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COVID-19 Recommendations for Healthcare Facilities related to Air Filtration and Ventilation

Recommended action for the specification, purchase, installation, operation and maintenance of air filtration systems in critical healthcare appliances

Eurovent Middle East, as the region's industry association for Heating, Ventilation, Air-Conditioning and Refrigeration (HVACR) equipment manufacturers, is encouraging healthcare facilities to carefully observe the following recommendations by the industry to reduce the risks related to the spread of airborne viruses through air filtration and ventilation systems and properly instruct all personnel involved in the specification, purchase, installation, operation and maintenance of such systems.

General Considerations

Incorrect filters, filters with low filtration efficiency, as well as not maintained or sub-standard ventilation systems can severely accelerate viral infections and turn a healthcare facility into a transmission hot spot. In the following, Eurovent Middle East outlines basic recommendations, which directly bear on the spread of viruses and the well-being of patients in healthcare facilities. These recommendations are based on international industry standards and should give guidance to best practises in relation to air filtration and ventilation in the current crisis.

Air Filtration

Specification of Air Filters for critical applications

In high risk environments, which include laboratories, hospitals, isolation rooms and quarantine space the use of HEPA (High-Efficiency Particulate Air) filters is mandatory! Order an inspection of the air filtration system in place and ensure that a HEPA filter is installed. Call for an expert to assess filtration systems if you are not sure.

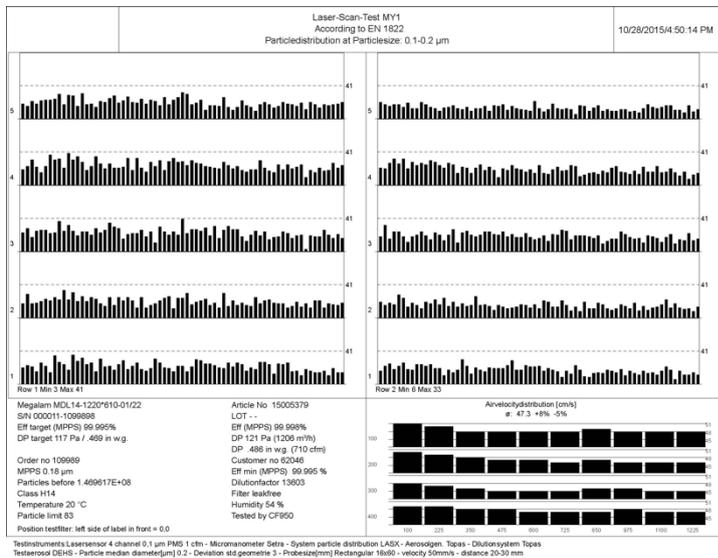
HEPA filters also should feature a dedicated containment system (so called Bag-in-Bag-out) to facilitate their replacement without physical contact with contaminated material.

Purchasing of Air Filters

Many HEPA filters on the market do not fulfil international standards (EN1822:2009, IEST-RP-CC001) and do not guarantee the filtration efficiency required to conform. Unfortunately, many suppliers in the market are not aware of standards and the serious impact this can have on the health of many people. Fake test reports or certificates are common!

Usually, each single HEPA filter is tested according to standards by the manufacturer before dispatching and comes with a test report and a label showing the test results. Look for genuine products of international manufacturers and request a copy of the actual test report, which should reference test airflow, resistance and penetration.

If you are in doubt, contact our association at office@eurovent.me. We will help you to assess if test reports are genuine.



Installation of HEPA filters

HEPA filters must not be altered to made fit for an existing system. The filter needs to be manufactured accordingly. Cutting, bending or any other alteration done incriminates tightness and renders the filter useless! Only skilled people applying proper care shall install HEPA filters without damaging them.

After installation an integrity check of the filtration system is required. Call for independent assessment or commissioning to ensure the filtration system is working as designed.

Operation of filtration systems

HEPA filters are effective in filtering viruses and bacteria, however, can be a breeding ground themselves for these contaminants due to humidity and materials. Regular decontamination by fumigation of the ventilation system and the ventilated space helps to keep HEPA filters and ventilation systems in order. Fumigation usually is done with vaporised hydrogen peroxide (VHP – H2O2) using mobile VHP generators (Steris, Bioquell, etc). Watch out that air supply to single rooms is decoupled from the Air Handling Unit during the process. Call experts to advise and introduce the procedure.

Maintenance of Air Filters

HEPA filters should be assessed and inspected for their integrity every 6 months and shall be replaced once reaching the indicated final pressure drop. Maintenance personnel dealing with HEPA filters must be specially trained to observe appropriate care. In case of absent containment systems, HEPA filters shall only be handled with protective wear (disposable glasses, masks, gloves and suits). They need to be treated as biohazards and disposed of according to international standards and regulations. In no cases they shall be allowed to be disposed as regular waste. The same of course applies to the protective wear of the maintenance personnel.

Some maintenance personnel are still found to wash air filters and put them back to service. This practice needs to be strictly forbidden. It is the operator’s responsibility to instruct their staff or contractors accordingly.

Ventilation Systems

In Intensive Care Units, where a positive air pressure in the room must be kept, the air filtration using HEPA filters need to be installed at the air supply side.

In Isolation rooms or other critical areas like laboratories, negative air pressure needs to be maintained to prohibit contaminated air to pass to the outside. No air shall be recirculated by the ventilation system without HEPA filtration and proper ultraviolet (UV) protection system. For such applications, the air filtration system needs to be installed at the air exhaust side, using HEPA filters with a Bag-In-Bag-Out containment system.

In rooms where no (e.g. rooms equipped with split air conditioners) or no adequate ventilation system is in place, the use of a stand-alone complete (including HEPA filtration!) air purification system is recommended. It combines particulate filters, gas-phase cassettes, and high efficiency filters to remove both airborne particles, virus, bacteria, fungus and moulds. It provides total clean air solutions by removing both airborne particulate and gaseous contaminants.

Cross contamination between different rooms need to be prevented at all costs. A regular detailed assessment of the ventilation system is recommended to ensure the integrity of the system and its proper functioning. These assessments need to be done by experts.

Exhaust air needs to be filtered by using HEPA filters before releasing the air into the environment.

Recommended Actions

Eurovent Middle East strongly recommends looking for expert advice in case of any doubts. The association can provide help and guidance to identify reliable suppliers and certified products. For requests contact office@eurovent.me.

Related documents and links

All related documents and articles can be found in the respective sections in the right sidebar.

- EME-GEN - 20004.00 - COVID-19 Recommendations for Air Filtration and Ventilation