



Educational Plant Maintenance Association of Maine

HVAC -Guidelines- Best Practices- COVID -#19

The COVID-#19 Pandemic has certainly caused many School Facilities Directors and/or Supervisors to look for ways to increase fresh, clean air in school buildings. These recommendations below are sourced from many HVAC experts, ASHRAE documents as well as best practices being used by many School Facilities Directors and/or Supervisors from around the state of Maine

Please note, it is important for everyone to understand that these recommendations will not eliminate the COVID 19 Virus but are ways to minimize the impact that the COVID 19 Virus could have on Indoor Air Quality of our educational facilities.

GENERAL CONSIDERATION IN HVAC CATEGORIES TO HELP IMPROVE IAQ

- **Inspection and Maintenance:** Consider assessing the condition of systems and making necessary repairs.
- **Ventilation:** A good supply of outside air to dilute indoor contaminants is a first line of defense against aerosol transmission.
- **Filtration:** Use of at least MERV-13 rated filters is recommended if it does not adversely impact system operation.
- **Air Cleaning:** Air cleaners such as air disinfection devices may also be considered to supplement ventilation and filtration.
- **Energy Use Consideration:** In selecting mitigation strategies, consideration should be given to energy use as there may be multiple ways to achieve performance goals that have greatly different energy use impact.

There are typically three [3] types of HVAC Ventilation in Educational Facilities in Maine

Non- Mechanical, Mechanical, Direct Digital Controlled [DDC]

Non- Mechanical

Many Maine Schools and Classrooms may have no mechanical systems in place at all.

However, there are a few things that can be done to improve air exchange

If you do not already have mechanical ventilation installed in your building, you can provide adequate ventilation with window fans and simple monitoring devices.

- 1) Install a 20 by 20 box fan to fit snugly in an open window you can use smaller rectangular fans with the side extensions as well. The fan should be placed so that the air flow is outwards (exhaust mode). Place the fan away from occupants. Crack other windows near occupants a small amount. Caution: if the building has a boiler or other combustion heating appliance, make sure combustion fumes are not getting sucked indoors by using a carbon monoxide detector near the heating unit.
- 2) Verify sufficient ventilation by purchasing a Carbon Dioxide (CO₂) detector. (these devices can be found for under \$100). Aim for a CO₂ reading below 800 parts per million (PPM) in the area where people are located.

Mechanical Ventilation

Many School Buildings have various types of mechanical ventilation, from pneumatic type controls, to individual room uni-ventilators to roof top type HVAC units and Energy Recovery Ventilator Units [ERV's] all of these type units bring in fresh air and exhaust out air in a particular area as well as some units are able to provide chilled air or [A/C] Air Conditioning.

All these units need Routine and Preventive Maintenance

Here are some recommendations

1. Filters need to be changed on a regular interval, most manufacturers recommend at least two [2] times a year, however many recommend 3-4 times a year during this COVID Pandemic
2. Servicing of your Mechanical equipment is not just changing filters but making sure the belts are tight and bearing are lubricated.

3. Making sure the dampers are working correctly is very important too.
4. CO2 devices that reduce outside air should be disabled during the Pandemic.
5. Dampers should be set so more outside air can be introduced into the area [However be mindful of colder weather and the possibility of freezing some pipes.]
6. Make sure books, papers and other items are not stored on Room Uni – Vents that block air circulation.
7. Make sure ductwork and grates are clean and free from debris.
8. Consider longer Occupied intervals, keeping the systems in an occupied mode for longer time frames will help with exchanging the air in the spaces.

Direct Digital Control [DDC]

Many more modern buildings have DDC Control technology most of these control systems were designed to save energy, and in many areas reduce the amount of air exchange based on occupancy and CO2 levels needs.

Due to COVID-#19 these systems must be reprogrammed to make sure that fresh air is being exchanged in the spaces.

Here are some recommendations

1. Reprogram the system to make sure any CO2 devices are disabled
2. Program the Occupied interval to stay on longer to allow air exchange in the space.

3. Make sure the energy recovery wheels are off to allow all exhaust air to be exhausted.
4. Program the system to increase the amount air exchange into the spaces, while being careful to monitor for cold weather and possible freezing of pipes.