



THE APPLICATION OF PORTACOOOL PORTABLE EVAPORATIVE COOLERS AND HOW IT RELATES TO COVID-19

Portacool evaporative coolers can prove to be beneficial during the COVID-19 pandemic by replacing stagnant air with fresh air and reducing heat stress on building occupants. Both of these factors are beneficial as explained hereafter by respected industry regulators and advisors.

Eurovent, Gen – 1105 refers

GEN - 1105.00. In this GENERAL Document, Eurovent presents general and basic recommendations on the operation of ventilation systems during the coronavirus pandemic. The following document also provides additional sources of information on COVID-19.

"Recommendations

There is no doubt that the concentration of the smaller airborne droplets, which may contain viruses including viruses other than SARS-CoV-2 [COVID-19] should be kept as low as possible. This can be effectively achieved by correctly operating mechanical ventilation systems.

Precautions

With this background, the general Eurovent recommendation is to maintain and operate ventilation systems properly in accordance with instructions and applicable hygiene standards. As a precaution for the pandemic risk period, the following measures may be useful:

- 1. Increase ventilation rates and increase the percentage of outdoor air in the system*
- 2. Extend the operation time of the ventilation system*
- 3. Check that the ventilation units are properly set up and they are serviced correctly in accordance with the manufacturer's instructions*
- 4. Consider maintaining the indoor relative humidity above 30% (where possible)"*

Eurovent, COVID-19: Regular and correct maintenance of ventilation systems, Brussels, Eurovent, 2020

ASHRAE Position Document on Infectious Aerosols refers:

"On the recommendation of the ASHRAE Epidemic Task Force, ASHRAE leadership has approved the following two statements regarding transmission of SARS-CoV-2 and the operation of HVAC systems during the COVID-19 pandemic.

Transmission of SARS-CoV-2 [COVID-19] through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.

Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 [COVID-19] and thus the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus."

ASHRAE, ASHRAE Position Document on Infectious Aerosols, Atlanta, ASHRAE, 2020

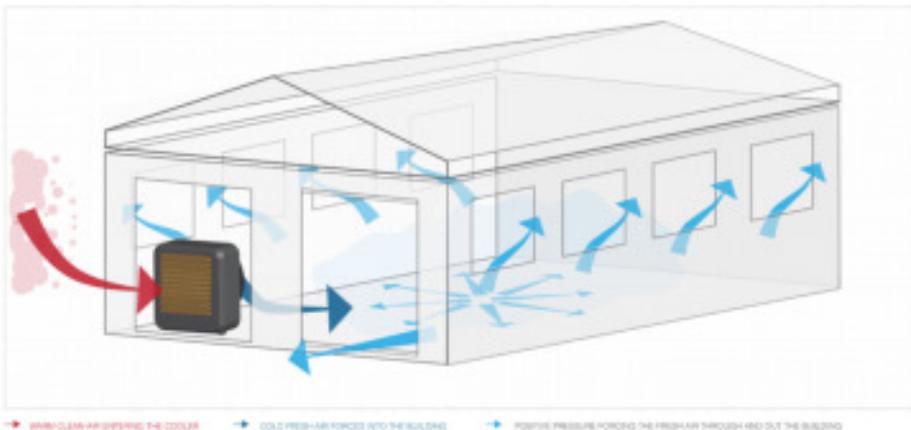
Portacool portable evaporative coolers provide fresh air and cool solutions

Portacool portable evaporative coolers, use water to cool air naturally. This cooling process takes place inside the Kuul Comfort™ evaporative media. As the hot air passes through the media, water molecules are evaporated for cooling. When operated properly, Portacool evaporative coolers do not produce any mist, fog or spray water.

In a Portacool evaporative cooler, water is pumped over the Kuul Comfort evaporative media from a built-in reservoir. As demonstrated by the sketch below, when external air is pulled through the media with the use of a powerful fan located inside the housing, the interaction between water and air causes the water to evaporate and heat to be removed from the air. The result is fresh and cool air being distributed into the workspace from the front of the evaporative cooler.

Positive pressurization of a building with a Portacool portable evaporative cooler can aid to exchange old air in the building, not only to cool the space, but replenish the space with fresh air.

If a Portacool evaporative cooler is placed at a doorway of a building as shown in this sketch, the cooler forces air directly into the building, pressurizing the building and forcing the older air out of open windows or doors as shown.



For air exchange to take place the physics are simple, the room must:

1. Be supplied by over-pressure air where the additional air needs to escape, through doors or windows, or
2. Be assisted by extractor fans, where air is supplied by the Portacool cooler and extracted by another ventilator in the ceiling or wall.

With Portacool portable evaporative coolers, the recommendations of Eurovent and ASHRAE are considered as follows:

- Replace air - fresh and cool air is forced into the space creating over-pressure in the space allowing air to be replenished.
- Reduce heat stress – Cool air is introduced, keeping the building occupants cool.