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Since the emergence of Covid-19, the focus in clean air has shifted towards how viruses spread in poorly ventilated indoor environments. This article examines how HEPA filtration from Camfil can help protect buildings and those inside them.

Prior to Covid-19 the emphasis around clean air was about reducing the amount of outside air pollution that entered buildings and cleaning contaminants created from work processes. Over the past year, however, there have been different milestones that have shone a light on the importance of clean air.

Firstly, in July 2020, 239 of the world’s leading scientists wrote an open letter to the World Health Organisation (WHO), urging it to look at the possibility that Covid-19 was an airborne disease. In March 2021, the UK government, along with many across the world, added the words ‘Fresh Air’ to its Hands, Face, Space message. Finally in May 2021, the World Health Organisation acknowledged the fact that the primary Covid-19 transmission route was through the air. All these milestones made companies and people think more about the air that they breathe and how they could and should protect themselves and others.

Clean air
Since the growth in demand for clean air in buildings, different solutions have emerged onto the market claiming to be “a silver bullet”, but through all the noise there has been one technology that has been recommended by all bodies and that is HEPA filtration. HEPA filtration has been around for more than 50 years and has been used to capture 99.995% (H14) of even the smallest airborne contaminants in a single filter pass.

The problem Camfil sees within the market is that HEPA filtration is starting to become a generic term. Many different systems claim to use HEPA filters, but when you look for their
performance certificate (according to EN1822:2019) they are not tested individually. This means that poor filters are being advertised as the solution when their performance is not certified.

Upgrading buildings to higher levels of filtration is often the easiest task. In a building’s HVAC system, the filter is the main component that needs to be changed at regular intervals. Since the Covid-19 pandemic, guidelines have been released for filtration requirements. They say that buildings using 100% supply air only need to use ePM1 60% filters or above. In buildings that have recirculation air requirements a clear guideline is that HEPA filtration should be included to help protect the occupants of the building.

HEPA filtration in buildings can be used in two ways:

1) When there is sufficient airflow available, increasing the filter in a HVAC system to a HEPA filter can be completed with a simple HEPA filter installation.

2) The use of plug and play HEPA air purifiers in areas that do not have sufficient air changes or ventilation.

How can HEPA filter units help protect buildings? Well firstly, let’s be clear, a HEPA filter won’t stop the spread of viruses by 100% but what they will do is create reduced or low risk environments. The aim of HEPA filter units is to help remove the airborne contaminant (in this case viruses) from the air as quickly as possible. By removing airborne contaminants more quickly we reduce the time staff are exposed to these contaminants.

The right solution
So, how do you know if you are choosing the right solution? These four key guidelines which will help with the right choices.

1) Use a technology that has an official testing standard. When choosing a clean air technology for creating a reduced risk environment, ensure it is one that has an internationally recognised test standard based on efficiency in the airstream.

2) Ensure that the filtration component is certified. For HEPA filters this means that each filter should be individually certified to EN1922:2019.

3) Make sure it is adequately sized, so that the amount of clean air being supplied or the number of air changes is adequate. Guidelines from the Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA) say that HEPA air purifiers should achieve between 2–5 air changes per hour. Choose the right solution to achieve these air changes.

4) Ensure there is no creation of by-products. Some technologies will claim to “kill and disinfect” the virus which can often generate the creation of ozone into the air. Any system that creates additional chemicals in the air should not be considered a viable solution.

The workspace
So what else can HEPA filters do for your workspace, other than capturing airborne viruses? The idea around HEPA air purifiers is to capture airborne contaminants and improve the air quality within a, reducing sick days and improving productivity. One Harvard study published in the journal Environmental Health Perspectives (Vol. 124, Issue 6, June 2016) reported the effects of air quality on productivity in the workspace.

When they compared two different offices, one that had good air quality and one with poor air quality, it was shown that during cognitive tasks the people who worked in the clean air office were able to perform 61% better in cognitive tasks. When the ventilation in the same facility was doubled they actually performed 100% better in cognitive tasks. This shows us that although the rise in the understanding of the importance of air quality has increased because of the Covid-19 pandemic, clean air is for life and the benefits will last long after the pandemic is gone.

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“A Camfil air cleaner 6000 air purifier installed in a climbing centre.”

David Moulton, UK managing director of Camfil.

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