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Practical Steps for the Deployment of Good Ventilation Practices in Schools. Updated May 2021

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Practical Steps for the Deployment of Good Ventilation Practices in Schools V3

May 2021

The implementation of the COVID-19 Response Plan 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 requirements of 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.

The public health guidance for reopening schools and educational facilities includes some important general recommendations about ventilation practices in schools. Schools are urged to:

- Consider if room ventilation especially in classrooms, break rooms and canteens can be improved without causing discomfort.
- Ensure that, wherever possible, doors and windows are open 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 adopted in the implementation by schools of their COVID-19 Response Plans:

1. The over-arching 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 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. As most schools rely on the opening of windows (i.e. natural ventilation) 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 are opened (as wide as is 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. For the first class of the school day windows should, weather conditions permitting, be partially opened (as per guidance in this document) to keep the room fresh and prevent stuffiness and condensation etc. This is in addition to and complements the end-of-day ventilation described above.

6. Achieving fresh air by having 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 to and above the radiators.
8. It is important to 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 at particular times, such as after break time activities.
10. School management and staff should also take into consideration reliable, common sense indicators that there is adequate fresh air in a room. Such indicators include that a room is not stuffy and/or that condensation is not forming 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 openings are normally 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 kept open 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 switched off and left off unless it is complemented by an adequate outside air supply such as openable windows, which 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. This is called cross ventilation. The same can be achieved by opening windows on opposite sides of the room, where possible. This cross ventilation approach can be enhanced even further by using openings at opposite diagonal ends thus maximising air flow potential through the complete room. 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, noting that some of these areas are used by different groups at different times. Air extraction systems including hob/ cooker exhaust hoods should be considered for use during occupancy - at low speed if required. These

ventilation measures are in addition to the other mandated mitigation protocols, including social distancing, the wearing of face coverings and adequate cleaning.

16. Schools should ensure there is appropriate ventilation of areas such as sanitary facilities¹, gyms, multi-purpose rooms and libraries etc. which are used by different groups of students and should ensure use of open windows and any available extractor fans when these spaces are in use.
17. Consideration should be given to having activities such as singing or playing wind instruments or physical exercise that may generate high levels of respiratory aerosols take place outdoors.
18. Schools that identify inadequate ventilation in a room can utilise their minor work grant (for minor improvements) or apply for emergency works grant assistance to address ventilation enhancements on a permanent basis. The summer holiday period is the optimum period to address any intrusive works to teaching spaces
19. 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 are in use and fully when not in use) in order to maintain an appropriate balance between ventilation and comfort levels.

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

Carbon Dioxide (CO₂) monitors

Deployment of these measures can be supplemented and enhanced by the use of Carbon Dioxide (CO₂) monitors. These monitors can provide a useful general indication that areas/ rooms may not be adequately ventilated and can enable occupants to become familiar with the impact of activities, outdoor weather and window openings on levels of good ventilation within a room.

Such monitors are already provided as part of new school building projects completed from 2019 onwards as such buildings would have the highest level of air-tightness.

To support schools further to identify rooms which may have inadequate ventilation and to optimise comfort levels through a better understanding of the degree of window opening required in rooms, the Department will arrange for the provision to schools of a number of portable units (based on the size of each school). These will be provided automatically to primary schools and secondary schools in the Free Scheme and on an application basis for schools in the fee-charging sector. The units will be portable and capable of being powered via their own power socket or via the USB cable connected to a PC. The units will be provided to schools over the coming months. Further information and frequently asked questions are available [here](#).

Measurements should be made over a minimum of 1 hour, to allow the readings to reach a steady state and to collect a representative sample of data (Air Infiltration and Ventilation Centre, 2020). Short term/spot measurements are unreliable and should not be used.

¹ The World Health Organisation (WHO) propose that as precautionary measure to flush toilets with closed lids.

Air Cleaners

Where the above measures have been undertaken, and poor ventilation continues to exist in a particular room/area, air cleaners may be considered as an additional measure in conjunction with other methods of ventilation that are available. There is no one solution that fits all scenarios, each application requires bespoke analysis and selection of the appropriate unit(s) matched to the specific room size and volume. If, following consultation with a supplier a school feels that its individual space may require specific technical specialist advice then the assistance of a Chartered Engineer or Registered Architect should be sought. Further details and frequently asked questions on air cleaners are available [here](#).