TOOT MNE TECH PRIVATE LIMITED
Manufacturers of Commercial Air Conditioners

Looking to keep COVID–19 out of workplaces?

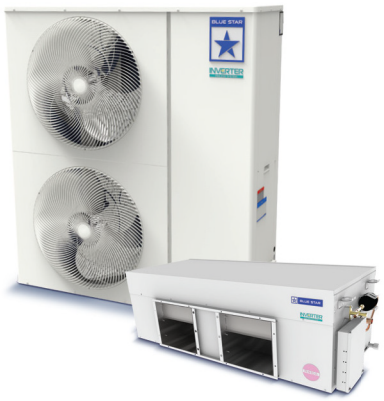
A DUCTED AC SYSTEM CAN HELP.

The COVID–19 virus can cause respiratory tract infections that range from mild to lethal in intensity. The size of the virus is extremely small in the range of 80–160nm. In comparison, a PM 2.5 particle is 2500 nm in size.

From the scientific research available as of today, the virus is transmitted through both aerosols and droplets. However, while studies are still underway, the majority of the transmission is through the cough and sneeze of an infected person in the form of droplets. Because these relatively heavy droplets land on surfaces, contact transmission is high in COVID–19. The droplets travel a distance of 1–2 meters, depending on their size, and fall on surfaces and objects, where they remain active for hours and up to 2–3 days, depending on the material. People can get infected by touching these contaminated surfaces or objects; and then touching their eyes, nose or mouth. If people are standing within 1–2 meters of an infected person, they can be infected by breathing–in droplets sneezed or coughed out or exhaled by them. In low humidity conditions (RH < 40%), small virus droplet nuclei are formed from the droplets in the air, which shrink in size due to the process of evaporation and desiccation. These smaller particles can remain airborne for hours. Other than cough and sneeze generated aerosols, dust particles in the air can also carry the virus.

Why are Ducted Air Conditioning systems safe?

Ducted Air conditioning systems are safe and in fact beneficial to use in Commercial applications and public spaces. Air conditioning systems control both temperature and humidity in the conditioned space. This increases human resistance to infections which is highly beneficial in the current pandemic scenario. Contrary to the general perception that it is a closed–air system, these systems are in fact well–ventilated. A standard central air conditioning system design includes a mechanical ventilation cum filtration system that draws in adequate fresh air. The system also maintains Relative Humidity between 40% – 70%, which is ideal for avoiding the propagation of the Covid–19 virus.



Ducted Air conditioning Systems:

There are two types of Ducted Systems:

- Ducted Split Air Conditioning system with a ceiling suspended indoor unit and an outdoor condensing unit.
- Packaged Air Conditioning system with a floor mounted indoor unit and an outdoor condenser unit.

Recommended Operating Guidelines

TOOT MNE recommends the following operating guidelines for Ducted AC systems:

Temperature

Temperature may be set at around 26°C.

Fresh air ventilation

Increase the quantity of fresh air to two air changes per hour in the current pandemic scenario. This can be achieved through a number of ways:

- Increase the Fresh air cut–out provisions suitably
- Providing additional Fresh air Fans
- The Toilet Exhaust Units should be run throughout the operation of HVAC system.

Heat Load & Cooling Capacity

Two air changes will increase the heat load. By raising the set temperature and with social distancing compliant occupancy upto 50%, the heat load is expected to remain roughly the same. Most systems will therefore not require cooling capacity augmentation or redesign. It is however recommended to re–evaluate the existing system design and you may contact Blue Star for any support in this regard.

Operation during non–working hours

It is recommended to operate the Ducted System in fan mode even during non–working hours along with fresh air ventilation. In case the system cannot be run on fan mode 24/7, we recommend that the system is run at least two hours before the premises is open for occupants. This will facilitate effective filtration of air while the power consumption in fan mode will be much lower.

Regular maintenance

- Duct cleaning should be done on a regular basis. Removing the accumulated dirt and dust inside the ducts periodically will help to eliminate contamination. It is also advisable to clean grilles and diffusers.
- It is advisable to clean filters in all IDUs at regular frequency using 5% Cresol solution (containing 50% Cresol and 50% Liquid soap solution)
- Condensate drain pans, cooling and heating coils must be cleaned regularly. Louvers on toilet doors which are designed as part of exhaust systems need to be cleaned regularly.
- It is also advisable to frequently sanitise various items like switches, panel handles etc. as the same may be touched and operated with human hands.

UVGI (Ultraviolet Germicidal Irradiation)

Customers can additionally opt for special treatment of air:
UVGI treatment can kill or de–activate microorganisms by damaging the structure of nucleic acids and proteins. Proper selection of an UVGI system with adequate intensity is required.

In conclusion, **Ducted Air Conditioning systems** control temperature, relative humidity and ventilation which can reduce the air borne concentration of COVID–19 and reduce the risk of transmission through air as compared to other conventional methods.

By following the operating guidelines and maintenance protocols explained in this bulletin, building owners and occupants can be assured of a safe and comfortable environment.

Please feel free to contact TOOT MNE for any support duringthese challenging times: TOOT MNE