

Indoor Air Quality Guidance for K-12 Schools During the COVID-19 Pandemic

August 4, 2020

According to the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) the air quality measures listed below aim to reduce occupant exposure to infectious aerosols. The department recognizes that not all of New Hampshire's schools will be able to implement all of the measures below. For example, schools without ventilation systems will not be able to increase their mechanical fresh air intake; however, they still may be able to increase fresh air. Schools will need to consider the mechanical limits of their central air or other heating, ventilation and air conditioning (HVAC) systems, especially during the winter months. The district's facility manager or other HVAC professional should be able to guide the district in proper operation such that the systems do not fail. Districts should also recognize that operating an air system outside its efficiency settings will result in higher energy use and, as a result, higher energy costs. These operation methods should be considered temporary. Lastly, the NH Grades K-12 Back-to-School Guidance reminds schools to balance opening windows and doors with appropriate safety protocols.

PROVIDE FRESH AIR

- Consider disabling the demand-controlled ventilation and open outdoor air dampers to as much as 100% or as indoor and outdoor conditions permit to introduce outside air into the classroom
- Keep local exhausts running, if possible
- Allow for regular airing with windows when temperatures allow (even in mechanically ventilated buildings)
- Conduct education outside when possible
- **DO NOT** run fans that simply recirculate room air (e.g., oscillating pedestal fans)
- If window fans are used, place them in exhaust mode to move internal air outside the building and avoid increasing the circulation of respiratory droplets

IMPROVE FILTRATION

- Consider installing MERV-13 filters or the highest level your system will allow
- Keep systems running longer hours (24/7 if possible)
- Continue to replace central outdoor air and extract air filters, according to maintenance schedule
- Switch ventilation to nominal speed at least 2 hours before the building usage time and switch to lower speed 2 hours after the building usage time
- Do not switch ventilation off during nights and weekends, keep systems running at lower speed

MAINTAIN TEMPERATURE AND HUMIDITY

- Set relative humidity between 40% – 60% (ASHRAE states this is the most unfavorable survival for microorganisms)
- Do not change heating, cooling and possible humidification set points

CONSIDER AIR CLEANING TECHNOLOGY

- Add portable room air cleaners with HEPA or high-MERV filters (portable room cleaners may be noisy so it may be necessary to limit their use during class time)
- Retrofit air handling unit with air ionization in consultation with the district's facility manager or other HVAC professional
- Consider adding Ultraviolet Germicidal Irradiation (UVGI) devices in ductwork, air-handling units (carefully consult professional)

Resources:

ASHRAE Reopening of Schools and Universities, July 17, 2020:

<https://www.ashrae.org/technical-resources/reopening-of-schools-and-universities>,

ASHRAE Position Document on Infectious Aerosols, April 14, 2020:

https://www.ashrae.org/file%20library/about/position%20documents/pd_infectiousaerosols_2020.pdf and REHVA New

CDC's Toolkit for K-12 Schools, August 3, 2020

<https://www.cdc.gov/coronavirus/2019-ncov/communication/toolkits/schools.html>

COVID-19 guidance document, April 3, 2020

https://www.rehva.eu/fileadmin/user_upload/REHVA_COVID-19_guidance_document_ver2_20200403_1.pdf

New Hampshire Grades K-12 Back-to-School Guidance, July 2020:

<https://www.covidguidance.nh.gov/sites/g/files/ehbemt381/files/inline-documents/sonh/k-12-back-to-school.pdf>