

Additional guidance for use of fan coils and avoiding recirculation

REHVA guidance to avoid central recirculation during SARS-CoV-2 episodes and apply measures for the use of fan coils has created a large number of questions. In the following some additional guidance is provided.

In air systems and air-and-water systems where central recirculation cannot be avoided, the outdoor air fraction has to be increased as much as possible and additional measures are recommended for return air filtering. To completely remove particles and viruses from return air, HEPA filters would be needed. However, due to a higher pressure drop and special required filter frames HEPA filters are usually not easy to install in existing systems. Alternatively, duct installation of disinfection devices, such as germicidal ultraviolet (GUV, or UVGI - ultraviolet germicidal irradiation) can be used. It is important that this equipment is correctly sized and installed. If technically possible it is preferred to mount a higher-class filter in existing frames and to increase exhaust fan pressure without reducing airflow rate. A minimum improvement is replacement of existing low efficiency return air filters with ca 80% ePM1 (F8) filters. These filters have a reasonable capture efficiency for virus laden particles (capture efficiency 65-90% for PM1).

In rooms with fan coils only or split units (all-water or direct expansion systems) the first priority is to assure adequate outdoor air ventilation. Usually, in such systems mechanical ventilation is independent from the fan coils or split units and two options are possible to assure ventilation:

1. Active operation of window airing together with the installation of CO₂ monitors as an indicator of outdoor air ventilation;
2. Installation of standalone mechanical ventilation system (either local or centralised, according to its technical feasibility). This is the only way to ensure a sufficient outdoor air supply in the rooms at all times.

If option 1 is used, CO₂ monitors are important, because fan coils and split units with both cooling or heating functions improve thermal comfort and it might take too long until occupants perceive bad air quality and lack of ventilation.

Fan coils may need additional measures as follows:

1. Fan coils, chilled beams and other induction units equipped with (primary) ventilation supply air (air-and-water systems), i.e. ventilation is implemented, do not need any specific measures, just increase as much as possible the primary air ventilation rate;
2. Fan coils only and split units in single office rooms and homes do not need any measures other than regularly airing the space;
3. Fan coils only and split units in common spaces (larger rooms with fan coil or split units occupied by many persons) are recommended to be continuously operated so that the fans of these units will not be switched off but are continuously in operation at low speed. If such control adjustment is not possible, the units have to be forced to operate. During the occupancy hours, leave the windows partially open (if operable) to ensure a certain degree of ventilation.

Colophon

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