


A woman with curly hair is smiling and leaning over a desk towards a man in a suit. The scene is set in a professional office environment. The woman is wearing a white shirt and a tan blazer. The man is wearing a dark suit and glasses. The background is a soft, out-of-focus office space with a green plant visible on the right.

Initial

Air Hygiene

Invisible, yet critical

Why your business should be enlisting air hygiene in the fight to protect health, safety and wellbeing



80% of respondents expect to continue following social distancing guidelines when they return to work

Rentokil Initial COVID-19 survey, May 2020

The ‘new normal’

Very few countries in the world have been untouched by the coronavirus, causing a widespread impact on health, the economy and people’s livelihoods. The abundant media coverage has not only alerted people to the role of hand hygiene in the context of viral transmission methods, but also increased the awareness of the public to take precautionary steps to limit transmission of viruses through the air. This is clearly illustrated in the advice to use social distancing as a method of preventing the further spread of COVID-19.

With media coverage educating most of us on how pathogens are transmitted through the air as a result of coughs, sneezes, talking and breathing – airborne from person to person and via surfaces and hands – the quality of the air we breathe is now firmly under the spotlight. Add pollutants, allergens and VOCs into the equation and indoor air quality, with its subsequent effects on physical health, is becoming a talking point in everyday conversations.

The large-scale impact of COVID-19 has left many nervous about returning to work and concerned about how businesses will protect them against viral transmissions when they do. So what can companies do to obtain and preserve good-quality air, prevent SARS-CoV-2 (the virus responsible for COVID-19) spreading further and so keep their staff safe in a pandemic period?

The new workplace

The ‘new normal’ world of work could see companies offering a phased return of staff, with a rota system to alternate workers, and staggered work times to reduce ‘congestion’ in-house and to help those using public transport avoid peak periods¹.

Social distancing in the workplace could mean introducing one-way systems² and new layouts for desks and equipment, with fewer hot-desks³ or people sharing lifts, meeting rooms, kitchens and even washrooms. Desks with high dividers or desks facing away from each other are clear options to avoid sharing the same air space as colleagues nearby⁴.

Hand sanitisers and self-serve surface wipes and sprays will need to be positioned in key locations and cleaning regimes will need to be stepped up to a minimum of once a day, with disinfection or deep-cleans becoming a regular occurrence⁵.

To stop the spread of germs in working environments, this new-normal workplace could also benefit from antimicrobial building materials⁶, no-touch technology for devices and fixtures⁷, such as automated doors, and portable air purifiers that filter out pathogens and pollutants.

87% of respondents expect their employer to provide hand sanitiser in the workplace

Rentokil Initial COVID-19 survey, May 2020

Airborne germs in a confined environment



Harmful pathogens are transmitted via saliva, mucus and other bodily secretions, which can be carried in the air as respiratory droplets. When an infected person exhales, talks, coughs or sneezes, they emit pathogens through the air that land on surfaces and people. This helps spread infections from people to people, air to people and surfaces to people. [Figure 1]

‘Respiratory droplets travel as we sneeze, cough, breathe and talk. When we inhale through our nose, for example, there are structures in our nasal passages that cause a vortex. This causes particles in the air to land on the internal structures of the nose, reducing the particles that can get to the lungs. However, this is a perfect landing spot for some viruses such as SARS-CoV-2.

‘Propulsion, such as sneezes and coughs, help eject these viruses back into the air. Because these droplets are small, they can be carried on air currents and can remain airborne for considerable periods of time, depending on air traffic and flow, temperature and humidity.’

Dr Gail Aitken, FRSPH
Head of Consumable Product Development, Rentokil Initial

67% of survey respondents think there’s an opportunity to improve air quality in their existing workplace while 23% in Singapore would go so far as to decline a job if the air quality in the office was poor at the interview stage.

Rentokil Initial, international office workers survey on air quality, March 2020

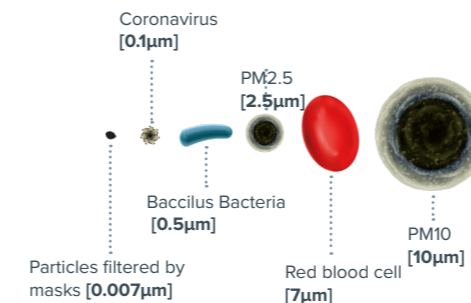


Figure 2: particle sizes in microns (μm). Particles filtered by medical-grade masks are typically $0.007\mu\text{m}$, bacillus bacteria are $0.5\mu\text{m}$, a red blood cell is $7\mu\text{m}$, fine floor dust is $40\mu\text{m}$ and the diameter of a human hair is $80\mu\text{m}$.

Scientists believe a principal transmission mode of the SARS-CoV-2 virus, the coronavirus responsible for COVID-19, is via respiratory droplets. While the virus is approximately 0.125 microns in size⁸, it’s carried on micro droplets or aerosols from the respiratory tract out into the air.

A cough, which is a typical symptom of COVID-19, emits an average respiratory droplet of around 15 microns (μm) in size. [Figure 2]

A sneeze can travel as far as 10ft (3m) to the front and 7ft (2.1m) to the side and the average sneeze or cough can send around $100,000$ contagious pathogens into the air at up to 100 mph⁹.

The Helsinki 3D model of airflow demonstrates the speed and spread of airborne contamination after a person’s cough. [Figure 3] Within minutes, the pathogens have spread to a much wider area than was initially anticipated. Extremely small particles do not immediately sink to the floor either. They’re carried in air currents for up to four minutes and across several metres before landing on surfaces¹⁰.

‘As the technology needed to monitor and image respiratory droplets has advanced over the years, we are now able to capture ever increasing data and analyse this to extract meaningful insight on the aerosolisation of respiratory droplets, which, as recent research indicates, travel greater distances than was once thought possible.’

Dr Gail Aitken, FRSPH
Head of Consumable Product Development, Rentokil Initial

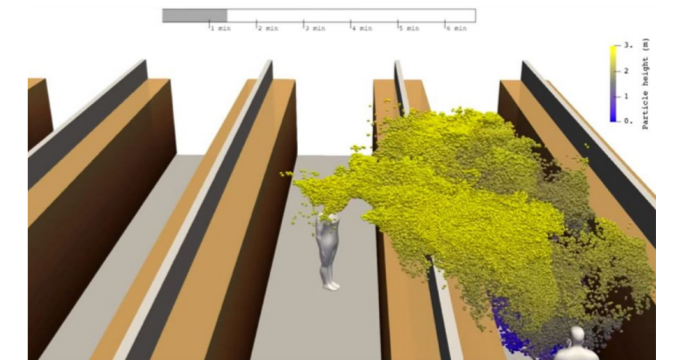


Figure 3: a 3D model of the airflow of respiratory droplets at 1 minute after a person coughs in an aisle between shelves like those in a supermarket*

Respiratory droplets carried in the air can be inhaled, ingested, passed on via contact or absorbed into the body from open wounds. This can cause infection in the body, giving rise to symptoms of discomfort or sickness and lead to absenteeism from work.

When these respiratory droplets land on surfaces, there are increased risks of cross-contamination. Contaminated hands can transfer viruses to up to 14 other surfaces¹¹ and – every 60 seconds – a working adult touches as many as 30 objects that may be contaminated by bacteria or viruses that cause infectious disease¹². Such a transmission rate can quickly lead to outbreaks of infection – particularly in closed environments, such as those in offices or workplaces.

In addition to the hygiene measures to combat surface and contact transmission, air purification devices are already being seen as a key component in the fight against harmful bacteria and viruses in contained environments.

And since the spread of the coronavirus begins with airborne droplets, filtering pathogens from the air will be seen by staff as a reassuring and necessary first step to prevent infection, reduce ill-health and absenteeism, and keep them safe.

*Image: <https://news.sky.com/story/coronavirus-3d-model-reveals-how-covid-19-can-spread-in-supermarket-11971373>

Air pollution and its impact on respiratory health

Researchers have found that morbidity rates of COVID-19 are directly linked to pollution levels. In Italy, for example, the worst-hit areas of infection were in the north, which suffers from high levels of air pollution due to largely industrial activities and urbanisation. These areas show dense levels of PM2.5 contamination – polluted dust that penetrates deep into lungs, organs and the bloodstream¹³. [Figure 4]

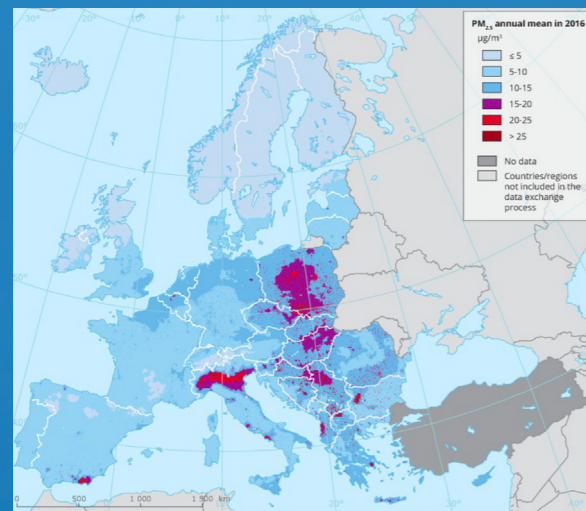


Figure 4: map showing the density of polluted dust, with northern Italy displaying very high levels of PM2.5 contamination

Polluted air outside affects the quality of air inside and is a danger to lung health – making people more vulnerable to a virus such as SARS-CoV-2 – and can lead to pneumonia or permanent lung disease if sufferers develop sepsis or acute respiratory distress syndrome (ARDS)¹⁴.

A separate study by researchers at the Harvard T. H. Chan School of Public Health in Boston analysed the link between air pollution and COVID-19 deaths. The Times¹⁵ noted that:

‘Pollution may have caused thousands of extra deaths because people living in areas with poor air quality are less likely to survive after becoming infected with coronavirus.’

The article went on to comment that:

‘an increase of just 1 microgram per cubic metre of fine particulate matter corresponded to a 15% increase in Covid-19 deaths in the US.’

Recent research suggests that the number of people one sick person is likely to infect is higher in more polluted areas¹⁶ and that an estimated 11,000 lives were saved because of improved air quality due to the lockdown¹⁷.

Such new pieces of research suggest that polluted air increases the risk of infection in all groups of people – not just in vulnerable ones. The clear connection between polluted air, its impact on physical health and the susceptibility to infectious disease that it causes highlights the importance of clean air outside and inside places of work and home.

Dirty air increases the risk of respiratory problems. The improved air quality during lockdown not only resulted in 1.3m fewer days of work absence, but saved an estimated 11,000 lives in Europe.¹⁷



“If managed poorly, [buildings] can spread disease. But if we get it right, we can enlist our schools, offices, and homes in this fight.”

Joseph Allen, DSc, MPH, Co-Chair, International WELL Buildings Institute Task Force on COVID-19 and Other Respiratory Infections: Prevention and Preparedness, Resilience and Recovery; Assistant Professor of Exposure and Assessment Science and Director of the Healthy Buildings Program at Harvard's T.H. Chan School of Public Health

Managing air hygiene for greater safety

While a few staff may be more relaxed about returning to their workplace, the vast majority – 9 in 10 people¹⁸ – feel nervous or anxious about doing so. And the reason is clear. People are concerned about catching COVID-19 themselves and/or passing it on to vulnerable relatives.

There are also reports emerging of the long-lasting health consequences of those who experienced mild symptoms of the disease, with the virus appearing to recur with changing symptoms that come and go – leaving rehabilitation experts in the dark about full recovery times¹⁹. This rolling phase of varying symptoms is something that employers will have to consider when staff who've had COVID-19 return to the workplace because they may still release the SARS-CoV-2 virus into the air around them.

Social distancing and rigorous, holistic hygiene will help to reassure staff and address the risk of direct contact and transmission from droplets. As recommended by International WELL Buildings Institute and Fitwel, though, an integral part of limiting the airborne contaminants is air purification.

Why clean the air?

Staff fears about catching COVID-19 mean that air hygiene – integrated with other hygiene measures – will

need to be addressed to provide reassurance and prevent the spread of pathogens before an outbreak can take hold.

If managed poorly, indoor air in buildings can be a primary source of infection, spreading disease quickly and widely in closed environments. Managed correctly, however, buildings could be turned into bastions of defence against contamination, using air hygiene as part of an integrated hygiene programme.

'Limiting the impact of this epidemic will require an all-in approach. With significant uncertainty remaining, we should be throwing everything we have at this highly infectious disease. That means unleashing the secret weapon in our arsenal – our buildings.'²⁰

'Droplets in the air can have a remarkable impact on surface hygiene if air hygiene is not maintained. Everything that is in the air will ultimately settle on surfaces – not just bacteria, viruses and moulds, but also particles such as skin cells, hair and textile fibres.'

'As occupants move around, this can disturb the dust and make it airborne again. However, over time, even clean surfaces will develop a layer or film that can contain oils and proteins from skin and hair, which becomes actively attached to surfaces. More dust and particulate matter become attached, quickly building an accumulation of potentially infectious material on surfaces.'

Dr Gail Aitken, FRSPH
Head of Consumable Product Development, Rentokil Initial

49% of respondents believe it's their employer's responsibility to provide good indoor air quality

Rentokil Initial COVID-19 survey, May 2020

The importance of air filtration as part of a hygiene strategy

Indoor air can become polluted with microscopic particles (particulate matter or PM) of dust and dirt, bacteria, viruses, mould, gases and VOCs emitted from people, products, fixtures and fittings. Given that we spend 90% of our time indoors, it's crucial that indoor air is continuously treated to remove airborne contaminants.

Portable air purifiers provide a viable alternative, filtering over 99.95% (European HEPA 13 Standard)/99.97% (US HEPA 13 Standard) of pollutants. Fitwel and the International WELL Buildings Institute²¹ both list filtered air as part of their core strategies for preventing COVID-19 in built environments.

In March 2020, International WELL Buildings Institute launched the Task Force on COVID-19 and Other Respiratory Infections: Prevention and Preparedness, Resilience and Recovery. It's chaired by 16 renowned experts and populated by over 540 global thought-leaders and authorities from public health, medicine, design, real estate, government and academia.

The Task Force published eight new guidelines for proven strategies on managing buildings and for organisations to integrate actionable insights. The strategy document serves as a roadmap to plot the path to a safer future. The first guideline

focuses on promoting clean contact and the second concentrates on improving air quality.

Part of its new strategy for improving air quality is filtration (WELL Feature A12)²¹, for which it recommends implementing adequate air filtration and documenting a maintenance protocol for installed filters. This requires businesses to carefully monitor filters and replenish them regularly, properly, and in accordance with the severity of air contamination of their environment.

Figure 5: Air filtration is one of Fitwel's top 5 ways to prevent COVID-19



[Image: '5 Ways to Optimize Buildings for COVID-19 Prevention', Fitwel and the Center for Active Design, 24 March 2020]

Over two-thirds of survey respondents would feel cared for by their employer if indoor air were being monitored or regulated.

Rentokil Initial COVID-19 survey, May 2020

Choosing portable air purifiers for your business

Here's what to take into account to ensure you get the best air hygiene solution for maximum protection. Choose purifiers with these five crucial features.

1. Medical-grade filters

When operating at their full potential, high-efficiency particulate air filters can remove over 99.95% (European HEPA 13 Standard)/99.97% (US HEPA 13 Standard) of particles that are 0.3 microns or larger. These filters – referred to as True HEPA, HEPA 13 or medical grade – remove dust, vapours, bacteria, viruses, mould and fungi. Research suggests that, under certain conditions, using recirculated air with True HEPA filters reduces particulate concentration for indoor air similar to dedicated outdoor air systems (DOAS).

Rentokil Initial's Dr Aitken comments: 'In the built environment, there is often no ability to bring in fresh air or renew surfaces. In a contained space, without any form of removal, this pollution builds and increases as people move and transfer dander, dust and dirt. Medical-grade filters, such as HEPA 13, act as an effective physical trap to prevent the build-up of harmful particles in the air and help to reduce the likelihood of them settling on surfaces.'

2. Serviced solutions

Air purifiers need to be serviced regularly by experts for filter replacement and safe disposal. According to the International WELL Buildings Institute, the maintenance of filters is 'critical' for ensuring proper air filtration. Poor maintenance of filters has been associated with symptoms such as skin and throat irritation, dry eyes, fatigue, headaches and even Legionnaires' disease²². Select purifiers that provide an ongoing service for greater safety and protection.

'Filters will trap and remove particles from the air, which can include viruses and bacteria, so it's vital that air purification filters are cleaned regularly and safely by fully trained technicians so any dangerous built-up material can be handled and disposed of correctly.'

Andrew Leaf
New Technologies Assessment Manager, Rentokil Initial

3. High clean air delivery rate (CADR)

The CADR is a performance metric for how well a unit removes the concentration of particles of a given size i.e. how fast it cleans the air of a particular size of room. The higher the figure, the greater its ability to filter air in a

room of a given size. So, a unit with a CADR of 600 m³/h is faster than one with 400m³/h. According to Andrew Leaf, 'the efficiency of a unit will depend on the size of the area where it's installed. Expert technicians can advise on the right number of units, based on a specific room size and floor area, and the best locations for the devices, based on the natural air flow and ventilation.'

Regardless of whether there's a mechanical ventilation system present or not in a building, portable air purifiers can be strategically positioned across workspaces to clean 'local' air with maximum effectiveness and efficiency. Hotspots include open-plan areas and meeting rooms where occupants remain stationary for long periods.

'Air purifiers are an important supplement to HVAC systems to deliver air hygiene. They're targeted to work on what's generated in the environment, such as the dust from floors, coughs, sneezes and the respiratory droplets from people in a specific area – not the air coming in. HVAC systems are not effective at picking up and filtering what's generated in the environment. The strongest line of defence, therefore, is a filtered HVAC system and air purifiers for local air.'

Andrew Leaf
New Technologies Assessment Manager,
Rentokil Initial

4. Clear displays of Indoor Air Quality (IAQ)

Real-time Indoor Air Quality (IAQ) monitoring displays provide visual cues that offer additional reassurance to building occupants. In a recent survey, 41% of respondents said they would feel reassured if they had information available on the quality of air in their working environment²³. IAQ monitors with clear, real-time displays also demonstrate to staff that the business considers their health, safety and wellbeing a priority because it continuously monitors their indoor air.

5. Cost-effectiveness

Despite the ability to purchase air purifiers with an initial upfront cost, leased models offer better overall cost efficiency. With a reduced initial outlay and filter servicing costs that are included, a serviced rental contract can be run and hired for as little as the price of a cappuccino per day – with the added benefit of the expertise of the service company.

Providing transparency of air quality relies on measuring it continuously. Displaying air quality adds to user confidence.²⁴

Why work with hygiene experts

Industry bodies, such as Fitwel and International WELL Buildings Institute, have highlighted the importance of having a constant flow of good-quality indoor air, whether that's with natural ventilation or filtered air. What's also important is the appropriate and regular maintenance of filters in HVAC systems and portable air purifiers.

Businesses may feel that for portable units, replacing filters is a task that can be carried out by their in-house cleaning staff. Without adequate training and equipment, maintenance by inexperienced staff may not be conducted to the right standards and follow the correct procedures, such as for the safe disposal of contaminated filters.

For greater safety and security, it's worth noting the benefits of using specialists who are trained and highly experienced in the provision and maintenance of good air hygiene.

The Benefits

- Fully trained technicians who work exclusively in hygiene bring expertise and years of experience.
- Hygiene technicians can devise a filter-replacement programme that considers the potential contamination of filters for your specific environment.
- Hygiene technicians will share their knowledge of where to position air hygiene units for maximum impact and how best to use them.
- Hygiene technicians will provide safer disposal of filters (following public health and local regulations) and servicing of units so they remain clean and in good working order.
- In addition to following social distancing and public health guidelines, hygiene technicians wear top-grade personal protective equipment (PPE) to protect customers and themselves.
- Hygiene technicians offer your staff reassurance that professionals are taking care of devices, so you don't have to, and provide peace of mind that your indoor air is safe for you and your colleagues.



'For safe and effective filter maintenance, any potential exposure to trapped material must be minimised. Trained technicians wear PPE to combat this risk and use expert equipment, such as HEPA filter vacuums, to clean the pre-filter. They also replace the HEPA and VOC filters, which are disposed of in accordance with local laws and regulations.'

'Regular servicing is crucial. However, the frequency of this depends on the device and the environment. A more active environment will contain significantly more particulate matter, meaning the devices will need to be cleaned more regularly.'

**Andrew Leaf
New Technologies Assessment Manager,
Rentokil Initial**

Conclusion

The pandemic has taught us the significance of airborne pathogens and their potentially devastating consequences, so it's critical that businesses take a long-term view of hygiene for their premises. The message is clear: air hygiene plays an important role in the defence against pathogens. What's more, air purifiers also remove airborne particulates from pollution, dust, dirt, pet dander, smoke, VOCs and pollen to leave air healthier and better for our bodies and our minds.

The lessons learnt from the pandemic have stressed the importance of comprehensive, fully integrated hygiene measures to block the alarmingly quick journey that infectious germs can take from host to host.

If we're to defend ourselves in the best way possible against this dangerous and invisible foe, our arsenal has to be loaded with all the right weapons to tackle an onslaught from any direction. And that means air purifiers, hand-hygiene consumables, disinfection, deep-cleans and sanitising regimes, accompanied by up-to-date knowledge, education, expertise and application.

If your business is looking for an army of experts with field experience in numerous sectors and countries and with a veritable armoury of indoor air hygiene solutions that can eliminate over 99.95% (European HEPA 13 Standard)/99.97% (US HEPA 13 Standard) of pathogens, **talk to us today.**

Our number-one priority is to always protect people and enhance lives.

7.0 Bibliography

1. '10 Considerations for Transitioning Back to Work in a Post-COVID-19 World', Cindy Coleman, Don Ricker, Jane Stull, Gensler, published 20 April 2020 (<https://www.gensler.com/research-insight/blog/10-considerations-for-transitioning-back-to-work-in-a-post>)
2. 'Working safely during coronavirus (COVID-19)', .Gov.uk, published 11 May 2020, updated 14 June 2020 (<https://www.gov.uk/guidance/working-safely-during-coronavirus-covid-19/5-steps-to-working-safely>)
3. 'What Happens When We Return to the Workplace?' Janet Pogue McLaurin, Gensler, published 3 April 2020 (<https://www.gensler.com/research-insight/blog/what-happens-when-we-return-to-the-workplace>)
4. 'Working safely during coronavirus (COVID-19)', .Gov.uk, published 11 May 2020, updated 14 June 2020 (<https://www.gov.uk/guidance/working-safely-during-coronavirus-covid-19/5-steps-to-working-safely>)
5. 'What Happens When We Return to the Workplace?' Janet Pogue McLaurin, Gensler, published 3 April 2020 (<https://www.gensler.com/research-insight/blog/what-happens-when-we-return-to-the-workplace>)
6. 'Designing Office Building Lobbies to Respond to the Coronavirus', J. Kevin Heinly, published 13 March 2020, Gensler (<https://www.gensler.com/research-insight/blog/designing-office-building-lobbies-to-respond-to-coronavirus?q=antimicrobial>)
7. 'Understanding the Touchless Workplace', Lee Billington, published 15 April 2020, Gensler (<https://www.gensler.com/research-insight/blog/understanding-the-touchless-workplace>)
8. Coronaviruses: An Overview of Their Replication and Pathogenesis, Anthony R. Fehr, Stanley Perlman, University of Iowa Carver College of Medicine, doi: 10.1007/978-1-4939-2438-7_1 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4369385/>)
9. University of Bristol, 2019
10. Aalto University, the Finnish Meteorological Institute, VTT Technical Research Centre of Finland, and the University of Helsinki, 2020
11. 'Transmission of Viruses via Contact in a Household Setting: Experiments Using Bacteriophage Strain phiX174 as a Model Virus', Journal of Hospital Infection, 2000
12. Dr Charles Gerba, University of Arizona
13. 'Why Air Pollution is Linked to a Faster Spread of Coronavirus', Piotr A. Kowalski and Aleksander Konior, Air Quality News, published 9 April 2020 (<https://airqualitynews.com/2020/04/09/why-air-pollution-is-linked-to-a-faster-spread-of-coronavirus/>)
14. 'What Coronavirus Does to the Lungs', Panagis Galiatsatos, M.D., M.H.S., Johns Hopkins Medicine, published 13 April 2020 (<https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/what-coronavirus-does-to-the-lungs>)
15. 'Dirty Air Puts More Lives at Risk by Damaging Lungs, Scientists Say', Ben Webster, The Times, published 8 April 2020 (<https://www.thetimes.co.uk/article/dirty-air-puts-more-lives-at-risk-by-damaging-lungs-scientists-say-9f6sk7vvq>)
16. <https://airqualitynews.com/2020/04/09/why-air-pollution-is-linked-to-a-faster-spread-of-coronavirus/>
17. '11,000 Air Pollution-related Deaths Avoided in Europe as Coal, Oil Consumption Plummet', Centre for Research on Energy and Clean Air, Lauri Myllyvirta, published 30 April 2020 (<https://energyandcleanair.org/air-pollution-deaths-avoided-in-europe-as-coal-oil-plummet/>)
18. 'Employee Concerns about COVID-19', Anthony Caputo (Remesh) and Patrick Hyland (Mercer, Sirota), Marsh & McLennan Companies, published 2020 (<https://www.mmc.com/insights/publications/2020/march/employee-concerns-about-covid-19.html>)
19. 'Revealed: the Long-term Severe Effects of Covid-19 that could go on for Months', Georgina Hayes, The Telegraph, published 21 May 2020 (<https://www.telegraph.co.uk/global-health/science-and-disease/revealed-long-term-severe-effects-covid-19-can-go-months/>)
20. 'Your Building can make you Sick or Keep you Well', Joseph G. Allen (Harvard T.H. Chan School of Public Health), published 4 March 2020, The New York Times (<https://www.nytimes.com/2020/03/04/opinion/coronavirus-buildings.html>)
21. Strategies from the WELL Building Standard to Support in the Fight against COVID-19: Prevention and Preparedness, Resilience and Recovery, Institute WELL Building Institute, published May 2020 (<https://a.storyblok.com/f/52232/x/f12ca80093/strategiesfromwell-covid19-v2.pdf>)
22. Ventilation and Health in Non-industrial Indoor Environments: Report From a European Multidisciplinary Scientific Consensus Meeting (EUROVEN), P. Wargocki, J. Sundell, W. Bischof, G. Brundrett, P. O. Fanger, F. Gyntelberg, S. O. Hanssen, P. Harrison, A. Pickering, O. Seppänen, P. Wouters, June 2002, PMID: 12216467 DOI: 10.1034/j.1600-0668.2002.01145.x (<https://pubmed.ncbi.nlm.nih.gov/12216467/>)
23. Rentokil Initial international survey on air quality, March 2020
24. 'An Air Filtration Primer for Building Owners and Developers', Darrel Fullbright, Duncan Lyons, Sheryl Schulze, Ian Zapata, Gensler, published 30 April 2020 (<https://www.gensler.com/research-insight/blog/an-air-filtration-primer-for-building-owners-and-developers>)

* For InspireAir 72, all references to HEPA 13 filtration relate to filter material as tested by the manufacturer on air passing through the filter material in a laboratory test.

About Initial

Initial is the global leader in hygiene solutions that help organisations create healthier working environments so that they're better for staff, customers and visitors. Our solutions are specifically designed by experts to help you mitigate risk of liability, reduce sick days, save money and increase productivity while offering reassurance and peace of mind to staff and customers that their health, wellbeing and safety are protected.

We lead the industry in research and development, investment, testing, regulatory understanding and solution innovation. We're committed to helping you keep your workplaces clean, safe and productive in line with the rigorous hygiene standards that the 'new normal' world of work now requires.

For more information, visit: www.initial.com