COVID-19 Precautions for Commercial Buildings

Air Filtration Enhancements

Even though air filtration is not the silver bullet to stop the COVID-19 outbreak it is an important component of any Coronavirus (Sars-CoV-2) response. The CDC states that the main transmission method is through airborne droplet nuclei which confirms the importance of air filtration in the prevention of cross infection. When we also consider the number of people in commercial and government facilities then we realize the importance of our response to this threat.

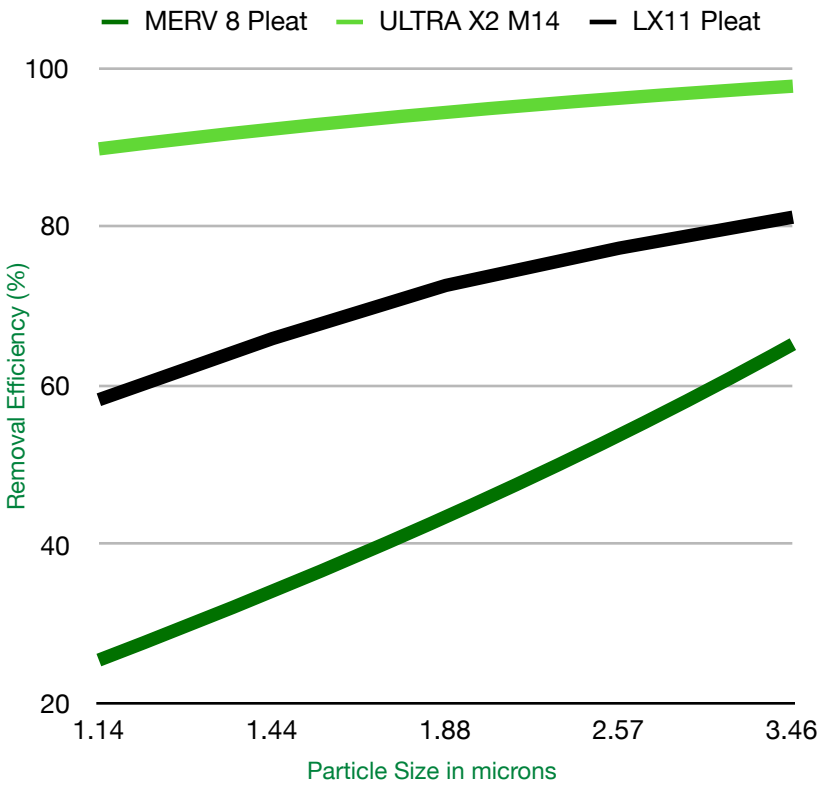
The particle size of viruses ranges from 0.05 to less than 0.005 microns but they typically attached to larger particles when airborne. These particles are generally around 1 micron in size. Viruses typically become airborne via droplet nuclei. Droplet nuclei are microscopic particles < 5 µm in size that are the leftover particles of evaporated droplets and are produced when a person coughs, sneezes, shouts, or sings. These particles can remain suspended in the air for prolonged periods of time and can be carried great distances on air currents.

A typical prefilter utilized is a MERV 8 pleated filter. We are recommending during the height of the outbreak that filtration be upgraded to a MERV 14. The chart to the top right shows the removal efficiency by particle size for a MERV 8 Pleat and a MERV 14 ULTRA X2 filter. As you can see there is a dramatic difference in removal efficiencies. This translates for every 1,000 one micron particles that reach the filter the MERV 8 will let 746 pass through the filter. The MERV 14 will let only 102 pass through - that's a reduction of over 86%.

The TRI-PLEAT LX11 was also included on the graph to allow for a similar comparison with upgrading from a MERV 8 pleat to a MERV 11 filter.

MERV 8 Pleat

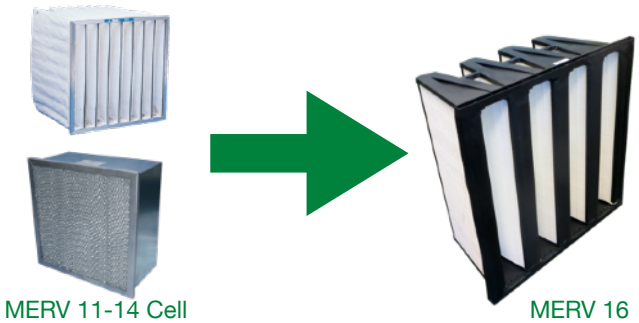
MERV 14
ULTRA X2



MERV 8 Pleat

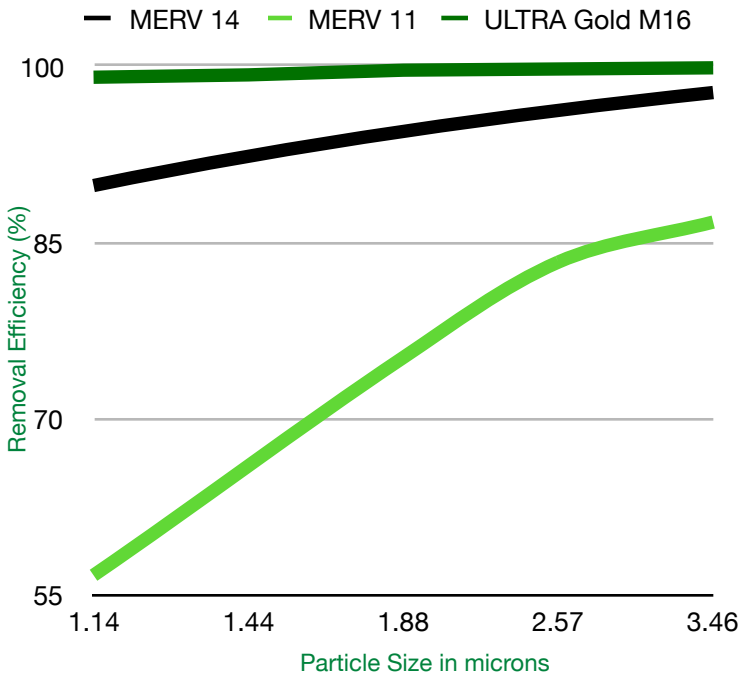
MERV 11
TRI-PLEAT LX11

A typical final filter (if part of your system) utilized is a MERV 11-14. We are recommending during the height of the outbreak that filtration be upgraded to a MERV 16. The chart to the top right shows the removal efficiency by particle size for a MERV 14 Cell compared to a MERV 16 ULTRA GOLD filter. If we look at one micron particles, as we did for the pleats, we see the MERV 14 will let only 102 pass through and the ULTRA GOLD will let only 10 particles pass through - that's a reduction of 90%.

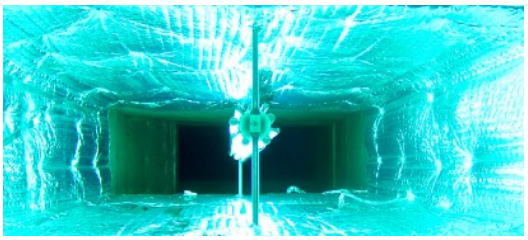


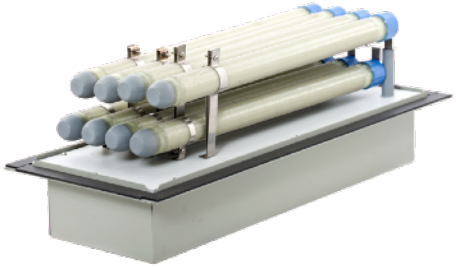
MERV 11-14 Cell

MERV 16
ULTRA GOLD



There are other technologies that can help control viruses - these include UV lights. UV air purifiers installed in the HVAC system, with an adequate germicidal dosage sized for the air flow, will destroy airborne viruses. The image lower left is the Bio-Wall In-Duct UV purification system.





Another technology is Bipolar ionization (BPI), Bipolar Ionization Technology is effective on various pathogens, including viruses. The picture above middle is the 500 Series In-Duct BPI.

In addition Tri-Dim offers the TRI-KLEEN 400UV that offers room purification with UV lights and HEPA filtration as well as the ability to create negative pressure in a room

These technologies as well as filtration upgrades will help reduce the airborne contaminants from the air but no technology can guarantee or completely protect anyone from becoming infected by the virus. Please contact your local TRI-DIM representative for more information.

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