CAMFIL ADDRESSES THE CORONAVIRUS PANDEMIC

Infectious Respiratory Illnesses

A research team has determined 800 million viruses per square meter land on the earth's surface every day. The vast majority have no effect on human health and many are essential for survival. Recently, a variation of a virus type known as corona, has been identified and named SARS-CoV-2. This type of coronavirus has been identified as being responsible for a respiratory illness disease since named COVID-19 and referred to as coronavirus.

The Centers for Disease Control (CDC) has determined the virus primarily spreads from person-to-person in close contact with one another or through respiratory droplets produced when an infected person coughs or sneezes. The droplets may come into contact with the eyes, nose or mouth or be inhaled by a healthy person nearby. A healthy person can also become infected by touching a surface where the expelled droplets recently settled and then proceeding to touch their eyes, nose or mouth.

The virus itself is very small, roughly 0.16 microns in diameter, and is contained within these respiratory droplets. Studies indicate droplets typically expelled by those suffering from respiratory infections range from the visible droplets we are all able to see, to those too small for our eyes. The invisible droplets range from 0.5 micron to a high of approximately 15 microns with most in the lower size ranges. Studies of other common viruses suggest droplets of 1.0 micron are capable of carrying enough virus to cause infections.

The size of the droplet, the quantity of live viruses it contains, the time it remains suspended in the airstream, even the temperature and relative humidity are all critical variables when considering the likelihood of airborne contamination. Studies in the years since other virus outbreaks have occurred suggest there is a possibility infections could occur over greater distances such as through ventilation ducts. There is no verified case of any such occurrence with COVID-19 at this time.

From a filtration point of view, the droplet is the particle that must be removed from the air. Recognized authorities have recommended filters with MERV ratings of MERV-13 or MERV-14 to accommodate normal operating conditions in public spaces such as commercial buildings and certain public areas within hospitals for example. While these stated filter efficiencies will offer some level of droplet capture, for individuals wishing to take additional precautions and further reduce their risk during this time, Camfil recommends the following air filtration solutions or their equivalent.

Note: An air filter is a single component within a larger and more complex HVAC system designed to accomplish the proper ventilation of a building. Increasing particle capture efficiency is not necessarily a singular solution to lowering the risk of infection. Air filters with higher capture efficiency ratings often have higher pressure drops which may reduce air changes per hour (ACH) and influence humidity as well. These filters may also be physically larger than lower rated filters, therefore it is important to verify that the HVAC system is equipped with the frames necessary to ensure an airtight seal and that the fan is capable of overcoming the added resistance. The MERV efficiency ratings listed are according to ASHRAE Standard 52.2 with Appendix J. Air filters tested and rated under Appendix J maintain their rated capture efficiency for the duration of their service life and will not degrade.

The most important step that can be taken to reduce your risk of contracting COVID-19 is to follow the preventive steps as outlined by The Centers for Disease Control (CDC) www.cdc.gov/coronavirus/2019-ncov/about/prevention-treatment.html and The World Health Organization (WHO) www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public.

Standard Risk Areas

For standard risk areas such as commercial office and retail buildings, schools, airports, manufacturing facilities, and areas not occupied by individuals confirmed with COVID-19, if the current configuration of HVAC ventilation system allows, the minimum efficiency recommended is a MERV 15/15A. To extend the service life, a prefilter of a lesser MERV rating should be installed upstream if possible. Healthcare facilities should refer to the most current version of ANSI/ASHRAE/ASHE Standard 170 for guidance.

Camfil recommends:

Prefilter: **30/30 Dual 9**

Followed by: **Hi-Flo ES or Durafil ES²**

Higher Risk Areas

For higher risk areas such as those that regularly house individuals in the CDC high risk category, areas in which individuals confirmed to have contracted COVID-19 occupy or for any other reason a higher level of protection is desired, if the current configuration of HVAC ventilation system allows, the minimum efficiency recommended is a 99.97% HEPA filter with appropriate prefiltration of lesser MERV value. Healthcare facilities should refer to the most current version of ANSI/ASHRAE/ASHE Standard 170 for guidance.

Depending upon system configurations, Camfil recommends:

Prefilter: **30/30 Dual 9, Hi-Flo ES or Durafil ES²**

Followed by: **Absolute VG®, Filtra 2000® or XH Absolute®**

30/30® Dual 9 **Durafil® ES²** **Hi-Flo® ES** **Absolute® VG**

Existing HVAC Ventilation Systems

Some existing HVAC ventilation systems may not be configured for multiple stage filtration or to withstand the higher pressure drop that comes with HEPA filters. As an alternative, consider adding a stand-alone room air purifier with a minimum of MERV 15/15A.

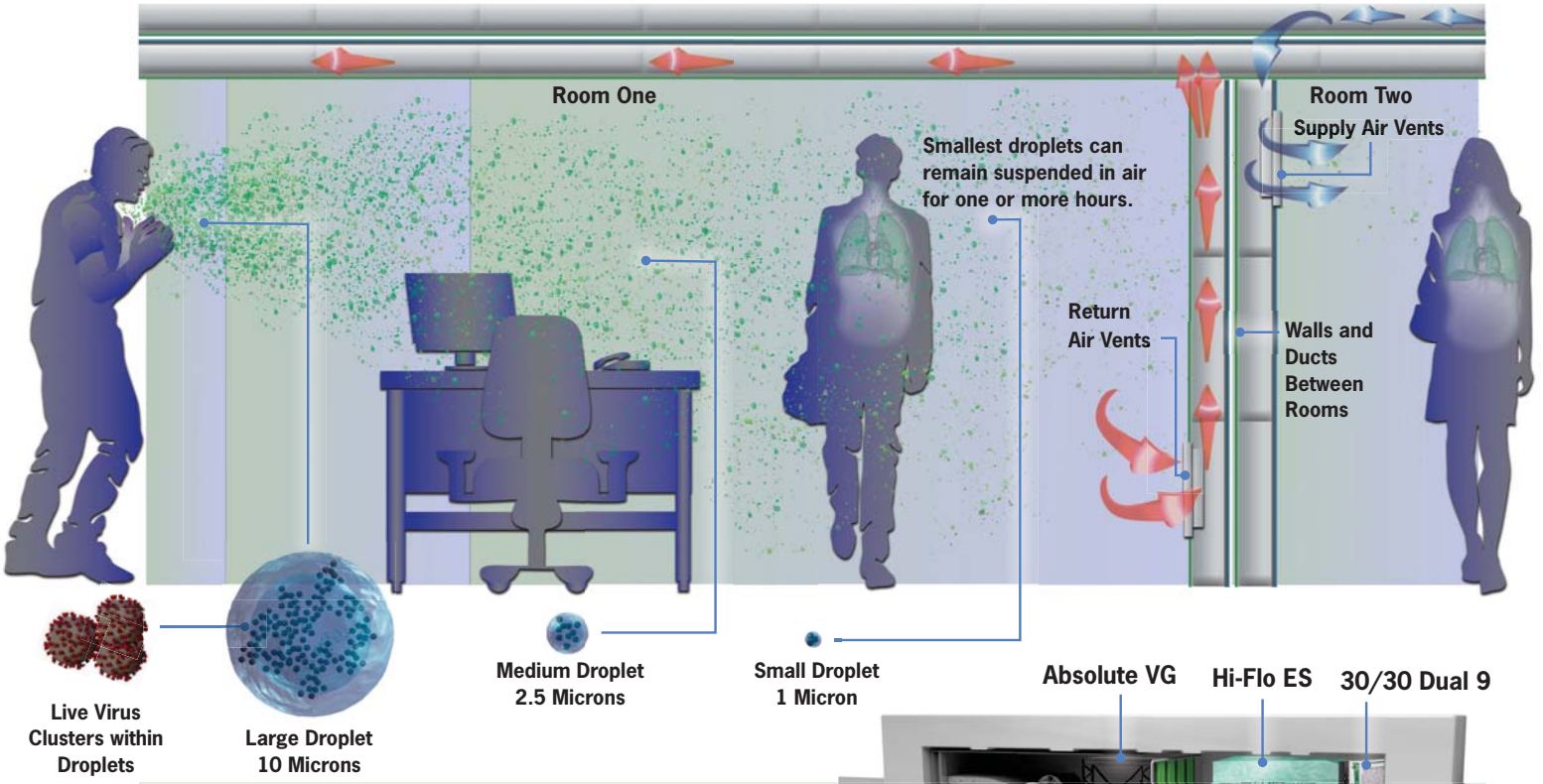
Camfil recommends:

City M Air Purifier.

The City M comes with both 99.95% HEPA filter and a molecular filter to control other gaseous contaminants.

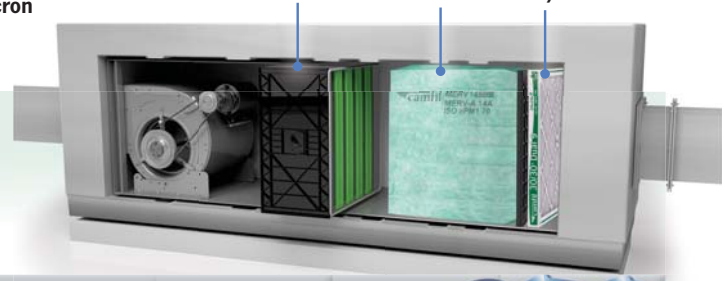
City M Air Purifier

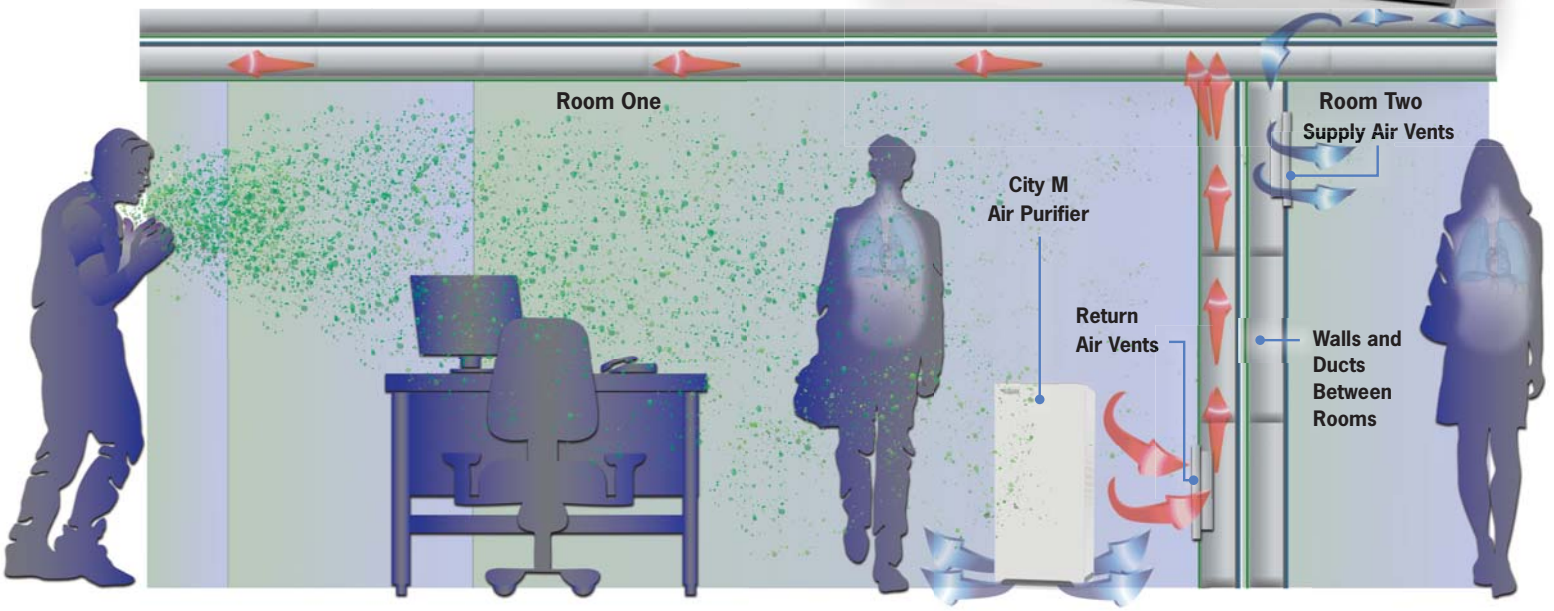
A Simple Sneeze, Pathways of Respiratory Droplets



Camfil, Clean Air Solutions

For higher risk areas, Camfil recommends:
Prefilter: **30/30 Dual 9, Hi-Flo ES or Durafil ES²**
Followed by: **Absolute VG, Filtra 2000 or XH Absolute**





The recommended solutions are not intended to be a comprehensive list. Each individual person or those responsible for the safety of building occupants must decide the appropriate level of risk and filtration solution suitable for their situation. It is recommended you consult with a qualified HVAC specialist to review all facets of building ventilation.

https://www.camfil.com/en-us/insights/life-science-and-healthcare/virus

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