camfil
CLEAN AIR SOLUTIONS

REMOBILISATION STRATEGIES FOR THE WORKPLACE

Air quality recommendations

Remobilisation of staff to the workplace

Due to the Covid 19 pandemic, many workplaces and offices had to close or to create a work from home culture to ensure the safety of employees and customers. Although this may have been a necessity during pandemic times it may not be considered as a permanent change. As workplaces and businesses start their remobilisation programme to get employees back to the office, considerations should be made for how a reduced risk environment can be created to help protect employee health. Hand, face, space and ventilate (and filtrate) have been the key messages put forward by many organisations such as the World Health Organisation and the European Centre for Disease Control. Although hand washing, face masks and social distancing are uncontrollable by your business, adequate ventilation and filtration within your facility can be easily achieved.

Why clean air?

Did you know we eat 1Kg of food a day, drink 2kg of liquid but breathe 10kg of air per day? Air is a vital element to the health and wellbeing of our people. Although the protection against airborne viruses is the current priority, there are more reasons why you should ensure clean air to protect your employees.

Benefits of clean air

Improved Productivity

Better Immune System

Reduced Allergies & Asthma Symptoms

Cleaner Lungs

Improved Mood

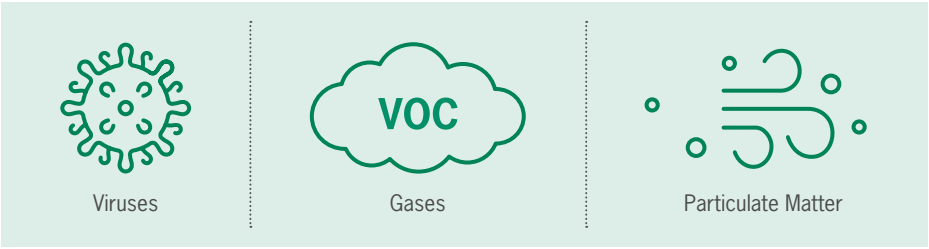
Improved Digestion

Better For Blood Pressure

Longer Life Span

Airborne contaminants

To protect the health of your employees there are many different airborne contaminants that are present that should be protected against:



For workplace remobilisation strategies the main focus for businesses will be around the protection against airborne viruses such as Covid 19, Influenza and others. When introducing protective measures to reduce the risk of virus outbreak the other airborne contaminants should also be considered such as Particulate Matter and Gases (such as No^2).

Airborne viruses

A research paper signed by 246 of the worlds leading scientists has established the grounds for Covid 19 being an airborne virus that can pass from person to person through the air. Prior to this release many industry recommendations focused around hand cleaning, surface sanitisation, social distancing and wearing face masks. With large virus outbreaks happening in commercial environments, new recommendations are being added to address air quality.

Ventilation factors affecting the spread of airborne viruses

Viruses travel in the form of aerosols. In order to travel through the air they need airborne particles to carry them. **Areas with high particulate levels are more susceptible to the spread of airborne viruses.**

In poorly ventilated areas, viruses can remain airborne for up to 16 hours. Increasing air changes helps to dilute and remove the number of viruses present in the air. **Understanding the number of air changes required can be key to adding protection to your facility**.

High particulate levels are directly attributed to poor supply and exhaust air filtration. **Ensuring optimal filtration efficiency is in place within your facility is an important factor to protecting your employees.**

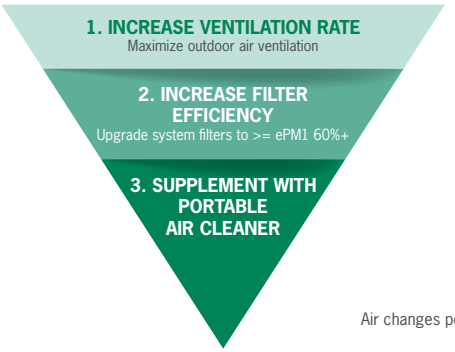
Air quality risk mitigation strategies

Supply air recommendations

The risk of viruses being introduced into your facility from external air sources is low, depending on the position of your air intake system. Due to this low risk, general HVAC (fine filters) are the recommended solution for your supply air systems. To ensure clean and safe air is entering your building through your HVAC systems ensure adequate filtration levels are observed.

Key considerations

For supply air ventilation there are three key considerations. Can you increase the air changes in your workplace, can you increase filtration levels and if you need additional protection then using HEPA air purifiers in your facility can give added protection.



	Ideal (6 ACH)
	Excellent (5-6 ACH)
	Good (4-5 ACH)
	Bare minimum (3-4 ACH)
	Low (<3 ACH)

$$\text{Air changes per hour} = \frac{\text{"clean" air rate}}{\text{room volume}} = \frac{\text{cubic meter per minute* 60 minutes}}{\text{length * width * height (in meter)}}$$

Harvard T.H Chan school of public health

Recirculation air recommendations

Viruses generally spread easier within indoor environments. When recirculation is used within a facility the spread of viruses increases exponentially. The main recommendation is to turn off air recirculation within your factory. This can affect the air change rate in your facility and thus will need to be monitored.

Key considerations

Recirculation air systems are often used as an energy saving initiative within your building. If these systems need to be maintained upgrading the final filter to an ePM1 85% or better is recommended. Unfortunately not all recirculation air systems have the capacity to allow for filtration upgrade.

Portable air cleaners/air purifier recommendations

To protect the health of your employees, there are many different airborne contaminants that are present that should be protected against:

In your facility, there are often two problems encountered that can be solved through the use of mobile air cleaners. The first problem is that the area has no ventilation as it is not considered an “at risk area”. Once people are active within this environment it needs adequate protection. The other problem is your HVAC system does not have the capacity to sufficiently increase air changes. Air cleaners can work as a supplementation to your existing HVAC systems to not only increase air changes but to also ensure the air quality is optimised to protect against virus outbreaks.

Key considerations

With air cleaners, individually certified HEPA filters is a minimum requirement. Also ensure your system is sized properly to achieve air quality and air change targets required. REHVA recommends your air cleaning solution should achieve 2-5 air changes per hour. This should be considered when sizing your solution.

Considerations for all your clean air solution requirements

Technology standards:
Choose a clean air technology that has a proven testing standard. Ensure capture efficiency is available and can be understood easily. As covid is an airborne virus ensure the technology used allows capture within the air stream. HEPA filters efficiency should be tested against EN1822:2019.

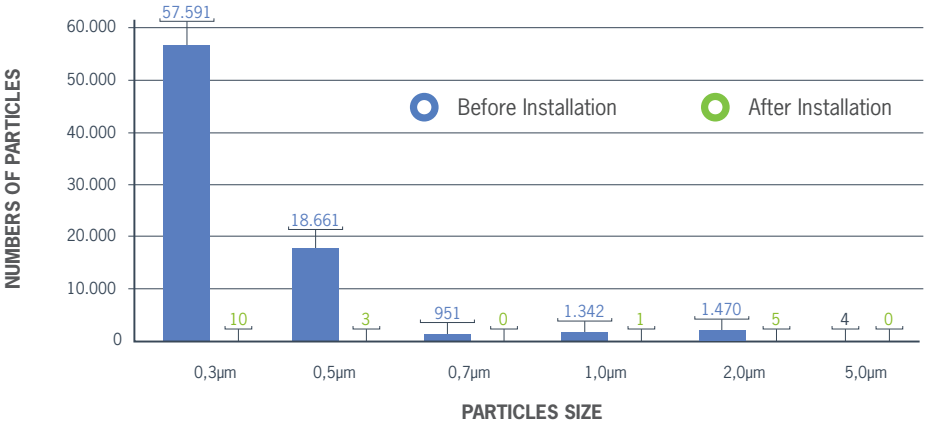
Certification:
If the technology has a standard, the next step is to ensure that the component is certified. Ensure your clean air solution is tested and certified according to its technology standard. This can ensure operational performance. Your HEPA filters should be individually tested and certified according to EN1822:2019.

Clean air delivery:
The purpose of clean air technology is to improve your air quality. Ensure the technology used will reduce particulate levels and ensure clean air is supplied to your facility to best protect the health of your employees.

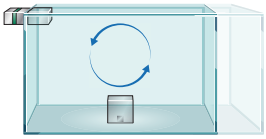
Proof of concept approach

Reducing particulate levels with air purifiers

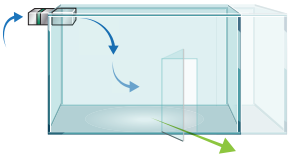
For viruses to remain airborne there are two key requirements, poor ventilation and high particle concentrations as a vehicle to travel on. Camfil air purifier utilise certified H14 HEPA filters to ensure airborne contaminants are removed from your office environment. The below chart is taken from real life measurements taken on customer sites. During this trial particulate measurements were taken before and after Camfil solutions where installed. Through all particle range over 99.95% of the particles were removed from the air. This helped to created a reduced risk environment for this workplace.



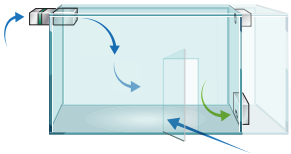
Air cleaner configuration solutions



Air Recirculation -
Used to supplement the existing ventilation system, air cleaners
can be used to recirculate clean air around the environment.



Positive Pressure Environment -
By ducting your air cleaner to the outside you can introduce clean fresh air into your environment (For areas with little or no ventilation).



Negative Pressure Environment -
By ducting the exhaust air outside, air cleaners can create negative pressure or isolation environments (Used in hospital environments.

Solutions for your office environment

Air quality remobilisation solutions

Camfil clean air solutions can be used individually or as a combination to help improve the air quality in your office and protect your employees health. Choose the ideal solution for your office:

SOLUTION	WHERE NEEDED
	In-room air purifiers are the ideal solution for increasing protection of your employees. Using Certified H14 HEPA filters the City M will remove 99.995% of airborne contaminants (including viruses).
	The CC400 is an ideal solution to retrofit into your office environment. This unit can be ducted to the outside and increase airflow rates in your office. Multi stage filtration ensures no introduction of outside contaminants (including certified H13 or H14 HEPA).
	The CC800 offers dual air intake. This unit can be used to combine outside air filtration for increased air changes and in room purification to remove harmful contaminants and create a reduced risk environment. The CC800 uses certified H13 or H14 HEPA filters.
	Have you achieved your Indoor air quality targets? Are you optimising the use of your air purification systems? Camfil's AirImage sensor and platform allows you to monitor, control and report on the air quality within your building. Showcase your buildings air quality to your customers, staff and stakeholders through display screen functionality.

Camfil – a global leader in air filters and clean air solutions

For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air filtration and air pollution control that improve worker and equipment productivity, minimize energy use and benefit human health and the environment.

We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That's why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden and has 33 manufacturing sites, six R&D centres, local sales offices in 30 countries and 4,800 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment.

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