

## Business announcement

### Recommendations for the operation and maintenance of ATREA ventilation units to reduce the risk of SARS-CoV-2 infection in areas with ventilation

#### Introduction

Ventilation units provide a controlled supply of fresh, uncontaminated air while extracting waste, potentially contaminated air. This significantly reduces the concentration of all particles including viruses in air in buildings, reducing the risk of airborne disease infection including coronaviruses.

In order to minimize the risk of coronavirus infection (e.g. the SARS-CoV-2 virus which causes COVID-19 disease) we recommend observing the rules below during the operation and maintenance of DUPLEX ventilation units.

#### Ventilation unit operation

- **Prevent the contamination of outside supply air**
  - Air brought in by the ventilation unit must not be contaminated by discharge air.
  - The supply of fresh air must not be contaminated by droplets containing the coronavirus. During sneezing, coughing and speaking droplets from an infected person fall to the ground over the distance of several metres.

If the air brought in by the ventilation unit does not contain viruses, they are not going to be contained in the entire supply section of the ventilation unit as a result.

**Increase ventilation intensity.** Increased ventilation intensity means an increased volume of supply fresh air which subsequently “dilutes” the air already contained in the area being ventilated. Simultaneously, waste air is being extracted at the same rate, which further decreases the concentration of any viruses and lowers the risk of infection. Therefore, we recommend airing indoor areas with fresh air as much as possible. The efficiency of this system was proved for instance during flu epidemics when the rate of infection was significantly lower in ventilated areas such as schools and nurseries due to the reduced indoor concentration of viruses.

- **Do not use air circulation.** Exhaust air must be discharged outside without being brought back into the building. This applies in particular to commercial buildings where air extracted from one room might be distributed to other rooms.
- Switching off the air circulation function in ventilation systems in houses and flats is irrelevant; as household members come into frequent and intensive contact with each other anyway, infection would still occur by other means.

- If you have a DUPLEX unit **with a counter-flow or cross-flow exchanger, you can still use the heat recovery function**. These heat recovery exchangers are safe in terms of the possible penetration of extraction air into the supply air stream.
- **We recommend not switching off your ventilation unit**. If permanent ventilation at at least minimum ventilation power rates is provided, the concentration of any viruses inside your building will be continuously diluted, reducing the risk of infection.
- If a ventilation unit cannot be operated permanently, we recommend making sure it runs long enough at least before and after the operation hours of the building.
- Atrea s.r.o. agrees with the statement of international industry organizations REHVA and Eurovent that viruses (including the coronavirus) do not reproduce in ventilation systems and as such cannot spread there. From this perspective, the disinfection of the surfaces of air handling systems is unnecessary.

## Ventilation unit maintenance

- **Do not change the interval of supply and exhaust filter replacement**
  - As long as viruses are not contained in the supply section of your ventilation system, they will not be captured by the supply filter.
  - The exhaust filter might capture particles which have virus particles attached to their surface. However, as a matter of biological principle viruses can only reproduce through host cells (in this case human cells) and therefore cannot reproduce anywhere else – on the contrary, they gradually die off. If we would like to prevent the penetration of viruses through air handling units, we would have to use HEPA H13 Class filters as a minimum as these filters are able to capture virus-size particles (in the case of the coronavirus it is 120 nanometres, which is 0.000120 mm). However, such filters are only used in areas with extreme cleanliness requirements such as operating theatres, and their installation is not realistic in standard applications for several reasons including pressure drop, operating costs and life spans.
- Used exhaust filters might contain large particles of dust with viruses attached to their surface. When replacing filters it is necessary to use PPE (a safety coat, a face mask and safety goggles). Used filters must be placed in airtight packaging and disposed of safely. .
- Clean air ducts at the same interval as before.

Jablonec nad Nisou, 21 April 2020

## Source / more information

Federation of associations REHVA <https://www.rehva.eu/activities/covid-19-guidance>.  
Association EUROVENT <https://eurovent.eu/?q=articles/covid-19-regular-and-correct-maintenance-ventilation-systems-gen-110500>  
Society of Environmental Engineering: <http://www.stpcr.cz/cz/rehva>