BLUE STAR

A VRF AIR CONDITIONING SYSTEM IS NOT JUST SAFE.

IT'S RECOMMENDED.

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 ranging from 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 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 VRF AIR CONDITIONING SYSTEMS SAFE?

VRF 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.

VRF AIR CONDITIONING SYSTEMS:

VRF systems may have 3 types of Indoor Units (IDUs) connected to a common out door unit:

1. Ductable IDU
2. Air–handling Unit
3. Non–ducted IDU
   (Hide–away, Hi–wall and Cassettes Units)

Treated fresh air units are provided in a few installations which are connected to the VRF outdoor unit.

SAFETY MEASURES

TEMPERATURE:

Set the VRF AC unit to the ideal temperature of 26°C.

FRESH AIR VENTILATION:

- Increase the fresh air cut-out provisions suitably for ductable IDUs and AHUs.
- Provide additional fresh air fans for ductable IDUs and AHUs.
- Provide additional TFA systems feeding fresh air for high wall or cassette type of indoor units.
- Run toilet exhaust units 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 up to 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. Please contact Blue Star for any support with this.

OPERATION DURING NON–WORKING HOURS:

It is recommended to operate the indoor units of the VRF system in fan mode 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:

- Routine duct cleaning should be practised. Removing the accumulated dirt and dust inside the ducts periodically will help eliminate contamination.
- Clean grilles and diffusers often.
- Clean filters in all IDUs frequently using 5% Cresol solution (containing 50% Cresol and 50% liquid soap solution).
- Clean condensate drain pans, cooling and heating coils regularly.
- Frequently sanitise high–touch surfaces like switches, remotes, panel handles etc.

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 a UVGI system with adequate intensity is required.

In conclusion, VRF 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 reach out to our team at Blue Star for any support during these challenging times:
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