CANSTAR

Your Air Ventilation Specialist...

創立於2002年，CNA科镜環球企 業有限公司在已故董事長蔡思明先生的領導下，以前瞻性的眼桌創襲覆通風服務領域的垂直整谷：提供客戶從共同設計、共同關錢，運蔫及售後服務等等之全馬來西亞最具競爭力的行業領導者，屡屢構築整體解決方案。

CNA科镜環球企業有限公司，是馬來西亞成長最快、評價最高的通風設備廠商，不僅在檳城，吉隆玻，柔佛巴魯設立服務據點，也計畫前往東南亞設立銷售中心。多年來致力於研發創新，更跨足工廠、溫室及畜牧不同領域發展。近年來更在永續經營ESG的方向努力耕耘，積極地以提升行業競積極地以提升行業競爭力，並在企業社會責任與節能、減排、綠化、循環等環境保護方面全力推動與奉獻。

CNA科稅環球企业有限公司通風透過全方位成本優勢使國人皆能享有通風設備所帶來的舒適工作環境，更積極透過信任的企業文化，在爰心、信心、決心的經營理念下，持續執著向此願景邁進，更期許能將此願景擴大至全亞洲。

CNA願景

引領馬來西亞通風系統技術成就客戶的永續性，推動碳中和與零排放各項科技，協助東南亞製造業低碳轉型，佈局世界性第二成長曲線的機會點。

CNA使命

讓節能降溫變得更簡單，以產業核心的思維模式成為低碳轉型的幕後黑手。

CNA奖项

2016 Malaysia Top Business Excellence Award
2017 Asia Pacific Excellence Brand Award
2017 International Prestige Brand Award - Best brand of the year
2018 Sin Chew Business Excellence Award
2022 Guang Ming Enterprise Hero Award - Honorary gold award
2022 WCIT - Industry Air Cooling System Excellence Award

CNA Worldwide Corporation Sdn. Bhd. Was founded in 2002, under the leadership of the late chairman Mr. Chua Keat Lim, with a global vision, has started and subverted the integration of ventilation services in Malaysia; However, CNA Group has become the most competitive industry leader in Malaysia, where they provide an overall ventilation solution which include: planning, designing, analysing, installing and after-sales service.

CNA Worldwide Corporation Sdn. Bhd. is the one of the fastest-growing and highest-rated ventilation manufacturers in Malaysia. Furthermore, CNA not only sets up their service bases in Penang, Kuala Lumpur, and Johor Bahru, but also plans to set up sales centres in Southeast Asia. Over the years, CNA has been committed to R&D and innovation and has also developed reputation into different fields of factories, greenhouses and agriculture. In recent years, CNA have been working hard in the direction of sustainable management of ESG, actively improving the competitiveness of the industry, and making full efforts to promote and contribute to corporate social responsibility and environmental protection such as energy saving solution, emission reduction, greening, and recycling products.

CNA Worldwide Corporation Sdn. Bhd. Provide ventilation products and services that enables everyone to enjoy a comfortable working environment, and more actively through the corporate culture of trust, under the business philosophy of love, confidence and determination, continue to persistently strive for the vision, and it is expected to expand this vision to the whole Asia.

CNA Vision

Leading Malaysia's ventilation system technology to achieve customer sustainability, promoting carbon neutrality and zero-emission technologies, assisting the low-carbon transformation of Southeast Asian manufacturing, and laying the opportunity for the world's second growth.

CNA Mission

Make energy saving and air cooling at ease and become the mastermind of promoting the low carbon transformation in the industry.

CNA Awards

2016 Malaysia Top Business Excellence Award
2017 Asia Pacific Excellence Brand Award
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OUR PRODUCTS & SERVICES








DUCTED
EVAPORATIVE AIR COOLER

Model	CZ18X-10D (Down) CZ18S-10D (Top)	CZ18X-32C (Down) CZ18S-32C (Top)	CZ30X-32B (Down) CZ30S-32B (Top)
Power source (V/hz)	240/50	415/50	415/50
Motor Power (Kw)	0.75	1.1/0.37	3/1
Rated current (A)	5.6	2.6/1.4	7.1/3.5
Air flow (CMH)	18000	18000/11000	30000/20000
Fan Speed	10	2	2
Fan Type	Axial	Axial	Axial
Pressure (Pa)	160	194/83	366/160
Noise (dba)	≤65	≤76	≤80
Vent size (L x W) (mm)	555 X 555	650 x 650	765 x 765
Housing dimension (L x W x H) (mm)	1100 x 1100 x 883 (Down) 1100 x 1100 x 968 (Top)	1150 x 1150 x 950 (Down) 1100 x 1100 x 982 (Top)	1350 x 1350 x 1310 (Down) 1350 x 1350 x 1426 (Top)
Saturation pad dimension (L x W x H) (mm)	630 x 738 x 100 (side x 4)	620 x 825 x 100 (side x 4)	970 x 886 x 100 (side x 4)
Net weight (Kgs)	49(Down) 53(Top)	80 (Down) 86 (Top)	125 (Down) 152 (Top)
Operation weight (Kgs)	67(Down) 72(Top)	110 (Down) 116 (Top)	180 (Down) 207 (Top)
Controller type	LCD	LCD	LCD
Pre-cool function	YES	YES	YES
Group control capability	NO	YES	YES
Temperature sensor	YES	YES	YES

DUCTED
EVAPORATIVE AIR COOLER

Model	CZ25X-10C (Down)	CZ25X-32C (Down)	CZ50X-32B (Down)
	CZ25S-10C (Top)	CZ25S-32C (Top)	CZ50S-32B (Top)
Power source (V/hz)	240/50	415/50	415/50
Motor Power (Kw)	1.1	1.1/0.37	3/1
Rated current (A)	5.6	2.6/1.4	7.1/3.5
Air flow (CMH)	25000	25000/11000	50000/30000
Fan Speed	Multi-speed, Silicon Control (10 Speeds)	2	2
Fan Type	Axial	Axial	Axial
Pressure (Pa)	194	194/83	366/160
Noise (dba)	≤70	≤76	≤80
Vent size (L x W) (mm)	650 x 650	650 x 650	765 x 765
Housing dimension (L x W x H) (mm)	1150 x 1150 x 950 (Down)	1150 x 1150 x 950 (Down)	1350 x 1350 x 1310 (Down)
	1150 x 1150 x 982 (Top)	1100 x 1100 x 982 (Top)	1350 x 1350 x 1426 (Top)
Saturation pad dimension (L x W x H) (mm)	620 x 825 x 100 (side x 4)	620 x 825 x 100 (side x 4)	970 x 886 x 100 (side x 4)
Net weight (±3Kgs)	80(Down)	80 (Down)	125 (Down)
	86(Top)	86 (Top)	152 (Top)
Operation weight (Kgs)	110(Down)	110 (Down)	180 (Down)
	116(Top)	116 (Top)	207 (Top)
Controller type	LCD	LCD	LCD
Pre-cool function	YES	YES	YES
Group control capability	NO	YES	YES
Temperature sensor	YES	YES	YES

MOBILE / WINDOW SERIES
EVAPORATIVE AIR COOLER



Model	CZ-08B	CZ18C-13A	CZW07C-13B
Power source (V/hz)	220/50	220	240/50
Motor Power (Kw)	0.2	0.55	0.25/0.09/0.06
Rated current (A)	1.3/1/0.9	3.3/2.8/2.6	1.25/0.8/0.7
Air flow (CMH)	8000	18000	7000/3000/2000
Fan Speed	3	3	3
Fan Type	Axial	Axial	Axial
Pressure (Pa)	80	100	70
Noise (Dba)	≤60	≤66	≤68
Vent size (L x W) (mm)	654 x 665	650 x 650	489 x 400
Housing dimension (L x W x H) (mm)	836 x 618 x 1492	1130 x 695 x 1630	795 x 978 x937
Saturation pad dimension (L x W x H) (mm)	641 x 705 x 100 (Back x 1) 210 x 580 x 60 (Side x 2)	1170 x 110 x 100 (Back x 1)	635 x 670 x 100 (Back x 1) 495 x 132 x 50 (Side x 2)
Net weight (±3Kgs)	33	68	32
Operation weight (±3Kgs)	123	110	72
Water Tank Capacity (ℓ)	90	100	70
Controller type	LCD remote	Button & Remote	Button & remote
Pre-cool function	NO	YES	NO
Group control capability	NO	NO	NO
Temperature sensor	YES	YES	YES

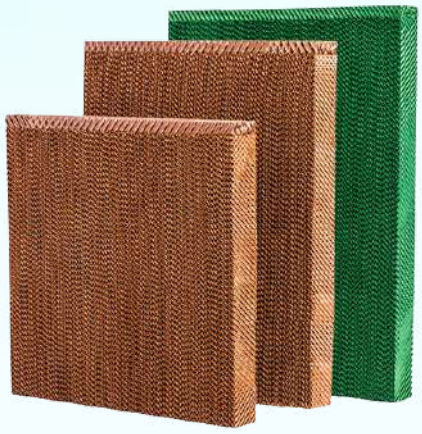
COOLING SATURATION PAD

Features

- High evaporative efficiency
- Superior wetting properties
- Long lifetime
- Low-pressure drop when the pad is wet, leading to the lower running cost

Application

- An evaporative cooling pad can be used for many different cooling purposes such as workshops, livestock, greenhouses, gardening and more.



Working Principle

Utilising the concept of water evaporation to absorb and reject heat.

Based on this principle, water is used to flow through the Cooling Saturation Pad by gravity, creating a thin film of water on the surface of the pas itself.

With the presence of the water film, latent heat is then absorbed when warm air flows through it and eventually rejected by the water medium.

In turn reducing the air temperature passing through it, causing reduction in indoor air temperature and humidifying the air simultaneously.

Product Attribute

Materials Paper material is attained from ECO Friendly sources, whereby it is engineered to be made stronger with better water saturation capability, with less possibility of being crushed.

Glue Glue utilise is low in Benzene and Aldehyde, resulting in an Environmental Friendly and No Odour Cooling Pad. With R&D pushing forward with the development of using with ZERO Benzene and Aldehyde for our future products.

Lighting Processor What we do is whole processor lighting. Longtime lighting is capable of cooling the pad to dry fully. If it is not dried, the cooling pad will easily break after soaking for a long period of time.

5090 Model (mm)

Height (Gram)	Weight (Gram)	Thickness	Corrugated Height (mm)	Corrugated Angle (degree)
<2170	<1000	20-200	50	45

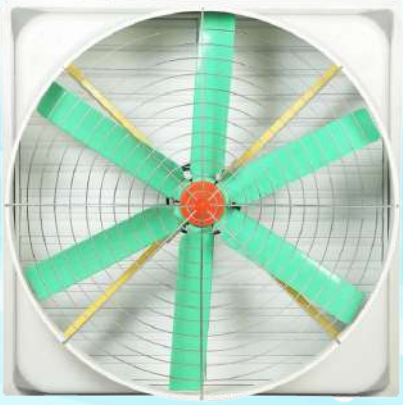
Remarks: Please contact us for more information on other models.

CORROSION PROOF CONE FAN SMC HOUSING

Corrosion Proof Cone Fan SMC Housing is primarily applied in industry area.

EXH-106SL

Electrical Source (V/Hz)	415V/50Hz
Power (kw)	0.55kw
Blade Numbers	6
Pressure (Pa)	110Pa
Airflow (m3/h)	25000m3/h
Fan Type	Axial
Fan Speed	3-phase, 1-speed
Blades Specification (inch)	36 inch
Noise (dBA)	≤70dBA
Dimension (L X W X H) (mm)	1060 x 1060 x 550 (42 inch)
RPM	750
Operation Weight (kg)	48kg
Rated Current (A)	2A



EXH-146SL

Electrical Source (V/Hz)	415V/50Hz
Power (kw)	1.1kw
Blade Numbers	6
Pressure (Pa)	118Pa
Airflow (m3/h)	45000m3/h
Fan Type	Axial
Fan Speed	3-phase, 1-speed
Blades Specification (inch)	50 inch
Noise (dBA)	≤75dbA
Dimension (L X W X H) (mm)	1460 x 1460 x 580 (58 inch)
RPM	480
Operation Weight (kg)	60kg
Rated Current (A)	3.9A

EXH-166AT

Electrical Source (V/Hz)	415V/50Hz
Power (kw)	1.5kw
Blade Numbers	3
Pressure (Pa)	105Pa
Airflow (m3/h)	62000m3/h
Fan Type	Axial
Fan Speed	3-phase, 1-speed
Blades Specification (inch)	57 inch
Noise (dBA)	≤85dBA
Dimension (L X W X H) (mm)	1660 x 1660 x 580 (66 inch)
RPM	560
Operation Weight (kg)	82kg
Rated Current (A)	5.8A

HVLS FANS

HVLS fans are primarily used in large unobstructed spaces; such as factories, logistic warehouses, halls, gymnasiums, supermarkets, farms and more. It is our first choice in creating large volume airflow in ventilating stale air and at the same time lowering down ambient temperature.

Function

Creating a comfortable environment

This highly energy efficient HVLS Fan, is capable of creating a mild breeze displacing hot and humid air and in turn decreasing the ambient temperature by 5-8 ℃.

Ventilation approach

In our standard ventilation approach, we will assist our customer on the calculation of airflow volume requirement and propose the right solution by utilising the appropriate model and equipment for any installation, ensuring sufficient airflow displacement, creating a comfortable and pleasant working space and environment.

Humidity Rejection & Displacement

Malaysia is known for its hot and humid weather all year long with an average relative humidity of 60% and above. If a warehouse ventilation is not being designed accurately, heat and moisture from the air will affect warehouse capability, whereby carton boxes lifespan will deteriorate at an exponential rate, causing it to lose its holding properties and disintegrate.

However, with the application of HVLS Fan into the warehouse, it will assist in the air circulation of the entire space encouraging airflow and in turn improve the overall condition of the warehouse.

PERMANENT MAGNET SYNCHRONOUS MOTOR (PMSM) HVLS FAN

MODEL	CS-ZF-4E (16FT)	CS-ZF-5E (18FT)	CS-ZF-7E (24FT)
Blade Diameter	16 ft (4.9m)	18 ft (5.5m)	24 ft (7.3m)
Blade Style	Aerofoil with winglet		
Blade Material	Magnalium (Aluminium Alloy), Carbon Fluorine Treated Surface		
Number of Blades	5		
PERFORMANCE & POWER			
Max. Displacement	377,647 CFM	405,882 CFM	462,352 CFM
Variable Speed	10 - 75 RPM	10 - 65 RPM	10 - 52 RPM
Max. Power Usage	0.9kW	1.0kW	1.3kW
Rated Current (Max)	2.6A	3A	4.7A
Input Voltage	220 - 240 V / 1P		
WEIGHT & DIMENSIONS			
Fan Weight exclude mounting bracket, drop tube and other mounting accessories	100kg	108kg	113kg
MOTOR			
Motor Type	NEODRIVE Permanent Magnet Synchronous Motor		
Drive Train	Direct Drive Gearless		
Max. Torque	260Nm		
Mechanical Efficiency	0.94		
Max. Ambient Temperature for Operation	80 °Celcius		
Degree of Protection	IP55		
Cooling System	Heat Sink Cooling		
Sound Level	< 40 dBA		
CONTROL			
Control Type	Variable Frequency Drive (Inverter Drive)		
Features	Dual Microprocessor Logic, LED Status Display, Built-in Dynamic Braking Transistor		
Manufacturer	Yaskawa Electric Corporation/Danfoss Engineering		
Max. Ambient Temperature for Operation	50 °Celcius		
INSTALLATION			
Mounting Hardware	Complete Mounting Kit Included		
Drop Extensions	Optional Extensions Lengths Available		

PERMANENT MAGNET SYNCHRONOUS MOTOR (PMSM) HVLS FAN

Model	CS-ZF-7E-IP66
Diameter (m)	7.3
Power (kw)	1.5
Voltage (v)	240
Controller	IP66
Airflow (m3/min)	15,500
Rotating Speed (rpm)	60
No. of Blades	6
Noise (dba)	38
Cooling Area (m2)	850
Covering Area (m2)	1,700
Motor Weight (kg)	42
Fan Weight (kg)	113

10 YEARS WARRANTY
FAN BLADE WARRANTY

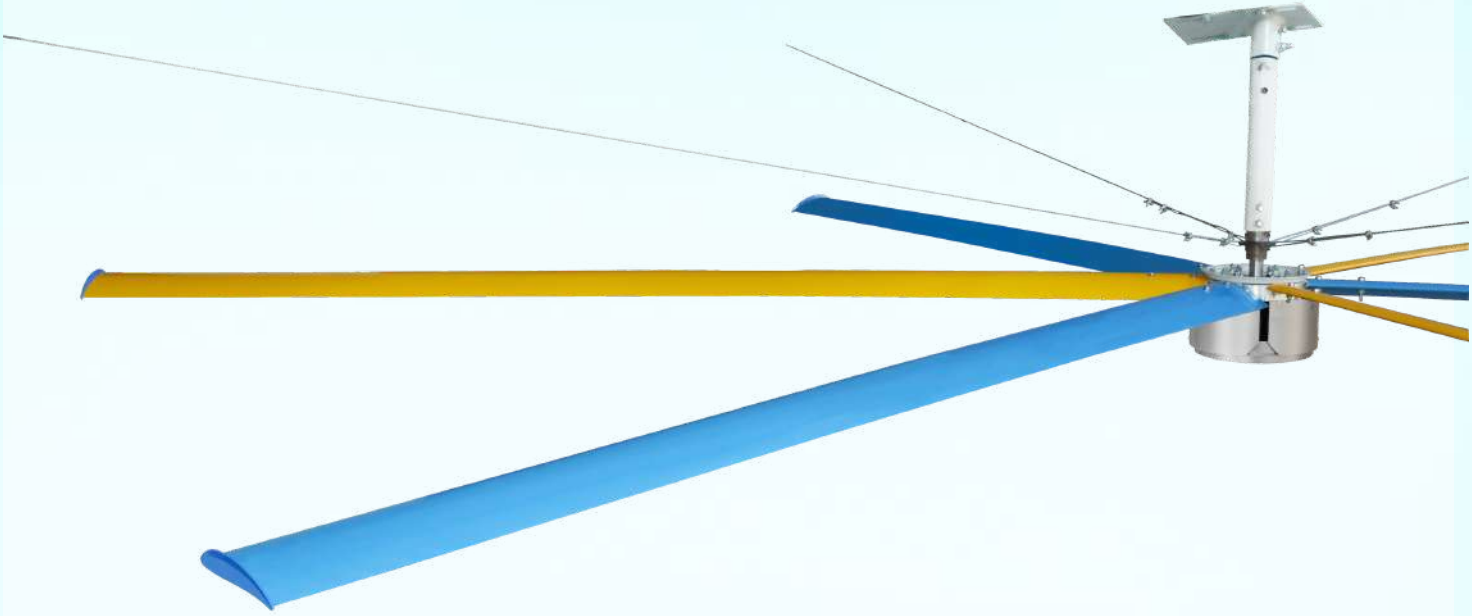
&

3 YEARS WARRANTY
MOTOR WARRANTY

&

1 YEAR WARRANTY
INVERTER CONTROL WARRANTY

COMMERCIAL HVLS FANS



Wing Dynamic II Large Commercial Ceiling HVLS Fans Parameter Table

Model	CS-CM-4E	CS-CM-3E	CS-CM-2E
Fan Diameter (m)ft	4.0 (13')	3.4 (11')	2.8 (9')
Circulating Air Volume (m^3/min)	8800	6800	4500
Largest Rotating Speed (Rpm)	70	75	90
Power (Kw)	0.36	0.36	0.36
Weight (Kg)	46	42	36
Maximum Coverage (㎡)	750	620	520
Noise (dBA)	40	40	40
Voltage (V)	220	220	220
Motor Power (W)	360	360	360

Pole Fan Parameter Table

Model	CS-CM-4E
Fan Power (Kw)	0.36
Largest Rotating Speed (Rpm)	70
Weight (Kg)	46
Noise (dBA)	40
Maximum Coverage (㎡)	750

PORTABLE HVLS FAN

CS-NB-EF4822-48

Motor	Permanent Magnet Motor Fan
Voltage & Frequency	220V / 50Hz / 60Hz
Power	600w
Blade Diameter	6 Blade / 120cm (48 inch)
Control Speed	7
Air Volume	38,000m3
Air Supply Distance	35-40m
Net Weight	50kg
Size of Product	133.2cm (W) x 50cm (T) x 138cm (H)
Size of Packing	138cm (W) x 53cm (T) x 138cm (H)

1 YEAR WARRANTY

BLADE, MOTOR & ELECTRICAL COMPONENTS WARRANTY

Your Air Ventilation Specialist...

HVLS FAN FOR FACTORY WAREHOUSE

Warehouse ceiling fans have been utilized in the past, but not at this size. Our warehouse fan ranges in size from 9 to 24 feet in diameter and can cover an area up to 1800㎡.

Benefits of Industrial Cooling Fans in warehouse

- As the heat rises, so does the cost of cooling. Air conditioners blow cold air from a single point, but they do not distribute the cold air throughout the entire space. That's what our large commercial high-volume, low-speed fans do. Installation of our HVLS fans results in cooler air, lower power bills and an increase in worker comfort.
- Some warehouses are not occupied enough to justify air conditioning. What happens here is that the heat can build to dangerous levels for workers. Even without air conditioning, large industrial ceiling fans keep more people cooler in warehouses by creating a fresh breeze and eliminating stagnant air. Studies shown that improved employee comfort results in greater employee productivity by up to 2 percent per degree when interior temperatures are above 77 degrees. Improving your fan system can save you time and money, and prevent unnecessary respiratory problems as well.

Reasons for choosing our big ceiling fans for warehouse

- Reduce condensation.
- Circulate air flow from one area to another.
- Cool the area in the summer with up to 30% greater coverage.
- Decrease airborne pollutants.
- Save money on heating and cooling costs and HVAC equipment repairs.
- Protect your equipment and inventory from humidity.

HVLS FAN FOR COMMERCIAL

Do you want to make the occupants more comfortable and save cost? We will provide you the coolest solution for commercial places, such as the office, restaurants, theaters and so on. Our commercial ceiling fan circulates massive volumes of air gently and quietly to make customers comfortable and happy, and also keep the employees healthy and more productive.

Reasons for choosing Commercial Ceiling Cooling Fans

- Improving comfort levels: With its 7500 m^3/min wind quantity, our commercial high-volume, low-speed fans is the quite effective HVLS fans for commercial spaces. The circulating air is gentle and can make customers feel comfortable and improve your employees' health.
- Reduce cost consumption: With 0.36Kw fan power, the commercial fan is a cost-effective solution that could help your commercial facility keep cooling bills under control.

Official places such as the shopping mall can benefit from a commercial fan

- Installing a big commercial ceiling fan, your employees will feel more comfortable and then they will become more productive.
- Your customers will return to your shopping more frequency if they feel comfortable. And the low speed and quiet noise are good for them to converse.
- Shopping mall is difficult to cool, as it has a large open space. In summer, the unbearable heat lead to the cooling bills increasing quickly. While the large air movement capacity of our commercial ceiling fans could solve these problems effectively and reduce the electrical cost

HVLS FAN FOR AGRICULTURE

If your are raising livestock, you must have meet some problems, such as moisture, pathogens, heat and smelly gases. So proper ventilation is a serious business. In order to protect the health of those who work with the animals and their own safety, it is quite necessary to remove these unhealthy substance regularly and efficiently from the space.

Our traditional industrial fans are quite suitable for agricultural spaces. The traditional HVLS industrial fans are capable of moving up to 13500 m^3/min and lower the temperature of the animals. If this used in cattle farm, it would help increase milk production because animals could feel comfortable. Therefore, good air quality and proper ventilation are essential for high-quality farm products and healthy livestock.

Factors of Selecting Livestock HVLS Fans

- Bad environment will lead to animals feeling stressful, which would affect animals' productive capacity, as the growth of mold and the irritation of respiratory.
- The poor growths rates, aggressive or self-destructive behavior, illness, and even death can be arisen by noise, drafts and sudden environmental changes.
- The cost of air conditioner for agriculture is too high.

Reasons for choosing our big ceiling fans for warehouse

- Large coverage area: The max scope of action can reach up to 1800 Sqm.
- Cooling application: Keep animals and people feel comfortable all year round.
- Energy efficient: The power consumption of HVLS fans are extremely lower than air conditioner.
- Soft airflow and quiet operation: The traditional HVLS fans move large volumes of air slowly without harsh breezes, which could avoid disturbing animals and stirring up dust.

HVLS FAN FOR MOSQUE, CHURCHES & HALLS

CNA also delivers Large HVLS Fans for Mosques, Churches and Halls. Large HVLS Fans have air volume 15000m^3/min which reduces 7-11 degree temperature than perceived temperature.

With our permanent magnetic ceiling fanshave the following advantages:

- Totally silent, is only 36dBA
- Free maintainence.
- Small installation space, only 90cm.
- Long life span, could use more than 10 years
- Large covering area: The max scope of action of one HVLS industrial fan can reach up to 1800 Sqm.

Our permanent magnetic fans are suitable for the places which need silence. We believe this fan will be your best choice to save cost and high efficiency.

MECHANICAL FAN

Axial Fan | **Bifurcated Fan** | **Centrifugal Fan**



≤ 5 HP : Exstock / 4 days order lead time

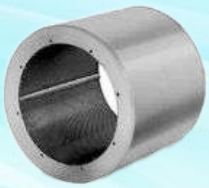
≥ 7.5 Hp : 2~3 weeks order lead time

VENTILATION EQUIPMENT PREVENTIVE MAINTENANCE




HOOD & DUCT






Duct in TDF joint , slip joint, flange joint, clip joint, and welded joint type

- Round / square G.I. straight / angle duct
- Round / square SUS straight / angle duct
- Round / square M/S straight / angle duct

Axial fan internal / silencer (25mm ~ 200mm)

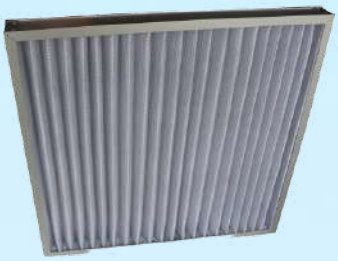
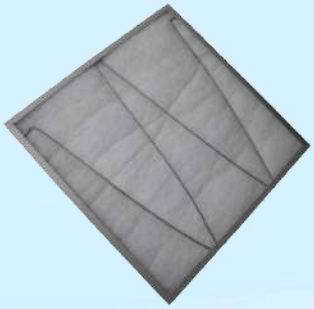
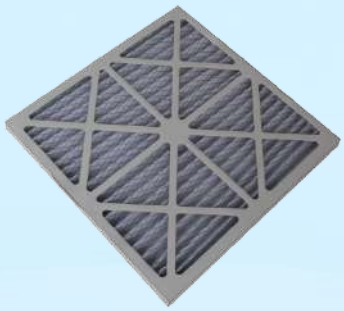
- Round / square G.I
- Round / square SUS

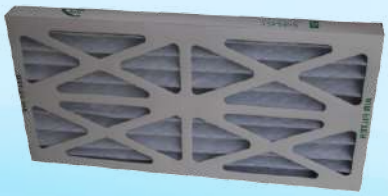
Hood

- G.I. / SUS Slot type
- G.I. / SUS Downdraft type
- G.I. / SUS Side type
- G.I. / SUS Fume booth type
- G.I. / SUS LVHVtype
- G.I. / SUS Wall mount type
- G.I. / SUS Island hanger type
- G.I. / SUS Island V type

AIR CONDITIONER FILTERS

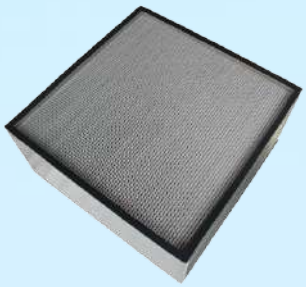
Pre Filter



Hepa Filter

Deep Pleat Type



Mini Pleat Type

V Bank Filter

Pocket Filter



Air Filter Cartridge

Filter Bag

OUR VENTILATION APPLICATION

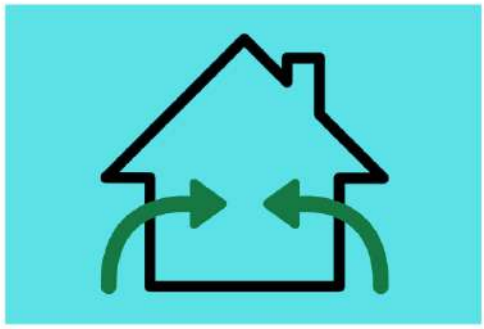






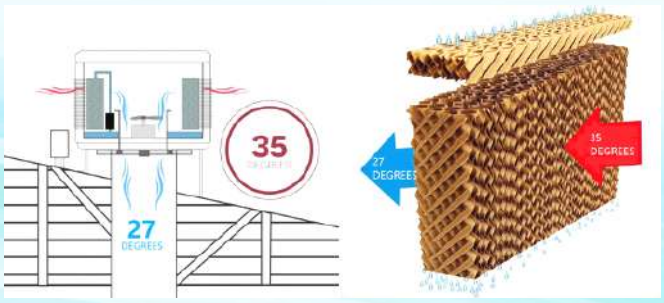

INTRODUCING FRESH AIR

By introducing fresh air to a space, this will promote air movement. With the introduction of cool fresh air, hot and stagnant air will be rejected hence decrease the room ambient temperature.

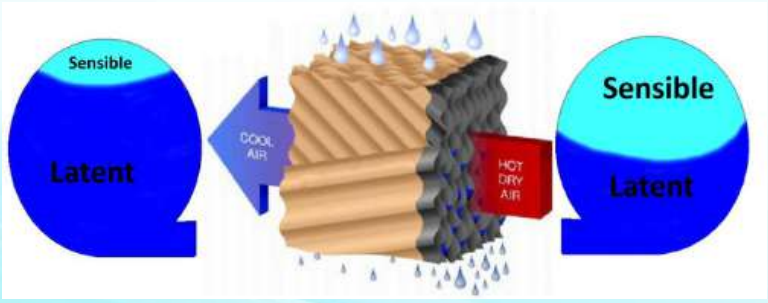


EVAPORATIVE AIR COOLER (POSITIVE PRESSURE)

Evaporative Air Cooler is a positive pressure ventilation system equipment that can cool down air through water evaporation process. Different from typical air conditioning systems, water evaporative cooling system uses water to absorb relatively large amount of ambient heat (dry bulb temperature). The warm ambient air will have its heat absorb through evaporation process, resulting in the generation of cool air. This concept is base on the phase transition process, through phase changes of liquid water to water vapour (gas/steam). With this system, air can be cooled down with much less energy in comparison with typical refrigeration system, with the limitation limited to the lowest water temperature available.



Please refer to the Evaporative Temperature chart for temperature decrease performance according to different conditions.



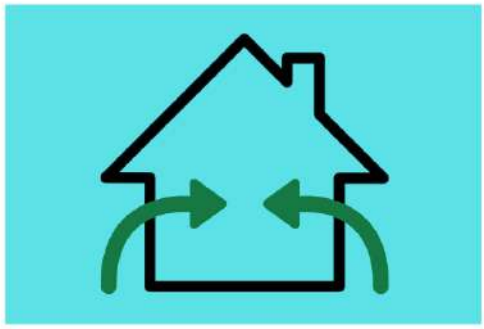
Through this image, it illustrates the cooling process of our evaporative cooling system.

Ambience Temp	Relative Humidity (%)								
	10%	20%	30%	40%	50%	60%	70%	80%	90%
10°C	4.0°C	4.5°C	5.5°C	6.0°C	7.0°C	7.5°C	8.0°C	9.0°C	9.5°C
15°C	7.5°C	8.5°C	9.5°C	10.5°C	11.0°C	12.0°C	13.0°C	13.5°C	14.0°C
20°C	11°C	12.0°C	13.0°C	14.5°C	15.5°C	16.5°C	17.5°C	18.2°C	19.0°C
25°C	14.5°C	16.0°C	17.0°C	18.5°C	20.0°C	21.0°C	22.0°C	23.0°C	24.0°C
30°C	17.5°C	19.5°C	21.0°C	22.5°C	24.0°C	25.0°C	26.5°C	28.0°C	29.0°C
35°C	20.0°C	23.0°C	25.0°C	26.5°C	28.5°C	30.0°C	31.5°C	32.5°C	34.0°C
40°C	23.0°C	26.5°C	29.0°C	31.0°C	32.5°C	34.0°C	N/A	N/A	N/A
45°C	26.0°C	29.0°C	32.5°C	35.0°C	N/A	N/A	N/A	N/A	N/A
50°C	29.0°C	32.5°C	36.5°C	N/A	N/A	N/A	N/A	N/A	N/A

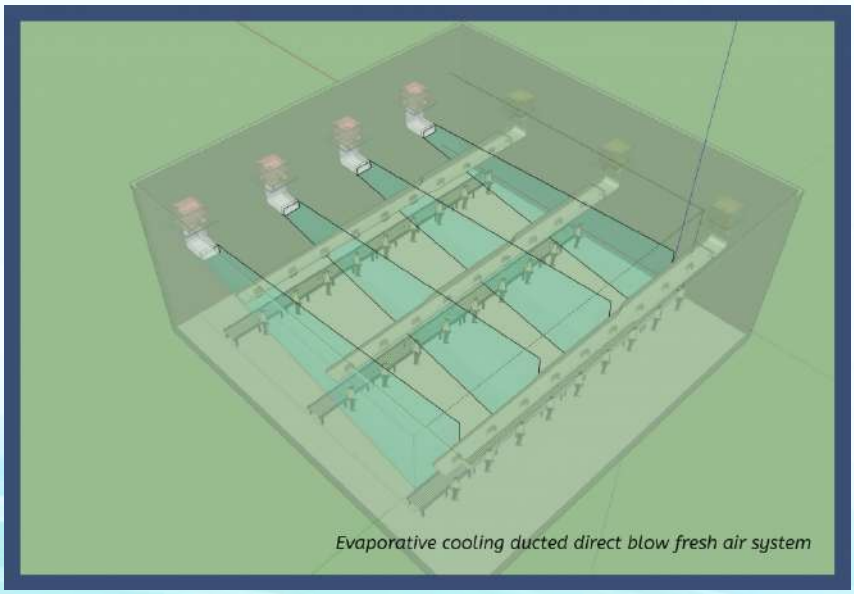
This evaporative temperature drop chart is based on 85% saturation efficiency

INTRODUCING FRESH AIR

By introducing fresh air to a space, this will promote air movement. With the introduction of cool fresh air, hot and stagnant air will be rejected hence decrease the room ambient temperature.



EVAPORATIVE AIR COOLER (POSITIVE PRESSURE)



Evaporative cooling ducted direct blow fresh air system

Direct Blow System

This method of cooler installation is applied when a targeted cooling area is able to accept high velocity air speed.

It is most economical and ease of installation approach, as minimal ducting fabrication cost and installation is involved.

Ventilation rate is calculated based on air change required for a targeted location.

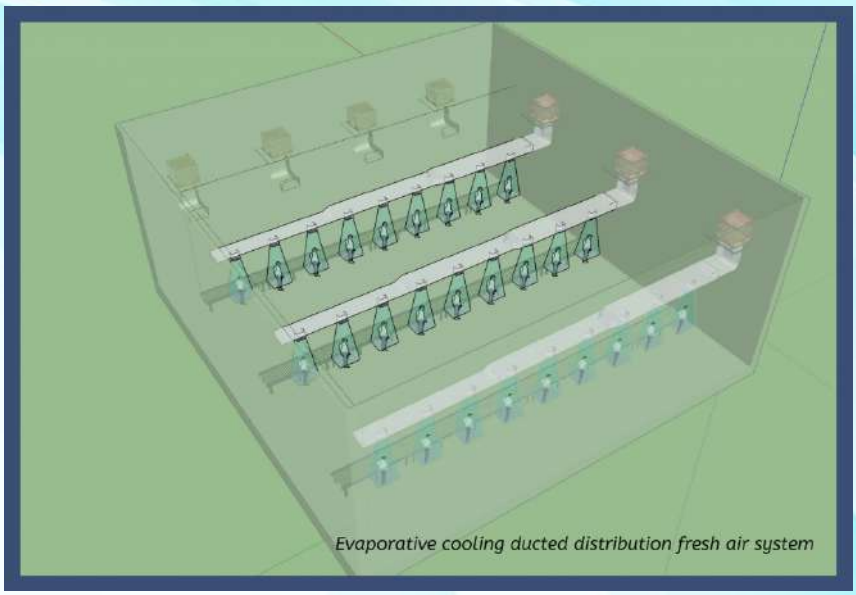
However, temperature across the room might differ significantly as cool air would not be able to reach the furthest point of the room.

Ducted Distribution System

This method of cooler installation is able to distribute required cool air volume to the targeted area.

With and insulated duct, temperature throughout the discharge point will remain stable and even.

This is the best installation method, whereby temperature across the room can be maintained equally. However major duct work is required.



Evaporative cooling ducted distribution fresh air system

INTRODUCING FRESH AIR

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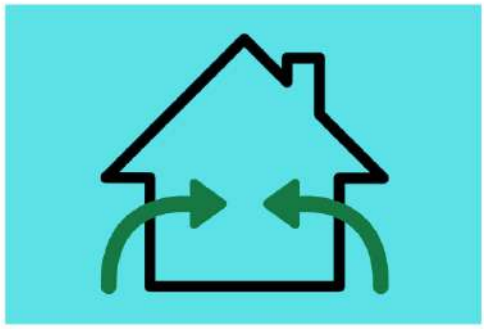
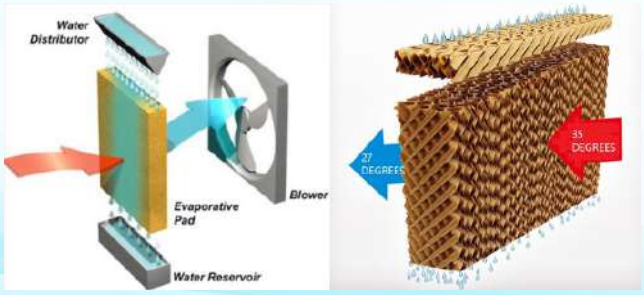


ENCLOSE EVAPORATIVE SYSTEM (NEGATIVE PRESSURE)

This ventilation method uses the water saturation pad ability to cool the room. Whereby negative pressure is created via suction of outside warm fresh air through the pad into the room.

In this application, exhaust fan is utilised to suck in warm fresh into the room through the cooling pads constantly in turn creating a cool and breezy atmosphere.



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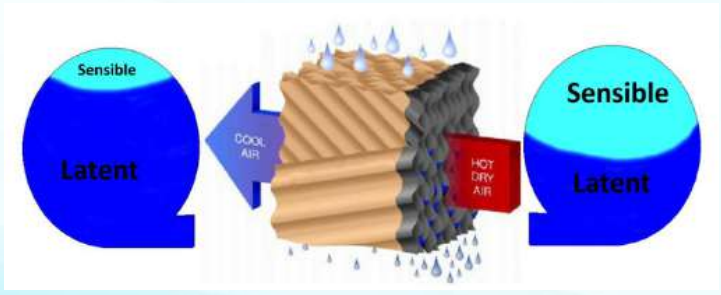


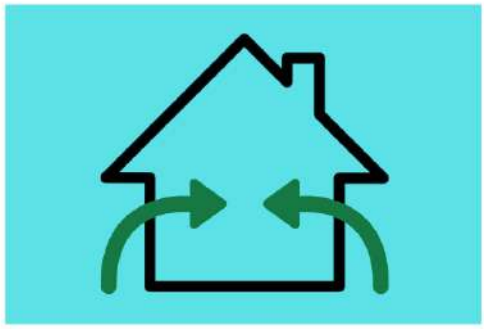
Through this image, it illustrates the cooling process of our evaporative cooling system.

Ambience Temp	Relative Humidity (%)								
	10%	20%	30%	40%	50%	60%	70%	80%	90%
10°C	4.0°C	4.5°C	5.5°C	6.0°C	7.0°C	7.5°C	8.0°C	9.0°C	9.5°C
15°C	7.5°C	8.5°C	9.5°C	10.5°C	11.0°C	12.0°C	13.0°C	13.5°C	14.0°C
20°C	11°C	12.0°C	13.0°C	14.5°C	15.5°C	16.5°C	17.5°C	18.2°C	19.0°C
25°C	14.5°C	16.0°C	17.0°C	18.5°C	20.0°C	21.0°C	22.0°C	23.0°C	24.0°C
30°C	17.5°C	19.5°C	21.0°C	22.5°C	24.0°C	25.0°C	26.5°C	28.0°C	29.0°C
35°C	20.0°C	23.0°C	25.0°C	26.5°C	28.5°C	30.0°C	31.5°C	32.5°C	34.0°C
40°C	23.0°C	26.5°C	29.0°C	31.0°C	32.5°C	34.0°C	N/A	N/A	N/A
45°C	26.0°C	29.0°C	32.5°C	35.0°C	N/A	N/A	N/A	N/A	N/A
50°C	29.0°C	32.5°C	36.5°C	N/A	N/A	N/A	N/A	N/A	N/A

This evaporative temperature drop chart is based on 85% saturation efficiency

INTRODUCING FRESH AIR

By introducing fresh air to a space, this will promote air movement. With the introduction of cool fresh air, hot and stagnant air will be rejected hence decrease the room ambient temperature.



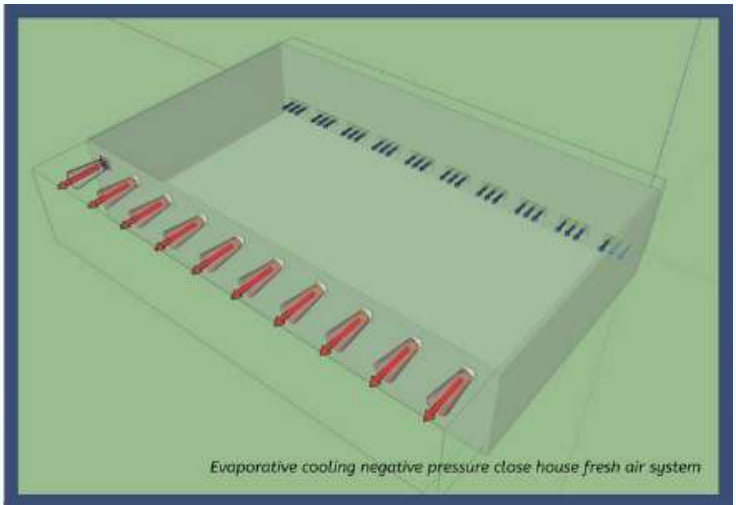
ENCLOSE EVAPORATIVE SYSTEM (NEGATIVE PRESSURE)

This ventilation method is generally applied for general area cooling.

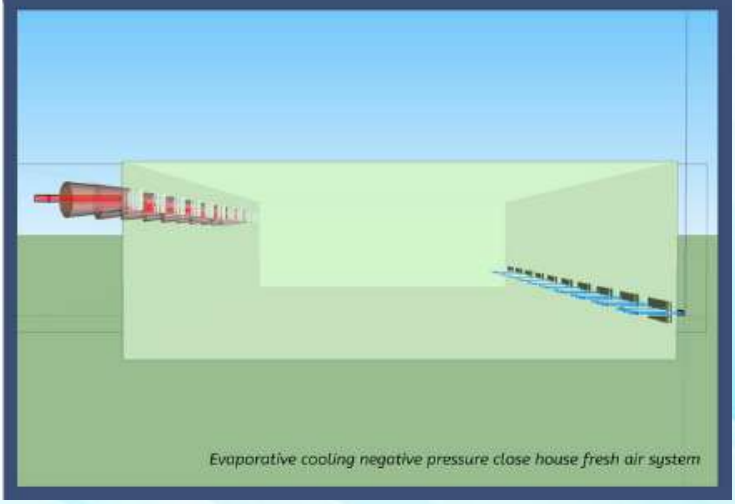
This concept is to create the targeted area into a giant evaporative cooler system, whereby the whole area will have a gentle air velocity approach and a low sensible temperature.

The running cost of this system is generally lower than utilising evaporative air cooler. However, if the system is not design accordingly, air humidity can be rather high hence caution is required.

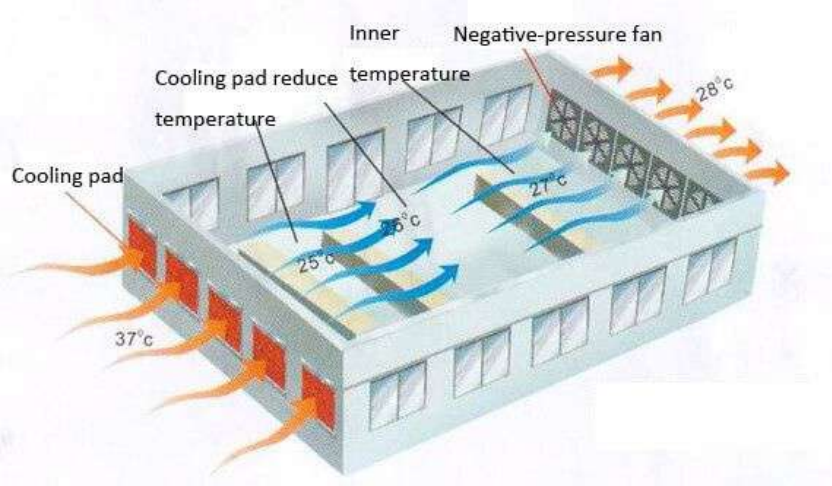
Additional scope is required for this installation, to ensure the best efficiency and function capability.



Evaporative cooling negative pressure close house fresh air system



Evaporative cooling negative pressure close house fresh air system



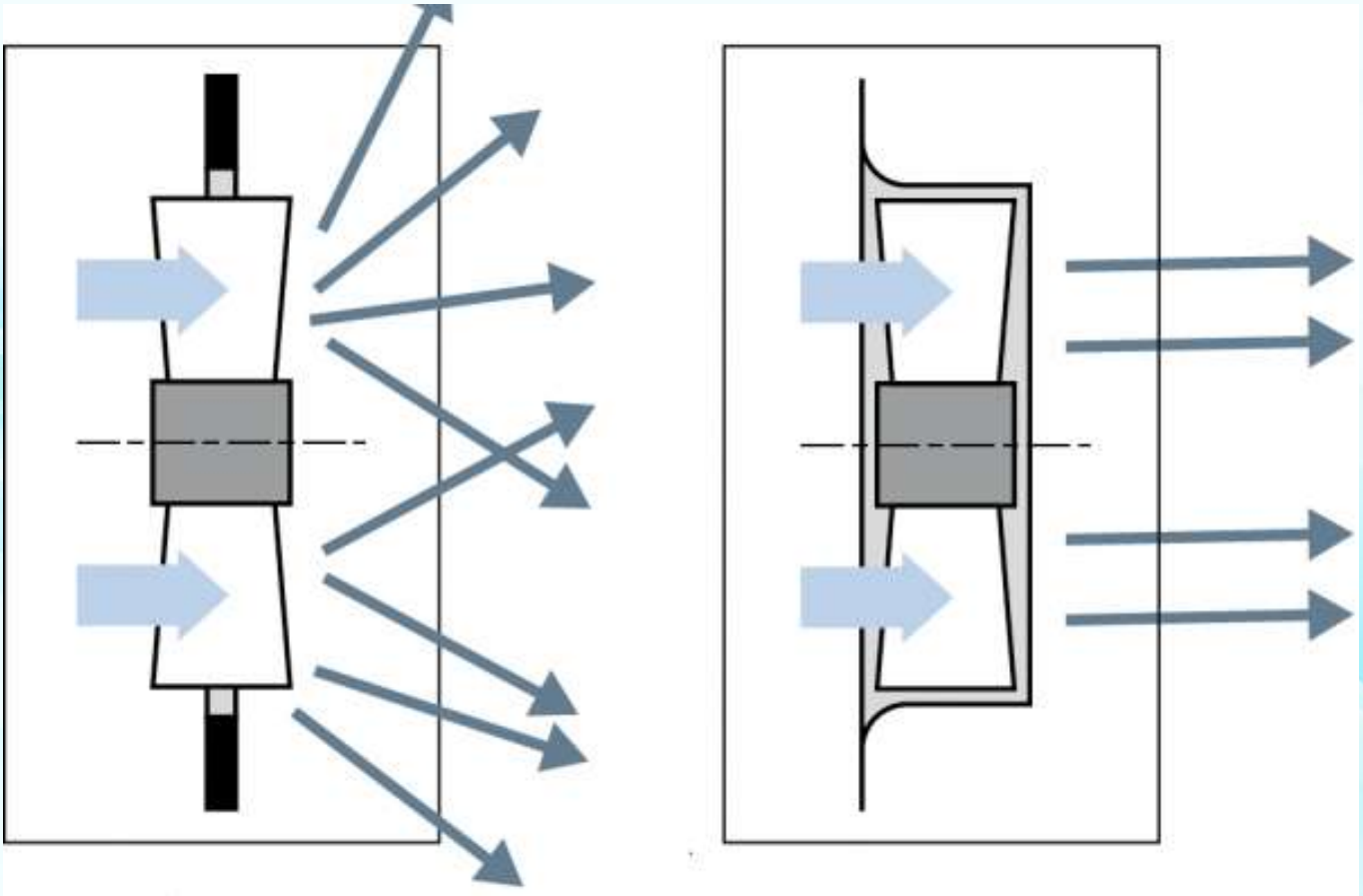
GENERATING AIR MOVEMENT

Generating a healthy air movement to a particular area, will help in the movement of stagnant air and in return decrease the sensible temperature and providing a much comfortable environment for occupants.

CONE TYPE FLOW FAN SYSTEM

This system describes CNA's EXH range of ventilation fans. Whereby a CONE type fan is designed for a much higher air flow volume, wider cyclone radius and higher discharge pressure (longer throw distance).

It can target and move air in a longer distance effectively by using the same or lesser amount of electricity a conventional fan utilises.



Conventional Type Fan

- Inefficient and scattered air discharge.
- Air discharge is not concentrated, causing air turbulence.

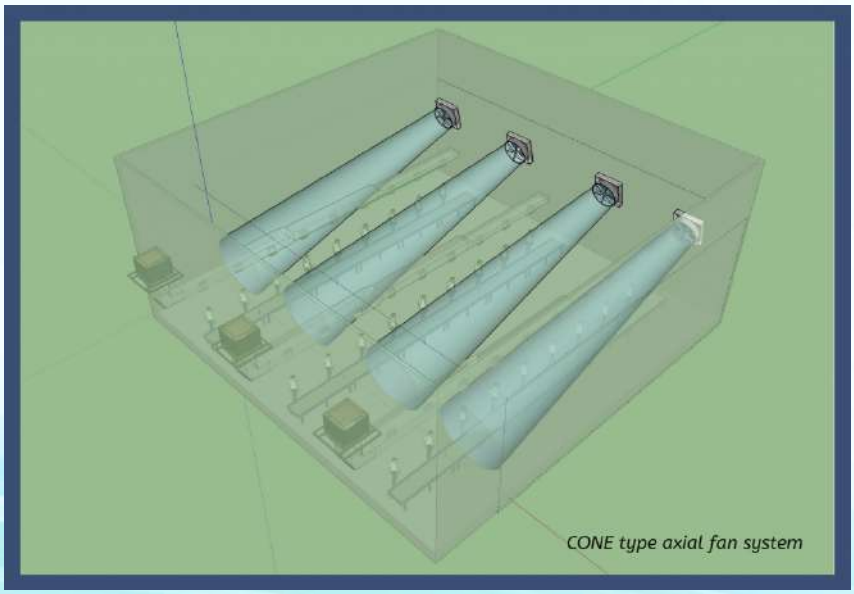
CONE Type Axial Fan

- Efficient and even air discharge.
- Air discharged is concentrated towards the intended direction.

GENERATING AIR MOVEMENT

Generating a healthy air movement to a particular area, will help in the movement of stagnant air and in return decrease the sensible temperature and providing a much comfortable environment for occupants.

CONE TYPE FLOW FAN SYSTEM

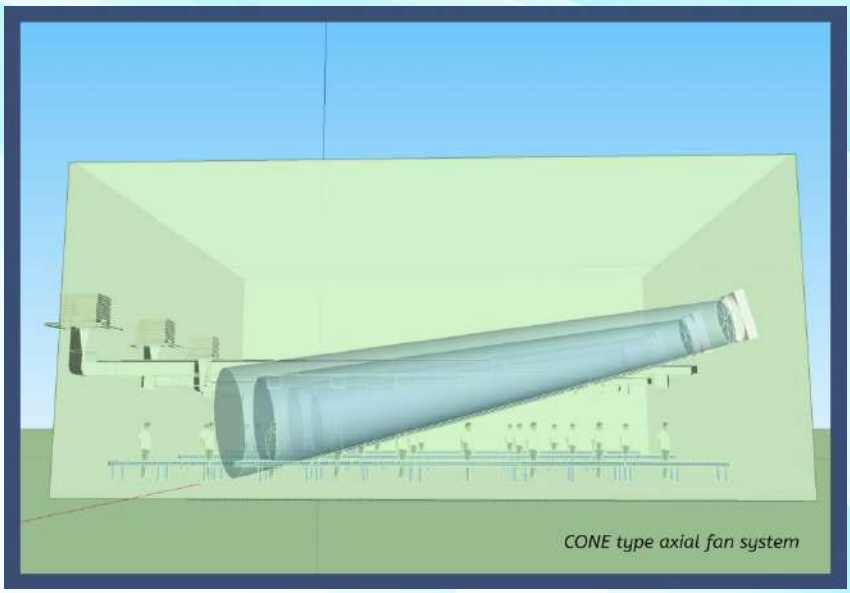


CONE type axial fan system

This system drives airflow towards a single direction, approximately 60 to 80 feet with minimum air turbulence.

It encourages constant airflow, creating a comfortable environment.

This type of installation method is generally used in warehouse corridor, production line workstation and locations that does not have relatively high ambient temperature.



CONE type axial fan system

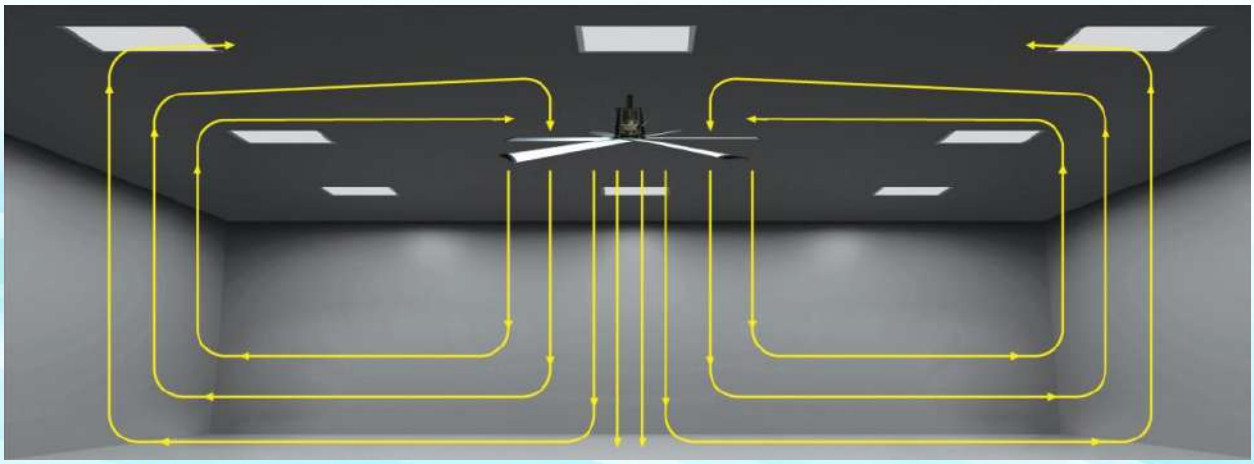
GENERATING AIR MOVEMENT

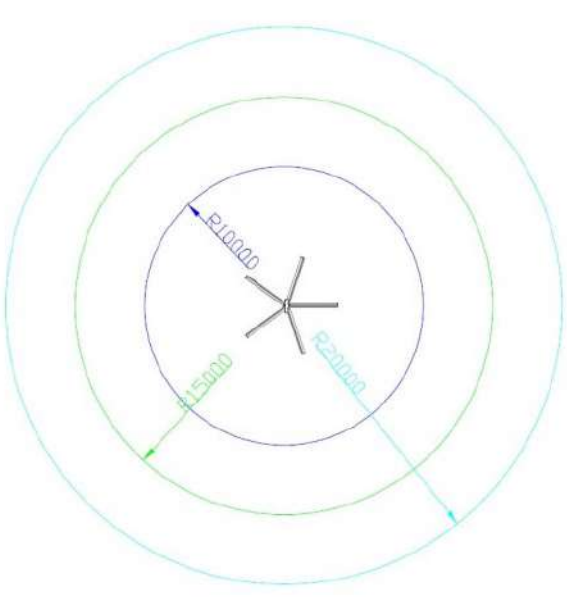
Generating a healthy air movement to a particular area, will help in the movement of stagnant air and in return decrease the sensible temperature and providing a much comfortable environment for occupants.

HVLS FAN
(HIGH VOLUME LOW SPEED)

HVLS fan is designed as a large diameter fan (12-24 feet) rotating at a low speed, which is capable of moving and circulating large volume of air in an enclosed space.

With our DC fan motor, delivering reliable and silent fan operation creating a comfortable environment.





Radius Coverage	Air Velocity at Full Power
0-10m radius	3-5.5 m/s
10-15m radius	2-4m/s
15-20m radius	1.2-2m/s

This velocity chart based on 24 feet diameter HVLS with 7 meters height

GENERATING AIR MOVEMENT

Generating a healthy air movement to a particular area, will help in the movement of stagnant air and in return decrease the sensible temperature and providing a much comfortable environment for occupants.

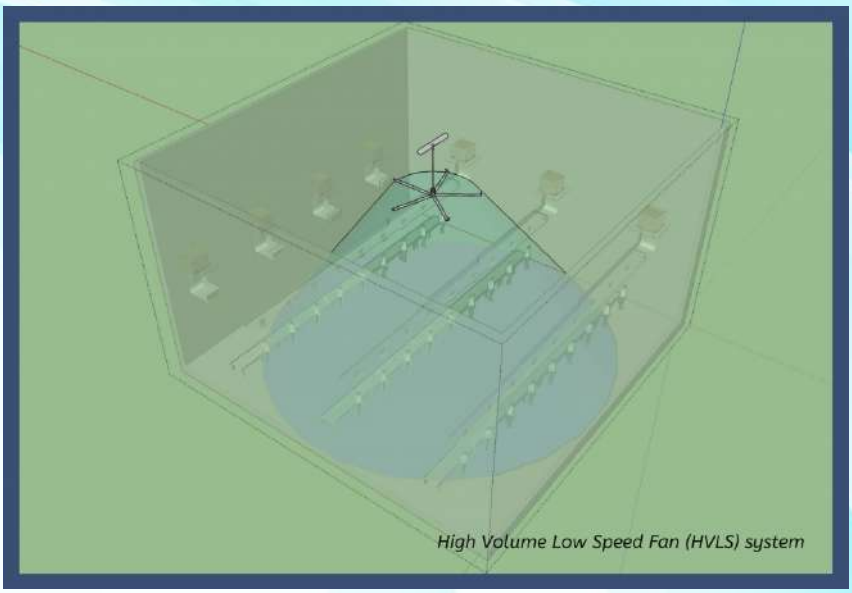
HVLS FAN
(HIGH VOLUME LOW SPEED)

High Volume Low Speed Fan (HVLS) system

HVLS Fans are recommended to be applied in open space locations which have minimum heat input locations.

Air circulation created by the HVLS Fan covers an approximate area of 4000 sqft to 8000 sqft depending on model and installation height.

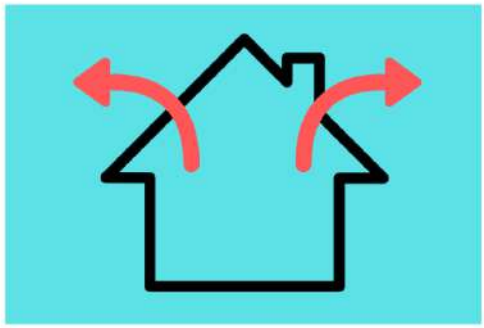
HVLS Fans can be hung from the ceiling or installed inverted, minimising the floor space required in comparison to normal Industrial Stand Fan, enabling our customers to have a better floorspace layout arrangement.



High Volume Low Speed Fan (HVLS) system

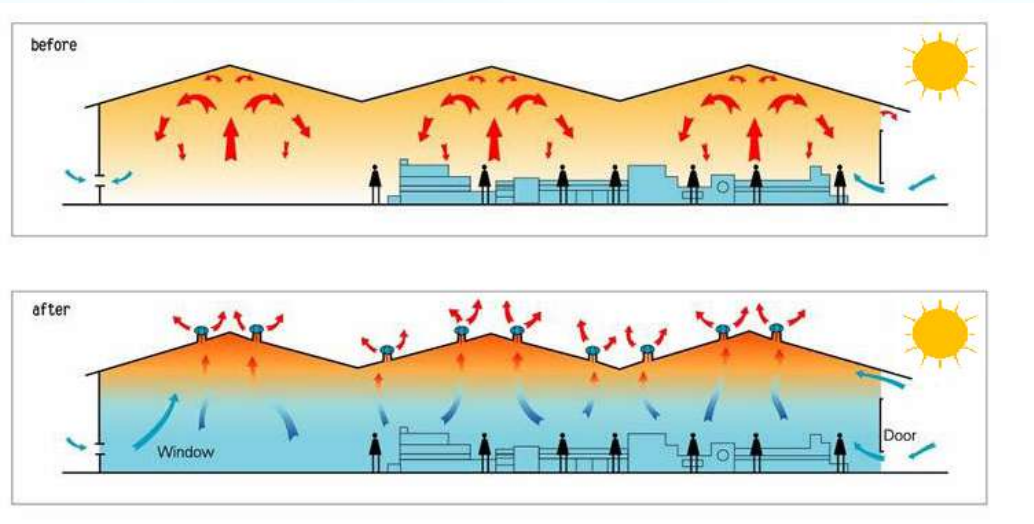
DISPLACING EXHAUST AIR

To create an exhaust system, we will need to create a negative pressure environment to extract air from a location to remove heat, odour, dusty and stuffy air.

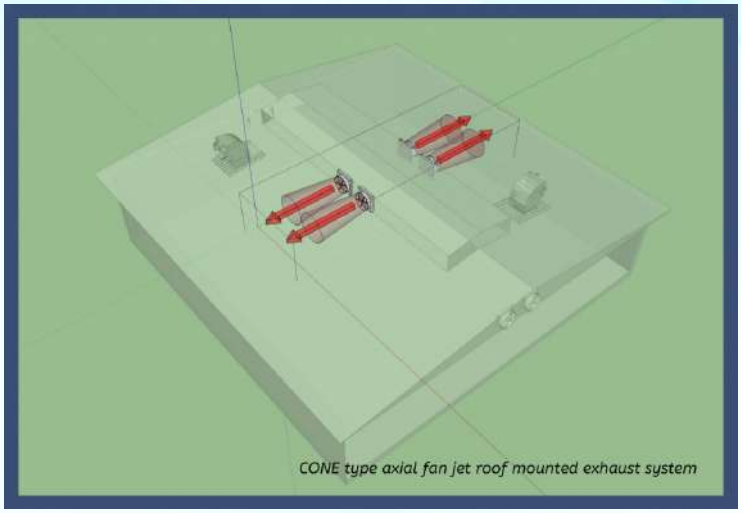


EXHAUST FAN SYSTEM (CONE TYPE FAN-ROOF SYSTEM)

A proper heat extraction is important to keep a building cool, especially on the roof level. By removing the heat accumulation layer in the building, internal temperature will gradually decrease. A poor ventilated building will cause the build-up of heat accumulation and eventually lead to the increase of the temperature inside a building. In turn causing the area to have high humidity issues, increase in air borne particles and the existence of unwanted odour.



Proper roof ventilation will significantly decrease the heat accumulation layer, improving ventilation and comfort level.

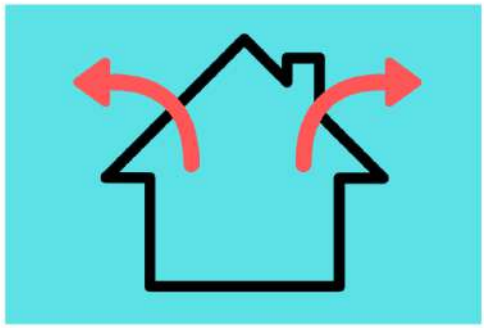


Jet-roof install mode

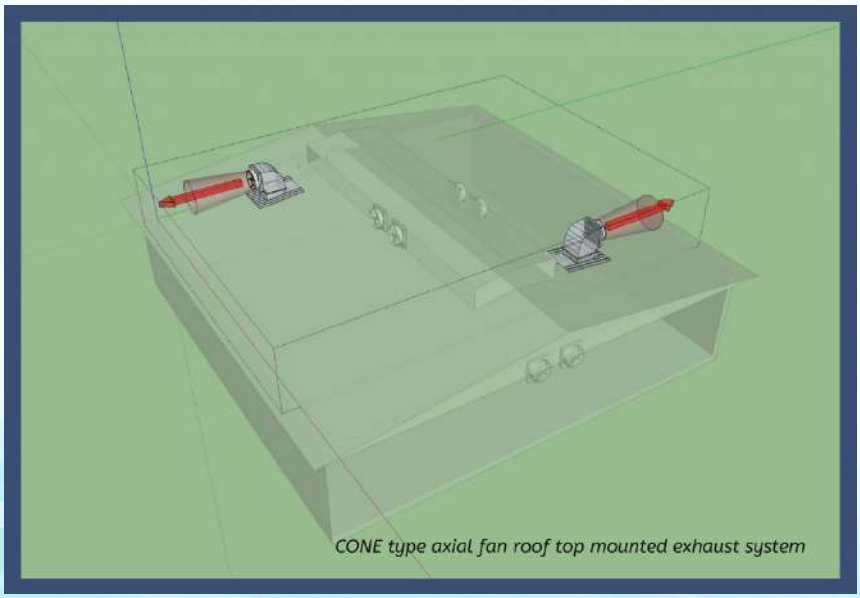
The most economical and effective way to exhaust the heat layer at the highest point.

DISPLACING EXHAUST AIR

To create an exhaust system, we will need to create a negative pressure environment to extract air from a location to remove heat, odour, dusty and stuffy air.



CONE TYPE FAN ROOF EXHAUST SYSTEM



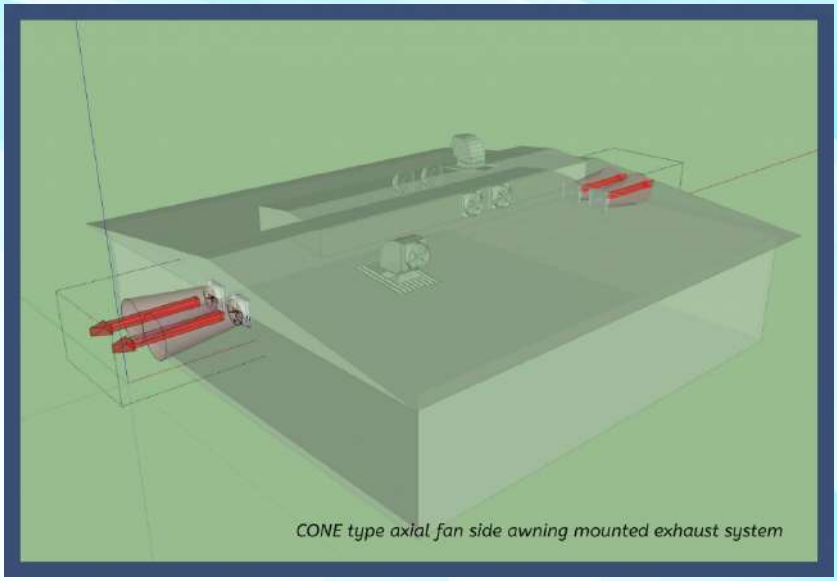
CONE type axial fan roof top mounted exhaust system

Roof Adaptor Installation Method

For buildings without jack roof, this method will be applied. With the same theory, where heat accumulation layer will be removed and rejected outdoors.

Facial Awning Installation Method

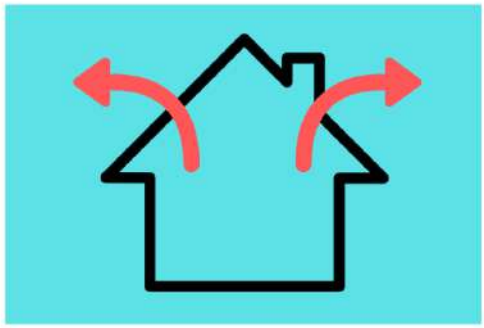
This is the most direct approach to exhaust fan installation, however this is not the most efficient heat rejection method since it is not installed at the highest point of the building. Only advisable when other methods of installation are not permissible.



CONE type axial fan side awning mounted exhaust system

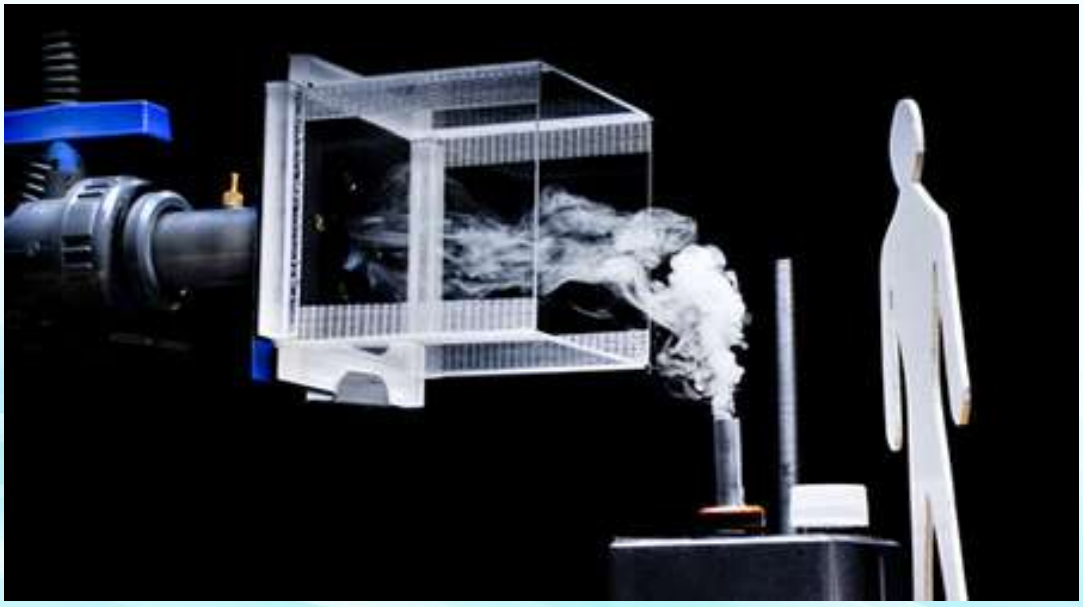
DISPLACING EXHAUST AIR

To create an exhaust system, we will need to create a negative pressure environment to extract air from a location to remove heat, odour, dusty and stuffy air.

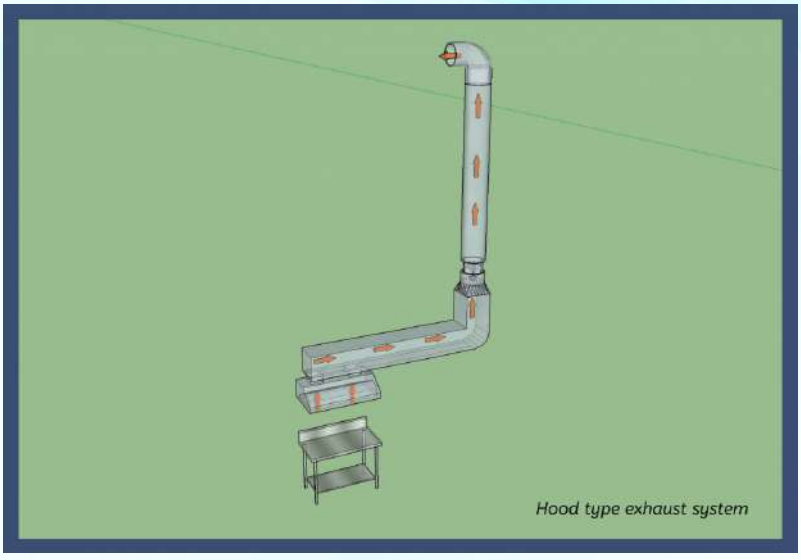


LOCAL EXHAUST VENTILATION (LEV)

Local Exhaust Ventilation (LEV), is a term used to extract dust, vapour or fumes from a targeted local area. Poor LEV system will lead to harmful consequences, with this application harmful fumes will be removed from the general working space, creating a much safer environment to work in.



LEV system is working to remove harmful fumes from the targeted workspace.

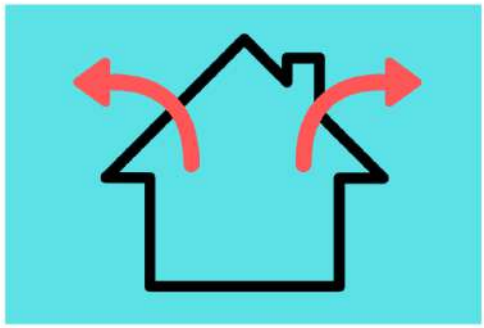


Hood is an integral part of a performing LEV system.

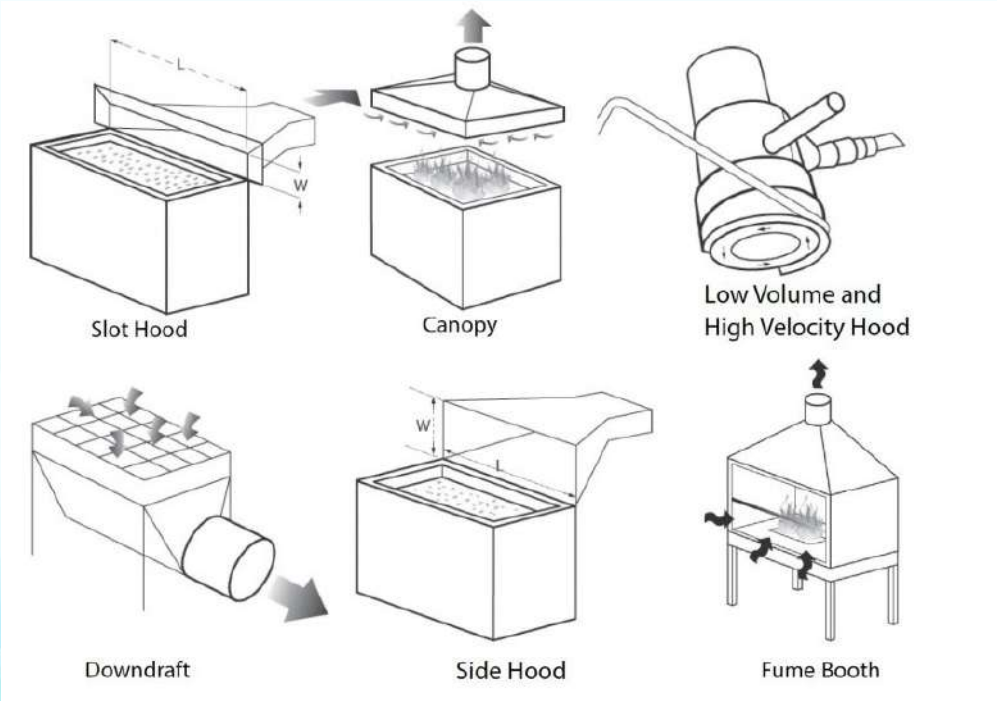
Whereby design is based on the process requirement & application, refer to following diagram for sample of hood setup.

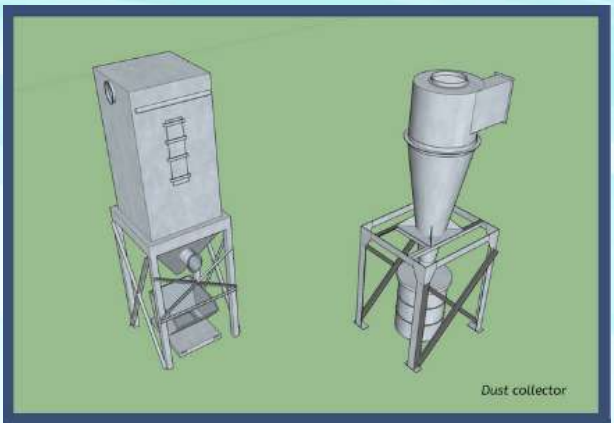
DISPLACING EXHAUST AIR

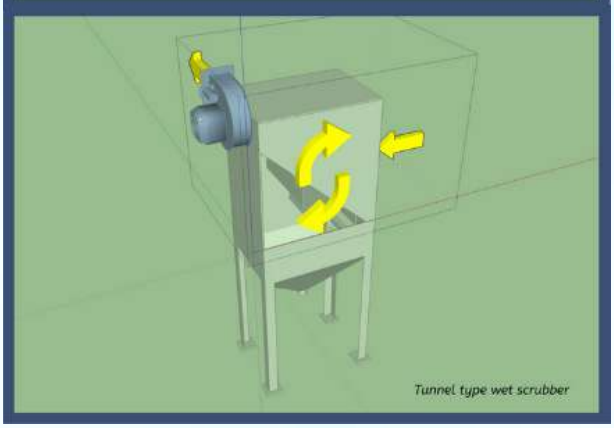
To create an exhaust system, we will need to create a negative pressure environment to extract air from a location to remove heat, odour, dusty and stuffy air.



LOCAL EXHAUST VENTILATION (LEV)







Dust Collector is a system used to filter out harmful particles & impurities before the air is release back to the atmosphere.

Systems are designed to handle high volume of dust load, either via master duct system or standalone system.

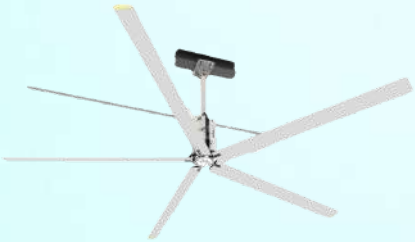
Types of dust collectors:

- Inertial Separators
- Fabric Filters
- Wet Scrubbers
- Unit Collectors
- Electrostatic Precipitators

OUR CORPORATE CLIENTS





CORPORATE CLIENTS

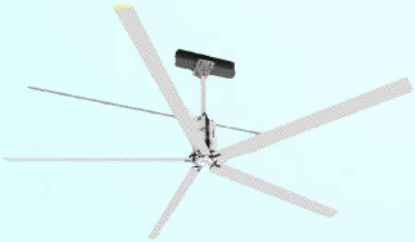
These are the clients we serve.

LEE BISCUITS (PTE) LTD.

OUR PROJECT SAMPLES





PROJECT SAMPLES

Evaporative Air Cooler Direct Blow System








PROJECT SAMPLES

Evaporative Air Cooler Ducted Distribution System








PROJECT SAMPLES

Cone Type Flow Fan System

PROJECT SAMPLES

High Volume Low Speed (HVLS) Fan

PROJECT SAMPLES

Cone Type Flow Fan Roof Exhaust System

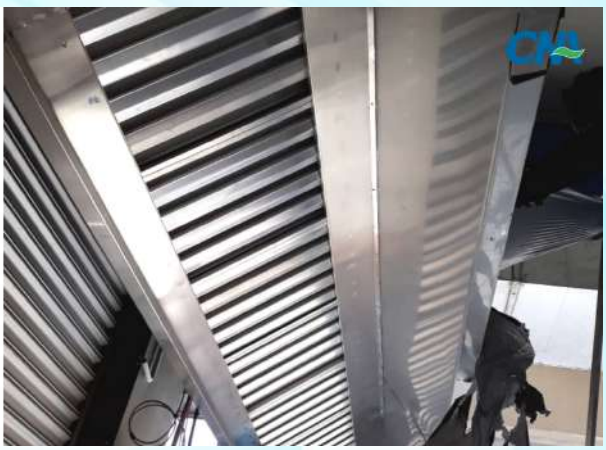
PROJECT SAMPLES

Local Exhaust Ventilation (LEV)







Pulau Pinang Office (HQ)

Customer Service: +6019-4003339

Sales: +6013-5846123

Email: admin@cna.my / sales1@cna.my

35 & 37, Lorong Industri Ringan 1, Kawasan Perindustrian Juru, Simpang Empat, Pulau Pinang, 14100, Malaysia.

Kuala Lumpur Office

Customer Service +6019-3537339

Sales: +6019-6697339

Email: admin4@cna.my / sales@cna.my

No. 16 , Jalan Metro Perdana Timur 11,Taman Usahawan Kepong, 52100, Kuala Lumpur, Malaysia.

Johor Bahru Office

Customer Service +6012-5216123

Sales: +6019-2602727

Email: admin2@cna.my / sales3@cna.my

No 22 & 22A, Jalan Paprika 2, Taman Pulai Hijauan, 81300, Johor Bahru, Malaysia.