



## Practical Steps for the Deployment of Good Ventilation Practices in Schools V2

30 November 2020

The implementation of the COVID-19 Response Plan by a school is the means through which schools can best prevent the introduction and spread of COVID-19 and demonstrate that they are operating in accordance with the requirements of the Roadmap for the Full Return to School, the Public Health advice from the Health Protection Surveillance Centre (HPSC) and the Return to Work Safely Protocol developed by the Health & Safety Authority. These documents are available at [www.gov.ie/backtoschool](http://www.gov.ie/backtoschool).

The public health guidance for reopening schools and educational facilities includes some important recommendations about ventilation practices in schools:

- Consider if room ventilation especially in classrooms can be improved without causing discomfort.
- Where possible the opening of doors and windows should be encouraged to increase natural ventilation.
- Increase air flow and ventilation weather permitting.

The following practical measures for the deployment of good ventilation practices in schools should be considered by schools in the implementation of their COVID-19 Response Plans:

1. In summary, the overall approach for schools should be to have windows open as fully as possible when classrooms are not in use (e.g. during break-times or lunch-times (assuming not in use) and also at the end of each school day) and partially open when classrooms are in use. It is worth noting that windows do not need to be open as wide in windy/colder weather in order to achieve the same level of airflow into the classroom. This will assist in managing comfort levels in classrooms during periods of colder weather.
2. Most schools rely on the opening of windows i.e. natural ventilation and therefore it is important that windows and air vents can be accessed and opened.
3. Rooms should be well ventilated before occupancy each day. This can be achieved by ensuring that at the end of the school day each evening, the windows in each room should be opened (as wide as practical and safe while also considering security issues) for at least 15 minutes to ventilate the room fully.
4. Windows should also be open at break times and at lunchtimes for at least 15 minutes where possible.
5. Classrooms for the first class on the following school day (where the above end of day ventilating has occurred) can consider maintaining partially opened windows as per guidance below to keep the room fresh and prevent stuffiness and condensations etc.

6. Achieving fresh air via a number of windows partially opened as required rather than one window fully open can help to maximise the use of window driven natural ventilation distribution across the room without causing discomfort.
7. In colder weather any local chilling effect can be offset by partially opening the windows nearest and above the radiators.
8. Make sure that air movement is not blocked by furniture or window blinds and curtains.
9. Consideration should be given to local circumstances that may require to have additional windows open such as after break time activities
10. Rooms with adequate fresh air should not be stuffy or have condensation on the window glass.
11. Schools should also ensure that all permanent ventilation openings in rooms are fully open and not blocked by wall hangings etc. These normally are either a circular or rectangle ventilation grill on the external classroom wall or linear slot type ventilators built into the window frames. All of these should be opened all the time, if they have been taped and sealed for decorating purposes then the tape/sealing should be removed. If a room does not have permanent background ventilation, provision of same should be considered based on professional construction advice and current Building Regulations.
12. All mechanical ventilation systems and any air conditioning systems should be set to 100% fresh air, any air conditioning units that cannot operate on 100% fresh air (check with unit suppliers if in doubt) should be left off unless it is complemented by an adequate outside air supply such as openable windows, as this can help to provide outside air to occupants and maintain thermal comfort.
13. If the corridors and staircases have no identifiable ventilation systems and rely on air infiltration from adjoining spaces as many transient spaces do, consideration should be given to ventilating these areas before and after break times by opening doors etc., this needs to be considered taking into account the fire strategy of the building. Where stairwells have opening windows, consideration should be given to their utilisation.
14. Keeping open the internal doors into classrooms for periods of time may assist with increasing air movement and ventilation rate. It is important to note that fire doors should not be kept open unless fitted with approved automatic closers so that they function as fire doors in the event of an alarm or fire.
15. Schools should ensure there is appropriate ventilation of staffrooms, offices and other areas used primarily by staff, and in the context that some of these areas are used by different groups of staff at different times. This is in addition to the use of face coverings and adequate cleaning.
16. Schools should ensure there is appropriate ventilation of areas such as sanitary facilities, gyms, multi-purpose rooms and libraries etc. which are used by different groups of pupils and promote proactive use of open windows and any extractor fans when these spaces are in use.

The Department considers the above practical steps are sufficient to ensure good ventilation practices in school while at the same time ensuring an appropriate balance between ventilation and comfort.

The Department's Planning and Building Unit has reviewed the HPSC guidance that consideration be given to installing an indoor air quality monitor in classrooms.

The HPSC guidance is based on general guidance published by the Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA). The purpose of a monitor is to assist in determining when windows should be opened. Such monitors are already included in the Department's Technical Design Guidance, published in February 2018 (TGD 033). The rationale for the inclusion of guidance on the installation of monitors within the Department's TGD at that time was driven by the increased levels of insulation and air-tightness in new classrooms built since 2018 and the objective to increase awareness about ventilation, with associated guidance on when to open windows in these very airtight school buildings. The REHVA-guidance recommends that windows should be opened when the monitor indicates that CO<sub>2</sub> levels exceed 800 parts per million (ppm). Given that this threshold is at 800 ppm compared to the standard setting of 1,500 ppm the Department considers that the use of monitors will result in an outcome similar to the approach taken in the above practical steps which recommend that windows are open as much as possible while recognising the importance of also managing comfort levels (windows to be partially open when classroom is in use and fully open when not in use).

It is also worth noting that the UK Scientific Advisory Group for Emergencies (SAGE) which provides scientific and technical advice to support its government decision makers during emergencies notes with low confidence that continuous monitoring of CO<sub>2</sub> may be possible to use as a transmission risk indicator but further research is necessary to evaluate the potential application of the approach for different spaces and to compare modelled results and actual infection rates.

Given the above, it is the Department's view that in the main windows are likely to be required to be open at a frequency and level set out above to ensure appropriate levels of ventilation in the classroom irrespective of whether the opening of windows is prompted through the indoor air quality monitor (re-active approach) or through the pro-active approach outlined in the above guidance. While this matter (and supporting data) will be kept under review, the Department does not consider it necessary for schools to install such monitors in classrooms, where the practical steps outlined above are applied. However, it is a matter for individual schools to consider whether they wish to use some of their minor works grant funding for this purpose or alternatively schools may wish to use some of their minor works grant funding for provision of permanent background ventilation, where required, as referenced in above practical steps.

As part of managing comfort levels in classrooms, schools should check that their boilers operation temperatures are set at the recommended manufacturers' guidance levels to maximise the available heat to the school. In addition, heating should operate for extended periods during colder weather to counteract, as best as possible, the impact of windows being open (partially when classrooms in use and fully when not in use) in order to maintain an appropriate balance between ventilation and comfort levels.