



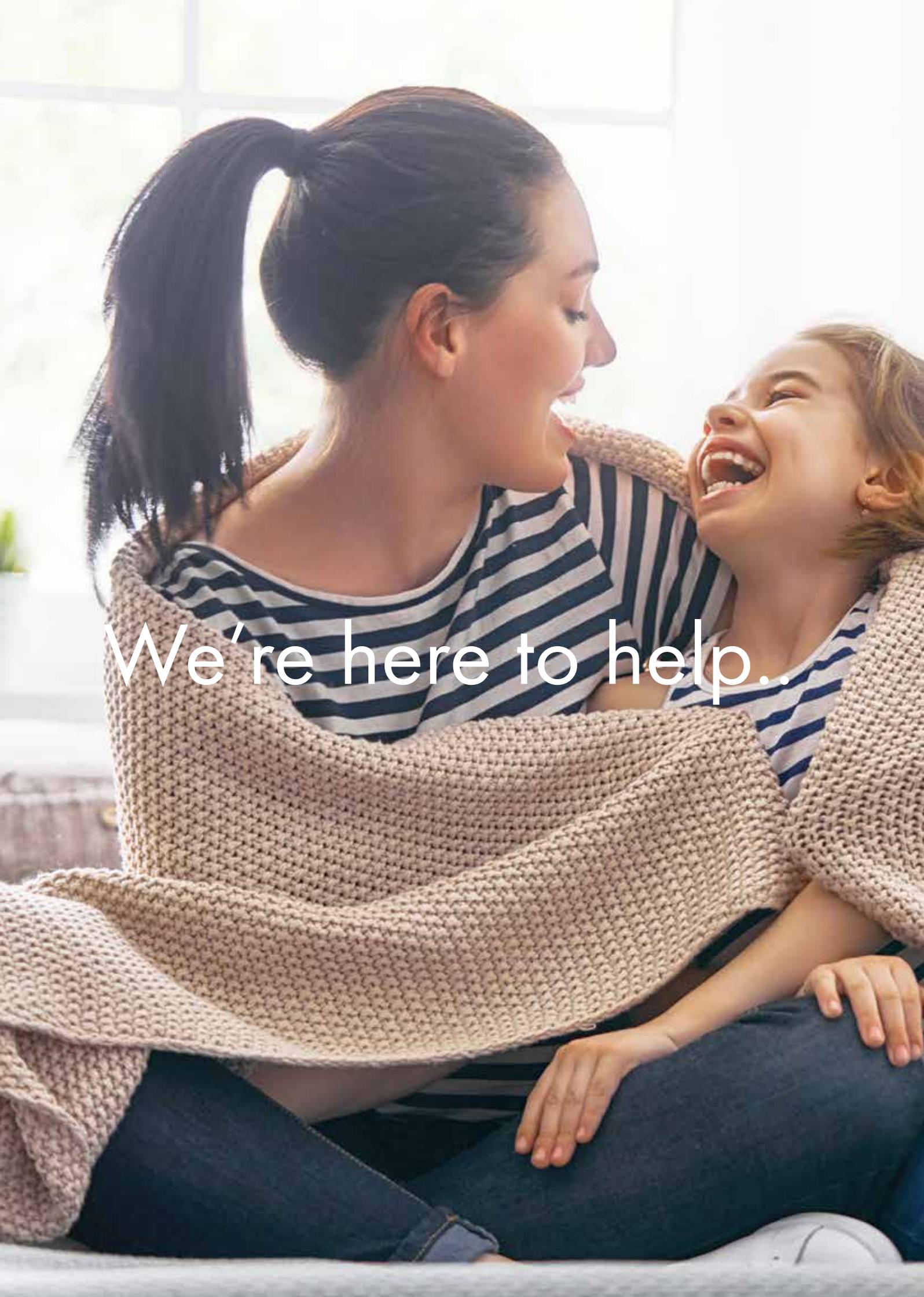
Vent-Axia[®]

The UK's Leading Ventilation Company

The effect of ventilation on COVID-19

Edition 1

www.vent-axia.com/dilutethevirus



We're here to help..

It's never been more important to improve indoor air quality

People spend up to 90% of their time indoors, and with growing evidence of airborne pathogens and viruses moving around our buildings, there has never been a more important time to make sure a building has effective ventilation.

How can ventilation help combat COVID-19?

The UK Government recently stated "Research shows that being in a room with fresh air can reduce your risk of infection from particles by over 70%, as fresh air dilutes the particles*". Using ventilation to either introduce, or increase fresh air circulation in the home is therefore central to reducing infection rates.

With so much to consider, we are here to help you understand ventilation requirements with this useful guide.

*SOURCE: SAGE EMG paper, Role of Ventilation in Controlling SARS-CoV-2 Transmission



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What does the guidance say?

Why indoor ventilation is important to reduce Covid-19 cases

Ventilation plays an important role in reducing indoor pollution as it is able to bring in fresh filtered air and exhaust stale air.

The air in a room can contain bio effluents (body odours and exhaled breath), chemicals from cleaning products and mould spores, as well as airborne viruses.

There is plentiful evidence that demonstrates people are more at risk of catching an illness in a poorly ventilated room than a well-ventilated one. People in a poorly ventilated room are exposed to a higher concentration of airborne pathogens, and the risk will increase with a greater amount of time spent in this environment.

This can be demonstrated as: **Risk = exposure x time**

The risk of airborne infection to the individual can therefore be reduced by:

- Reducing time spent in the location
- Reducing the concentration of infectious material in the air and deposition rates - ventilate to dilute the virus!
- Reducing risk through contact (hand washing, surface cleaning etc)



Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA)

"In buildings with mechanical ventilation systems, extended operation times are recommended for these systems."



Our plan to rebuild: The UK Government's COVID-19 recovery strategy

"Use external extractor fans to keep spaces well ventilated and make sure that ventilation systems are set to maximise the fresh air flow rate."



Deputy Chief Medical Officer Professor Jonathan Van-Tam

"There is a definite truism across all of the science literature, that ventilation is a most critical part of reducing transmission from respiratory viruses."



Chartered Institution of Building Services Engineers (CIBSE)

"Increase the air supply and exhaust ventilation, supplying as much outside air as is reasonably possible".

How to improve ventilation rates

Ventilation is a very important way of diluting any airborne pathogens. Ventilation rate and effectiveness play a role in both airborne exposure and deposition rates.

The diagrams below demonstrate a high concentration of infectious airborne material present with ventilation systems switched off (Fig 1) versus a reduced concentration of infectious airborne material with ventilation systems running (Fig 2) Therefore the non-infected person in Fig 1 is at greater risk of infection than non-infected person in Fig 2.

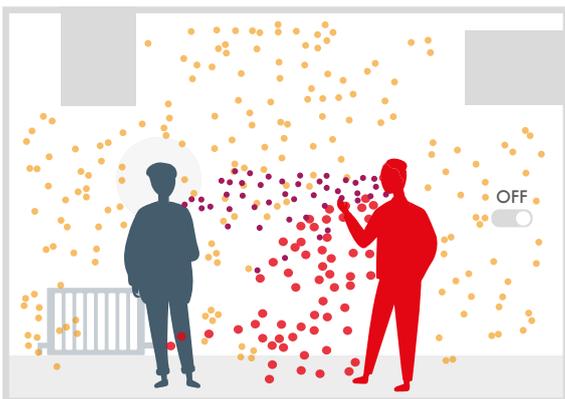


Fig 1. Infected person talking with non-infected person with ventilation system switched off

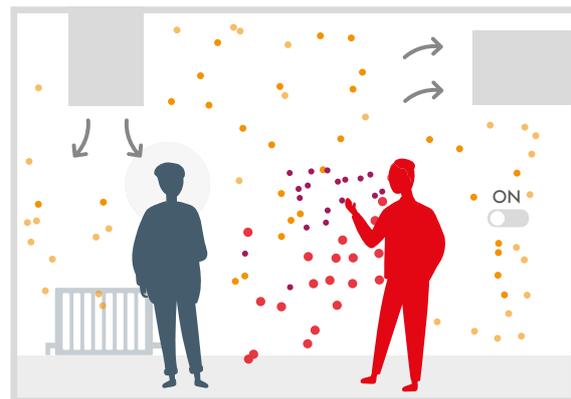


Fig 2. Infected person talking with non-infected person with ventilation system switched on

Ventilation Checklist

- Keep ventilation running 24/7, especially in toilet areas where flushing can result in virus particles becoming airborne
- For Demand Control systems, increase CO₂ set-point to 400ppm to keep ventilation rates at nominal speed
- Increase ventilation rates even if it is at the expense of thermal comfort
- There is no need to change humidity sensor settings as studies have shown that humidity has little effect on the virus
- Supply as much outside air as possible. Open windows to increase airflow and boost ventilation further - apart from in toilets where this could cause cross contamination
- Don't recirculate air - only use intake and extract systems
- A CO₂ sensor could be used to ensure the air is being effectively ventilated - it will warn when levels get too high, which is a sign that the room is not being ventilated enough



Your questions answered on ventilation systems during COVID-19

What should I do first?

In the first instance it is important to check that any existing ventilation systems are in working order.

It is then recommended that, as far as possible the fan is switched to a higher airflow.

DO NOT re-circulate air within the building.

If there is no ventilation system present, install fans appropriate to the needs of the building.

Should I open my window?

If it is safe to do so, yes. Increasing the airflow through the building will dilute the virus and therefore the risk.

We would not recommend opening a window in heavily polluted areas with heavy traffic - especially on the ground floor as heavy diesel particulates will be able to enter the room. People may also choose not to open windows for security reasons. In these instances ventilation should be installed.

Can I still use heat recovery systems?

This depends on the type of heat recovery system. Rotary heat recovery should be avoided as they are prone to high rates of leakage where the virus could transfer from the exhaust air in to the incoming air.

Other types of heat recovery such as plate counterflow and crossflow have minimal leakage rates (1-2%) and therefore the risk is much lower.

Sources:
These recommendations are based on present industry and scientific knowledge at the date of publication and are subject to modification.



What about filtration?

Standard filters used in ventilation systems can capture particles as small as pollen and diesel particulates. Virus particles are much smaller than this, so filters are less effective in stopping the virus.

HEPA filters are commonly used in specialist applications but are not guaranteed to capture 100% of virus particles.

However, it is important to clean or replace filters regularly to ensure they remain effective and that they don't impeded the running of the ventilation system - as this in turn will impact the effectiveness of the ventilation system.

Should I clean the ductwork

No changes are needed to the regular cleaning and maintenance schedule for ductwork. This is because viruses attached to small particles will not deposit easily in ventilation ducts and will normally be carried out by the airflow.

It is more important that the ventilation rate is increased to bring in fresh air and reduce exposure.



With Vent-Axia, you can find the perfect solution every time.



Bathroom & Kitchen Ventilation



Fans are installed in properties' wet rooms i.e, bathroom & kitchen and are designed to work intermittently when triggered. The fan turns on when the humidistat is triggered or the light switch is turned on. These types of fans are ideal for everyday use. They are great for basic ventilation needs and also where a lower-cost option is needed.



Single Room Heat Recovery



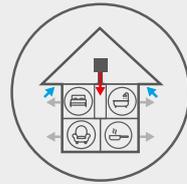
Ideal when energy efficient heat recovery is required on a room-by-room basis. Easier to retrofit compared to a wholehouse ventilation system. Single Room Heat Recovery (SRHR) uses the heat from the stale air that is being extracted to warm up the fresh air that is coming in. Therefore bringing in fresh but pre-warmed air providing ventilation whilst also saving energy.



Wholehouse Ventilation



MVHR (mechanical ventilation with heat recovery) is a whole dwelling ventilation system that continuously supplies fresh filtered air and extracts continuously at a low rate with the facility to be boosted as required meeting Building Regulations Part F System 4.



Positive Input Ventilation



Positive Input Ventilation (PIV) is an energy efficient method of pushing out and replacing stale unhealthy air with drier fresh air by gently introducing filtered air into the home and increasing the circulation of fresh air around the property and improving the indoor air quality (IAQ).

Want to find out more?

We are here to help with any ventilation question you have. Vent-Axia is proud to be the UK's market leader with over 80 years' of ventilation expertise.



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