Week of Action on Covid:

Audit your Workplace Ventilation

The Covid Safety Pledge Coalition are recommending that we audit all indoor workspaces many of which are public spaces and advise workers to challenge their employer to continue to control the risks.

The Covid pandemic is not over, and Covid continues to be harmful to health. Indoor air quality has a huge impact on our immediate and long-term health and is increasing staff absences, overall stress and disrupting work production and service to others impacting on productivity, profit and reputation.

By controlling transmission of the virus in indoor spaces, there will be less Covid related mental and physical ill health, less disruption because of sickness and absence and it will increase and improve the reputation of the organisation, as one that controls the risks to the health of their staff and to others who come into their work environment or come into contact with members of staff.

The following is a checklist of actions that reps and others can take in their workplace to ensure that the risks of Covid infections are being controlled:

How do I know what is being done?

	Action	
1	Ask for a copy of the risk assessments (or ask your safety rep to request copies)	
2	Are Trade Union Safety reps consulted on Covid risk assessments?	
3	Ask for a list of all indoor spaces and how each area is ventilated – naturally or mechanically	
4	Have all inside areas been separately audited for ventilation? (all rooms, corridors, toilets, congregational areas, canteens, store rooms)	
5	For each area has the method of ventilation been identified and its performance assessed?	
6	In each area is the ventilation adequate?	
7	If mechanical ventilation unit (HVAC) is used, is there proof of regular and proficient maintenance schedule by a qualified engineer, replacement and upgrading of filters? Is air flow actually measured and reported not just quoting installation specification?	
8	What is the air flow in each area (recommended airflow is at least 10-12 litres per second per person with a minimum of 6 air changes per hour?	
9	Is the mechanical ventilation unit (HVAC) set for 100% outdoor air to prevent recirculation?	
10	Is ventilation system (HVAC) turned on 2 hours before occupation?	

11	If there is no mechanical ventilation system (HVAC) is there natural ventilation?	
12	If natural ventilation is used, is it capable of creating a healthy work environment?	
13	Have areas not adequately ventilated been taken out of use or is it supplemented by filtration such as portable High Efficiency Particulate Air filtration, HEPA, units?	
14	Are all rooms subject to periods of no occupancy, with ventilation still operating. to allow virus to dissipate?	
15	Are rooms cleaned regularly?	
16	Is humidity adequate? (40-70% is recommended by HSE)	
17	Is toilet ventilation in operation 24/7?	

Important

1. Covid-19 has demonstrated the importance of ventilation or air flow in the workplace. The virus becomes airborne when we are infected and breathe, talk, sing, shout, cough or sneeze. It is clear now that the virus is transmitted mainly in airborne aerosols not droplets and so ventilation and cleaning the air is more important than cleaning surfaces and hands. Aerosols are very small particles that float in the air and can linger for minutes or hours like smoke.
2. Good ventilation is important everywhere, but it is particularly important in spaces with many people, eg canteens, meeting rooms, open plan offices – this is where "superspreading" can occur (where one or two people infect dozens of others).
3. All recirculation of air must stop
4. Personal desk fans and ceiling or pedestal fans should be shut down in areas where more than one person works
5. Each room should have a sign that identifies who is using it, the activity. how many people, and for how long so that adequacy of ventilation can be assessed
6. Building Design Occupancy for all work/public rooms can be requested
7. There should be a break between usage to ventilate the room
8. Reduce occupancy to ensure distancing and air quality – stagger breaks etc. Fewer people means more fresh air per person. Also, there needs to be more space between individuals to avoid close infection spread.
9. In room air cleaning and filtration units are not a substitute for ventilation but can supplement/augment inadequate ventilation and reduce the amount of airborne aerosols containing virus cutting risk of transmission.
    a. These should be HEPA – high efficiency particulate air filters- and can be just plugged in but must provide sufficient Clean Air Delivery Rate, CADR in cubic metres per hour for the number of people and volume of the room.
    b. *Ultra violet light (UV) germicidal irradiation devices are suitable for some settings but must always be professionally installed.*
    c. *HEPA filters will remove all particles including pollutants, allergens, dust out of the air, but Ultra Violet devices just kill pathogens.*
10. To establish if the mechanical HVAC is good enough, ask for information about:
    - Air flow in litres per second or cubic metres per hour which can be compared to the number of people in room to ensure that it meet minimum 10-12 litres/person/sec or 36-43 cubic metres per person per hour

- Air changes per hour which should be a minimum of 6 but ideally you should be looking for 10-12 ACH. Any room not achieving 6 ACH should not be used
- Filter efficiency - is measured in MERV where MERV 13 is the minimum we should accept (this means at least 50% efficient) Merv17 is equivalent to HEPA filters which remove 99.97% of 0.3 micron particles but are not suitable for most HVAC systems. Ideally we should insist of the highest levels of MERV filter efficiency that the HVAC system can sustain.
- Percentage of fresh air circulated – which should be 100%

11. When establishing the required fresh-air supply rate, consider the volume of the room, the number of people, the processes and equipment involved and whether the work is strenuous. There are online calculators available that look at air changes per hour, litres per second per person but beware of units used, some use US cubic feet per minute but in UK cubic metres per hour or litres per person per sec are more commonly used. Some calculators allow you to change the units. To establish this, you need to know the airflow rate and the dimensions of the space being used.
    ACH = Air flow in Cubic metres per hour divided by the Volume of the room (width x length x height in metres = volume in cubic metres)
12. Carbon Dioxide, CO_2 monitors – these can give a rough proxy measure of the ventilation/air flow in a room. The numbers are not exact, and they don't tell you actual risk from the virus. CO_2 increases when there are more people in a space and decreases when ventilation is increased, so there is more risk of inhaling virus laden aerosols when CO_2 level is high. The CO_2 value tells you about ventilation and occupancy.
    a. For most rooms you can use a CO_2 monitor to check the ventilation in an occupied space (not suitable in spaces where occupancy varies over short periods or where few people are present. More suitable for enclosed spaces with occupancy of about an hour minimum)
    b. CO_2 monitors do not provide an indication of risk when HEPA filtration or other air cleaning units are in use, as these remove virus from the air but do not remove CO_2
    c. Monitors should be checked regularly and if there are opening windows, they can be opened to increase ventilation.
    d. It would be preferable to monitor CO_2 over a representative period of the use of room and occupancy and variations in window opening to see what works best.
    e. Record readings, number of occupants and the type of ventilation being used
    f. A CO_2 level of 600-800 ppm is taken to represent a well-ventilated room with air flow of about 10-12 litres per person per second. So use a CO_2 monitor to keep level below 800 ppm.
    g. The monitor should contain a Non Dispersive Infra-Red (NDIR) sensor. Useful if it also monitors temperature and humidity, and some also measure particulate matter PM 2.5 and PM 10 to give broader picture of air quality
    h. A monitor that logs data that can be downloaded would be useful
    i. Locate the monitor in the part of the room that people occupy
    j. Don't locate the monitor near windows or doors, or within your breathing zone, eg on the desk immediately in front of you.
    k. Monitors can be kept in a pocket during the day while at work, to monitor personal air quality experienced through the day. CO2 penetrates cloth easily but ensure that (a) the inlet holes are not obstructed (b) clothing is material only, and contains no plastics,

and (c) check that when outside CO2 readings with the monitor in your pocket are what you would expect i.e. ~420ppm

13. Windows and natural Ventilation –
    a. The higher the wind speed and greater the difference in temperature between outside and indoors the greater the ventilation
    b. On hot still summer days it is hard to get enough airflow and much wider openings are needed to ventilate. Determine which ones to use to get the best flow. Maybe leaving doors open to increase airflow, but don't do this if there is a risk of virus circulating from one room to another.
    c. When it is cold, open higher windows to limit cold draughts
    d. Having the trickle vent open or the window on the vent catch can also often be enough in very cold or very windy weather
    e. Be aware of air pollution from outside, some places are too polluted, noisy or unsafe and whilst regular airing may help some will need mechanical ventilation or air cleaners to enable safe indoor air
14. Face masks reduce amount of Covid containing aerosols that infected people may exhale into the air and the risk of inhaling them.
    a. Face masks are effective at reducing the risk of Covid spread.
    b. "Surgical" masks (the blue or green masks) are better than nothing but not good enough to protect well from Covid infection because of poor fit.
    c. An FFP2 or FFP3 (N95 or N99) mask is needed – they fit the face much better and provide good protection if worn properly.
    d. FFP2 or 3 masks are PPE, and the employer should provide them free (just like a particulate mask working in industry).
    e. Wear a mask especially in high risk situations, e.g. with lots of people, or on busy public transport to and from work.

Legal Duties on employers

An employer has legal duties under various health and safety regulations and the consequences of not complying could lead to prosecution or enforcement orders by Health and Safety Executive, HSE, or Local Authority, LA, health and safety inspectors, or to compensation claims for negligence.

Health and Safety at Work Act (1974) - Employers have an overall duty to provide and maintain a working environment that is safe and without risk to health. They have a legal duty under the Health, Safety at Work Act to ensure the mental and physical health of all workers and everyone else affected by their work activities as far as reasonably practical. They do this by assessing and controlling the risks using a hierarchical control approach.

The Management of Health and Safety at Work Regulations (1999) requires employers to assess and control the occupational risks to health and safety using a hierarchical approach: eliminations, substitution, engineering controls, administrative controls and PPE. PPE is the last step because it is an individual control. Employers must consider collective controls first.

The Control of Substances Hazardous to Health Regulations (2002) (COSHH) requires employers to assess and prevent or control exposure of employees to substances hazardous to health using control measures, including ventilation.

The Workplace (Health, Safety and Welfare) Regulations (1992) requires that employers must ensure effective ventilation for any enclosed workplaces by providing a sufficient quantity of fresh or purified air. This includes ensuring toilets are well ventilated. Mechanical ventilation systems used for providing general ventilation must be maintained, in an efficient state, in efficient working order and in good repair. HSE recommends that employers consult experts and provides links to CIBSE.

Safety reps and Safety Committee Regulations (1977) - If you have a trade union safety rep, they are entitled to be informed on the control measures used including ventilation. Even if there are no trade union safety reps then employers still must make this information about the risk to their health and the control measures necessary to reduce those risks available to all employees.

What do employers have to do?

Employers must carry out 'suitable and sufficient' risk assessments – see legal duties above and even though the HSE have changed their advice on Covid Risk assessments – see below, there is still a legal duty on employers to ensure the physical and mental health of their workers and anyone else who comes into their working environment or is impacted by their work activities.

To protect their staff and anyone else in their working environment, employers need to ensure that infected people are not entering the premises or coming into contact with others who use the premises. This means they must have in place self-isolation rules, sick and isolation pay, and support for testing and vaccination programmes. But not everyone who is infected or transmitting virus will be symptomatic and therefore good infection controls are necessary.

The Health and Safety Executive (HSE) have replaced the advice on their website with:

"*COVID-19 will remain a public health issue, and guidance for workplaces has been replaced with public health advice. You can check the latest position and timescales for the nation you are working in:*

- *England*
- *Scotland*
- *Wales*

HSE no longer expects every business to consider COVID-19 in their risk assessment or to have specific measures in place. Employers may still choose to continue to cover COVID-19 in their risk assessments.

There is a requirement to protect those who will come into contact with the virus due to their work activity. You can find advice for people who may be at higher risk such as those who are immunosuppressed.

Complying with general health and safety law

Employers must, as always, comply with the Workplace (Health, Safety and Welfare) Regulations 1992 for welfare facilities. We have guidance on providing sufficient general ventilation in workplaces. Construction sites must comply with the Construction (Design and Management) Regulations 2015 by providing adequate welfare facilities, as well as fresh air in line with Regulation 33.

People who come into contact with COVID-19 due to their work activity

Under the Control of Substances Hazardous to Health 2002 Regulations (COSHH), employers must protect workers who come into contact with COVID-19:

- *directly through their work, for example in researching the virus in laboratories*
- *due to their work activity, such as health and social care workers caring for infectious patients*

In these cases, employers must still do a risk assessment and implement control measures.

COSHH does not cover situations where:

- *one employee catches a respiratory infection from another*
- *a member of the public has infected an employee with coronavirus through general transmission in the workplace*

You can find guidance on infections at work and health and social care.

Talking with workers *Although HSE will no longer expect COVID-19 control measures, employers must continue to consult workers and their representatives on any changes they make that might affect health and safety.*

You can find guidance on consulting and involving your workers.

RIDDOR reporting of COVID-19

There is guidance on the circumstances when you should make a report under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR).

Advice from public health bodies and other government departments

COVID-19 remains a public health issue and there is public health advice that businesses can use to reduce the risk.

Please refer to the relevant guidance for the country you are working in:

- *England*
- *Scotland*
- *Wales*
- ***Protecting those who may be at higher risk***

People who are immunosuppressed

There is guidance from the Department of Health and Social Care (DHSC) on protecting immunosuppressed people.

People previously considered clinically extremely vulnerable *You can also find DHSC guidance for people previously considered clinically extremely vulnerable from COVID-19.*

Wales and Scotland have separate advice for groups of workers who may be at higher risk.

Vaccinations *The United Kingdom Health Security Agency has guidance for employers on the COVID-19 vaccination.*

There is Acas advice on getting the coronavirus vaccine for work. Separate guidance applies for vaccination in Scotland and Wales.

Other advice *Acas has more advice for employers and workers on COVID-19".*

Note: Health and social care workers are faced with a particular problem. Employers and HSE have deferred to Infection Prevention and Control (IPC) authorities to determine what level of protection is required. IPC guidelines still do not recognise airborne transmission of Covid-19, therefore Safety reps may have particular issues raising the need for improved ventilation in hospitals and care homes. The guidelines do not have the power of law however, so the Health and Safety at Work Act still applies. Please contact us for advice if you encounter difficulties.

Links to useful information:

Hazards Campaign - Improving ventilation Cleaning the air at work:
https://drive.google.com/file/d/16oWiAwsYP7Vl-hW_LYHDL_sIHjK1JXr1/view?usp=share_link

Clean Air ClassRooms STEM project to build a clean air filter:
https://drive.google.com/file/d/1WPrJBBD9uItDzv0jI0uP3OXIWR5Y7ghQ/view