ-710	710	804	465	112M	TLJ-1400	1400	1520	800	200L
TLJ-800	800	895	465	112M				960	250M
			530	132S				800	200L
TLJ-900	900	995	570	132M				960	250M
			660	160M	TLJ-1600	1600	1750	800	200L
TLJ-1000	1000	1118	570	132M				960	250M
			700	160L				1220	315M

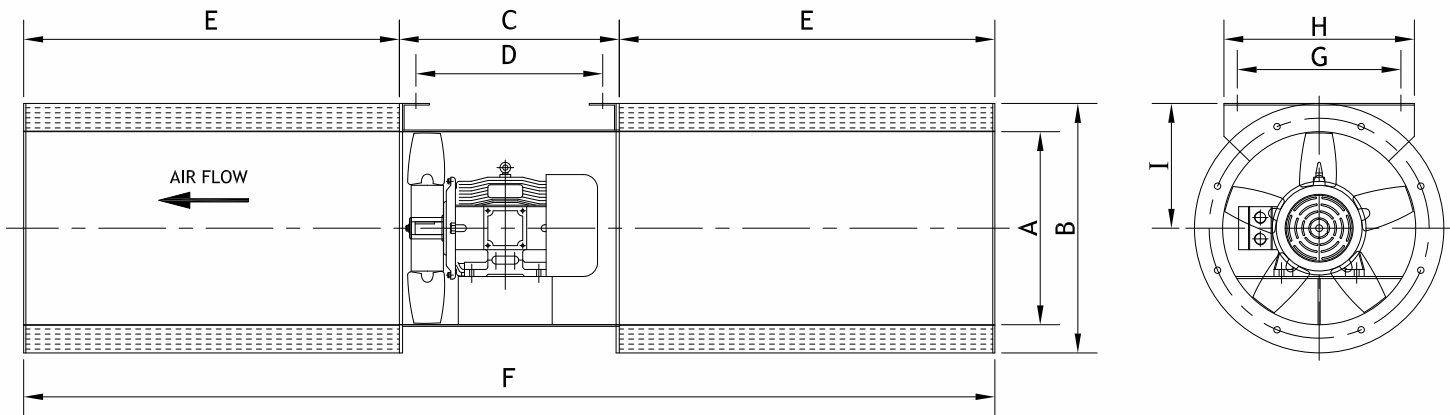
JTF SERIES - IMPULSE JET FAN



- Dual Use: For daily ventilation and smoke extraction in case of fire (300 °C/120 min.)
- Symmetrical Aero-Dynamic blades for maximum thrust with low sound level
- Motors IP55 insulation class H (smoke extract); Motors IP55 insulation class F (CO-exhaust), according to EN 60034-5/IEC 85
- Casing manufactured from galvanized steel
- Conforming to EN 12101-3 (300 °C for 120 mins/ 2hrs)

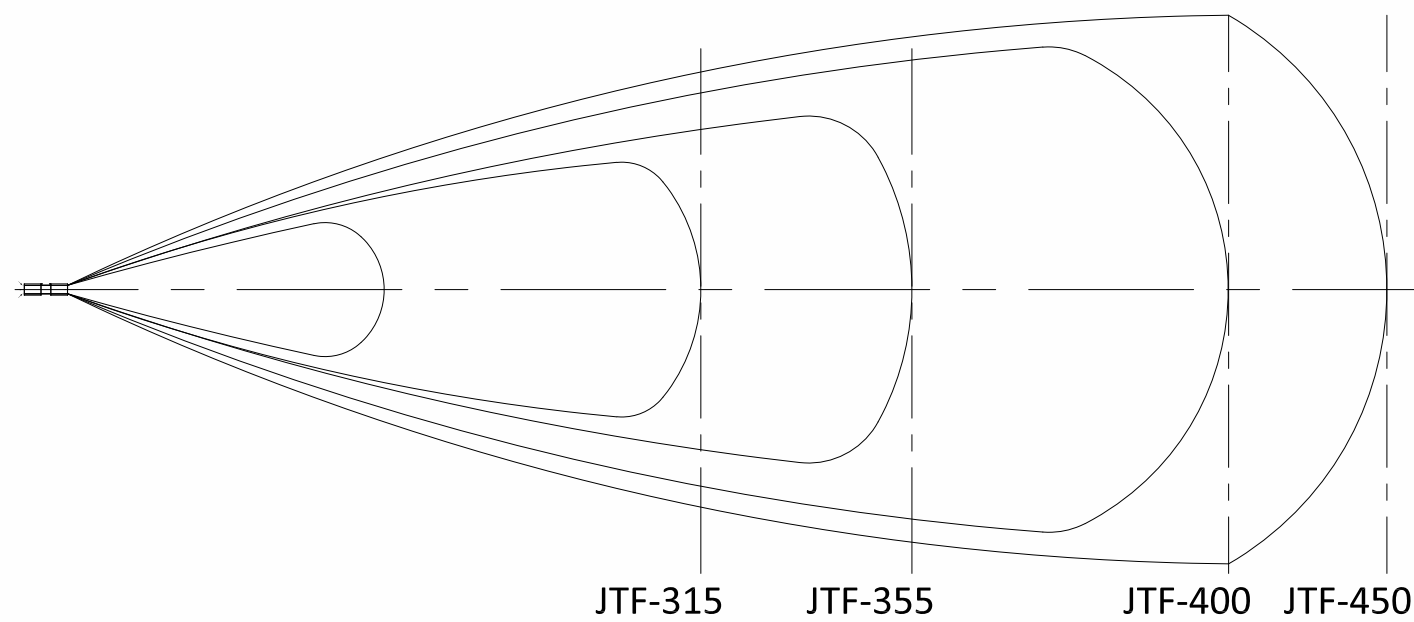
TECHNICAL DATA										
Jet Fan Model	Mode	Air Volume	Thrust	Noise Level	Motor	Motor Pole	Motor Protection	Phase	Insulation	Weight
		CMH	N	dB(A) @ 3m	KW	Nos.				Kg.
JTF-315UD	Normal	2325	6.5	50	0.18	4	IP55	3	H	60
	Fire	4650	25	64	0.75	2				
JTF-355UD	Normal	3500	11	52	0.37	4	IP55	3	H	75
	Fire	7000	45	65	1.50	2				
JTF-400UD	Normal	5250	20	54	0.40	4	IP55	3	H	90
	Fire	10500	80	68	2.20	2				
JTF-450UD	Normal	6750	26	55	0.55	4	IP55	3	H	100
	Fire	13500	104	69	3.70	2				

DIMENSIONAL DETAILS



DIMENSION									
MODEL	A	B	C	D	E	F	G	H	I
JTF-315	320	420	340	290	630	1600	270	320	214
JTF-355	360	460	400	350	700	1800	300	350	234
JTF-400	405	505	440	390	800	2040	330	380	256
JTF-450	455	555	470	420	900	2270	350	400	262

AIR FLOW PATTERN - JTF SERIES



Distance from Nozzle (m)		4	8	12	16	20	24	28	32	36	40	44	50
Flow Width (m)		1.6	3.3	4.9	6.7	8.4	10.0	11.8	13.5	15.2	17.0	18.5	20.8
Center Line Velocity (m/s)	JTF - 315	3.5	1.9	1.3	0.9	0.6	0.2						
	JTF - 355	4.4	2.4	1.6	1.4	1.2	1	0.5	0.25				
	JTF - 400	5.3	2.9	2.0	1.5	1.2	1.0	0.9	0.65	0.45	0.26	0.12	
	JTF - 450	6.5	4.5	3	2.4	2	1.8	1.4	1.2	1	0.8	0.6	0.2

JCF SERIES- INDUCTION JET FAN

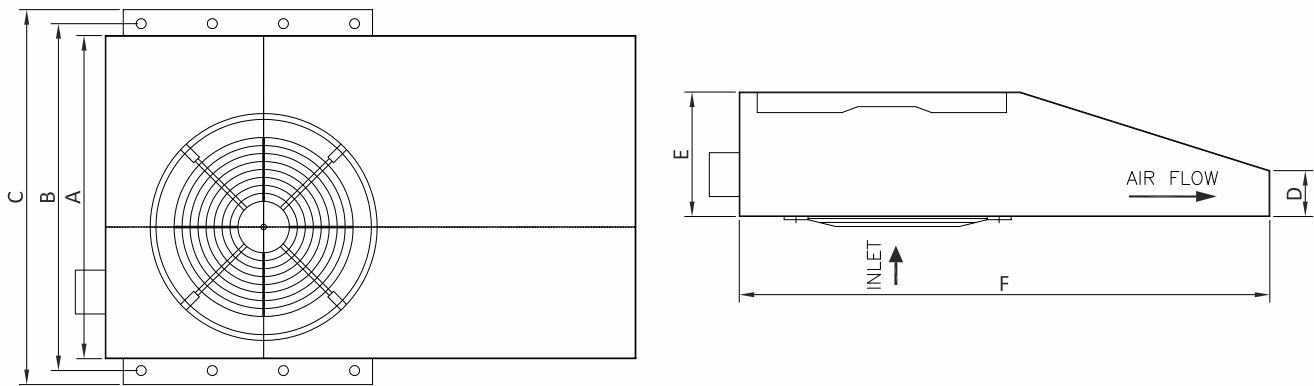


- Highly efficient, aerodynamically designed internal flow elements.
- Available with powerful 50 or 100N thrust capacities
- Compact low profile design makes it suitable for applications with low ceiling heights
- Integral mounting feet allows unit to be easily mounted to ceiling
- Low noise generated due to the centrifugal fan character.
- Conforming to EN 12101-3 (300 °C for 120 mins/ 2hrs)
- Motors are IP-55 with Class-H Insulation for Smoke Extraction.

TECHNICAL DATA

JCF Model	Mode	Air Volume	Thrust	Noise Level	Motor	Motor Pole	Motor Protection	Phase	Insulation	Weight
		CMH	N	dB(A)	KW	Nos.				Kg.
JCF- 50	Normal	3500	13.8	70	0.37	8	IP55	3	H	100
	Fire	7000	55	85	1.5	4				
JCF- 100	Normal	5500	24	75	0.55	8	IP55	3	H	130
	Fire	11000	96	90	3.0	4				

DIMENSIONAL DETAILS



DIMENSION						
MODEL	A	B	C	D	E	F
JCF - 50	810	870	940	115	312	1330
JCF - 100	1012	1072	1142	115	358	1660

Technical Specification, Features & Colours are subject to change without prior notice due to continuous products development

OTHER PRODUCTS OFFERED



CENTRIFUGAL FAN

These type of fans are used in hvac system and for general ventilation.



TUBE AXIAL FAN

Tube axial fans are used in supply and exhaust air systems at office space, stores and kitchen. Also used for pressurization at staircases, lift shaft and lift lobby.



VANE AXIAL FAN

Vane axial fans have guide vanes that increase the fan efficiency. Apart from commercial application these fans are used for industrial application.



CABINET FAN

For supplying fresh / conditioned air through duct work. Available with hdpe filter and speed selector switch for volume control.



CIRCULAR DUCT INLINE FAN

Circular duct inline fans are used in hvac system where low noise is criteria.



RECTANGULAR DUCT INLINE FAN

Rectangular duct inline fans are used in hvac system where higher volume is required.



PROPELLER FAN

Propeller fans are used for exhaust of low or medium quantity of air in kitchens, pump rooms and toilet.

ACCESSORIES



VOLUME CONTROL DAMPER

Manual or automatic vcd is used to control air flow and pressure. Dampers are of various types like back draft damper, fire damper, smoke damper etc are used for different applications.



AIR DISTRIBUTION PRODUCT

Difuser, grill of various types are used for proper distribution of air in the service areas.



DUCT WORK

Proper duct work is designed for smooth air distribution in different location.



CABLE

Suitable cable is used in power & control line for flawless operation.



PLC PANEL

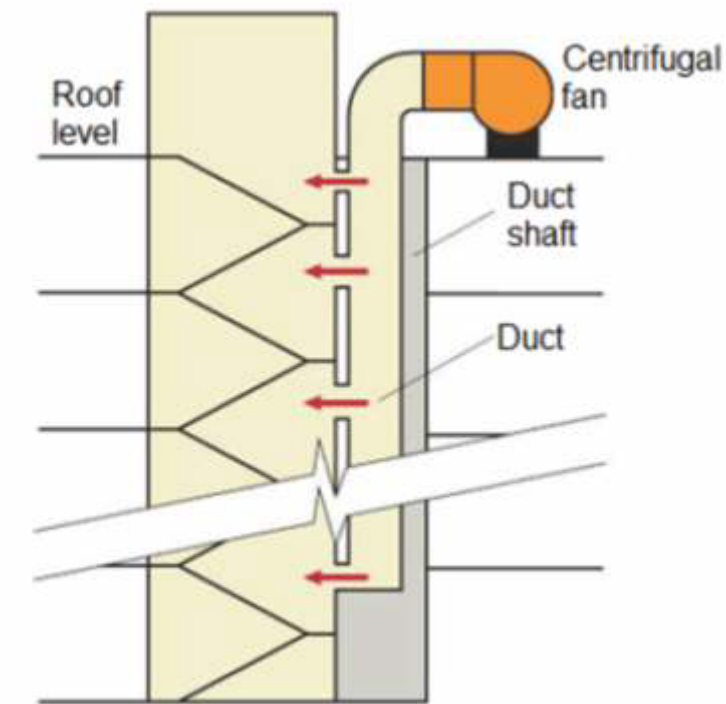
Cntrol panel is used to operate the system and also to monitor the functions of equipment, hmi is installed infront of the control desk. Signals showing the healthiness of the drive, operation readiness and deposition level of co are displayed on the hmi screen.



CO DETECTOR

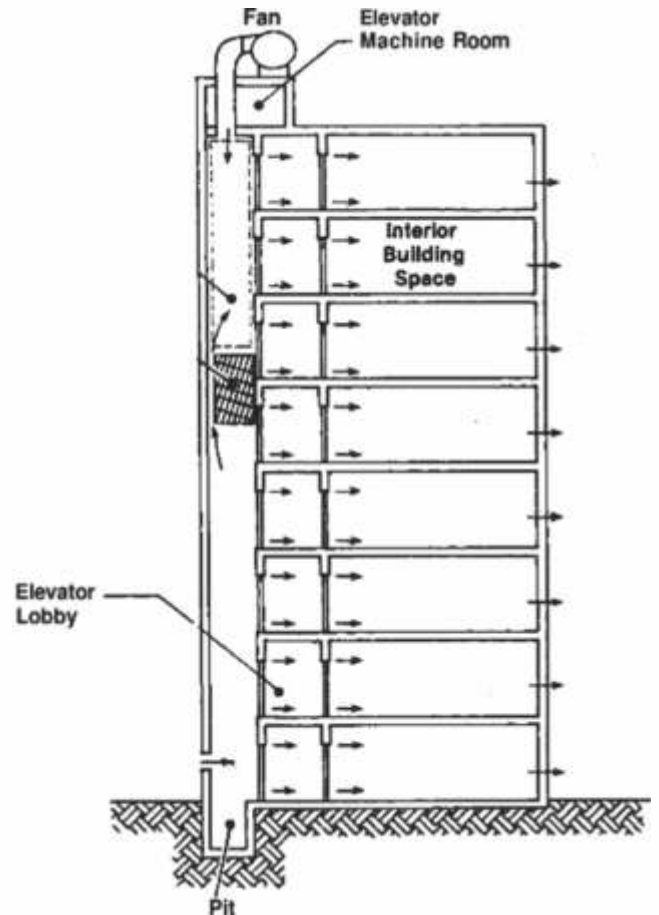
Carbon monoxide (co) is very poisonous and inflammable gas and only detected by co sencors. Co detectors are designed to measure co levels and send the signals to plc panels before co accumulation reaches a dangerous level and start the ventilation fans.

OTHER SYSTEMS OFFERED

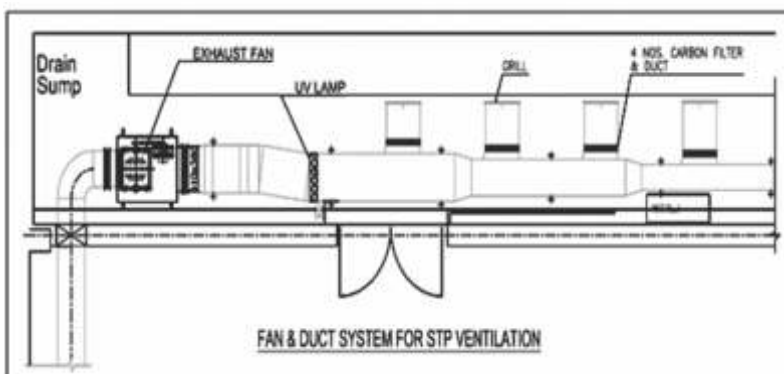


Multiple Injection Pressurization System

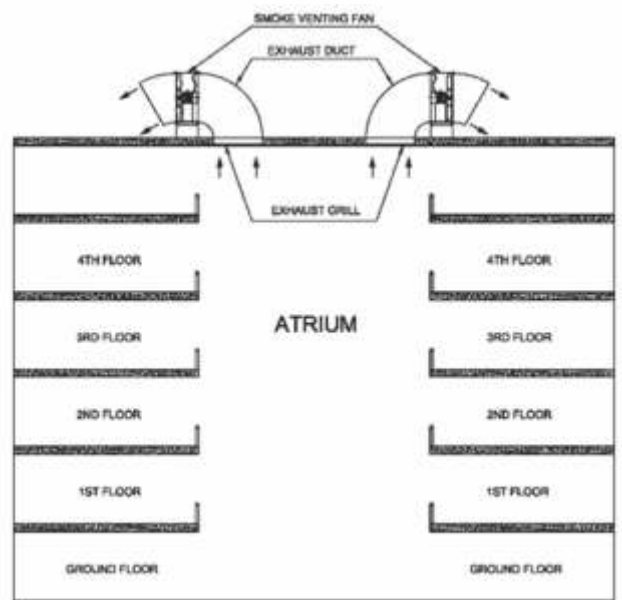
**Staircase / Stairwell
Pressurisation System**



**Lift well and Lift Lobby
Pressurisation System**



STP Ventilation System



Atrium Ventilation



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