



Ensuring proper ventilation to combat Covid-19

After almost 18 months of lockdowns and stringent restrictions, British offices, schools, factories and entertainment venues have been allowed to open again. Although the majority of restrictions have been lifted, the government is now shifting the responsibility for ensuring a COVID-19 safe environment in premises to business owners and managers. Specifically, they are advised to carry out risk assessments to identify areas with poor ventilation so that they can improve air quality and reduce the risk of COVID-19 transmission.



The Health and Safety Executive (HSE) is asking businesses to look particularly at areas where people work and where there is no mechanical ventilation or natural ventilation coming from open windows, doors, or vents. Site managers also need to check mechanical systems that provide outdoor air, temperature control, or both. If a system only re-circulates air and has no outdoor air supply, the area is likely to be poorly ventilated, which means there could be an increased risk of the virus spreading. Natural ventilation is prone to be worse in the winter when doors are closed and more time is spent indoors, so this should also be taken into consideration.

The approach suggested by the HSE is to use a carbon dioxide (CO₂) monitor to assess the level of ventilation and air quality in rooms or other enclosed areas. Although CO₂ levels are not a direct measure of possible exposure to COVID-19, checking levels using a monitor can help identify poorly ventilated areas so that appropriate adjustments can be made. It should, however, always be kept in mind that CO₂ measurements are a broad guide to the effectiveness of ventilation within a space rather than a tool for establishing 'safe' thresholds.

More detailed guidance on the use of CO₂ monitors can be found here: <https://www.hse.gov.uk/coronavirus/equipment-andmachinery/air-conditioning-and-ventilation/identifying-poorly-ventilated-areas.htm>, but it's worth looking at some of the key points.

The type of monitor recommended is a portable unit that uses NDIR (non-dispersive infrared) technology and is capable of showing the amount of CO₂ in the air in parts per million (ppm). A wide measuring range is useful, as CO₂ concentrations can vary widely – from around 400 ppm in locations that are open to the outside air to 1,000 ppm or more in poorly ventilated spaces. (As a guide, values below about 800 ppm are generally considered acceptable for indoor locations). Further, to ensure that the monitor consistently delivers accurate results, it should be easy to check its calibration.

Importantly, the HSE also notes that instantaneous (snapshot) readings can be misleading, as for example, it could happen that the reading is taken at a time when someone has left a door open that is normally kept closed, which could lead to a misleadingly low measurement.

It is far more satisfactory to take multiple readings over a day or an even longer period of time. This can be done manually, of course, by checking the monitor at predetermined intervals and noting the readings, but this is tedious, and it is almost inevitable that someone will very soon forget to take a reading – or, indeed, several readings. A better approach is to use a CO2 monitor with logging facilities that automatically takes readings at user-defined intervals and stores them in internal memory so that they can be downloaded later for checking.



An example of a cost-effective and easy-to-use monitor that meets all these requirements is the **CA 1510** from **Chauvin Arnoux**, which can store up to one million readings internally for subsequent download via a USB connection or via a wireless Bluetooth link. The **CA 1510** is a good solution for initial surveying of locations using the MAX/MIN function to inform the COVID-19 risk assessment and then as fixed monitors as a long-term control measure. Accessories for this versatile instrument include a calibration kit and mounting brackets to facilitate semi-permanent or permanent installation, should this be required.

While helping to safeguard employees and the public against COVID-19 is, for most people, likely to be a more than adequate reason for investing in a CO2 monitor, it is also worth noting that even after the pandemic has subsided – as we all hope and believe it will – a good monitor will continue to earn its keep.

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Carbon dioxide monitors with data logging facilities are readily available at modest cost. They are dependable, easy to use and can be a very useful tool in the helping to safeguard building occupants against the risk of COVID-19 infection. At present, they represent a very small investment for a very significant benefit. Further, as we have already mentioned, they will have continuing value even when the immediate threat of COVID-19 has passed. So, if you haven't already invested in this valuable safeguard, now must surely be the right time to do so.



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