



TO: Board of Education
FROM: Ian Heselgrave, Director of Operations
RE: HVAC update

DATE: Sep 28th, 2021

Purpose

To update the Board of Education on the status of the HVAC systems in all SD 71 schools. Good “ventilation” in classrooms is an important component of providing a safe learning environment and protection from communicable diseases. This briefing note will detail the steps taken to improve ventilation in classrooms.

Background

The Public Health Agency of Canada (PHAC) has developed an online guide to inform Canadians about how indoor ventilation, in combination with other recommended public health measures, can reduce the spread of COVID-19. The two following paragraphs are key extracts from this Guide:

“In addition to other public health measures, ventilation has an important role in reducing the transmission of COVID-19 indoors. Outbreaks have been linked to poor ventilation where the virus appears to have been transmitted through aerosol production from infected individuals that became concentrated in the air over time. It is important to note that adjusting ventilation is not likely to reduce transmission between individuals in close proximity. Individuals who are physically near a person who is infected remain at risk from both droplet and aerosol transmission. This is due to their close proximity to the infectious source. For this reason, it is important to:

- maintain physical distance from people you do not live with; and
- wear a well-constructed, well-fitting non-medical mask.

Ventilating a room or indoor space replaces the indoor air with outdoor air. This will dilute and replace any air contaminated with SARS-CoV-2 virus or other air pollutants. Ventilation systems in non-residential settings (like office buildings) may recirculate air through the HVAC system. In this case, some of the indoor air is diluted with outdoor air and filtered before returning to the occupied space. The risk from recirculating the virus through a space serviced by a single HVAC unit is unknown. You can decrease the risk and improve your indoor air quality overall by:

- drawing air from outside; and
- making sure your filters are good quality.”

Discussion

To ensure that there are proper levels of ventilation in all district classrooms the SD 71 Operations team has made several modifications to school HVAC systems. Key points are:

1. The building controls (DDC system) in all schools have been updated throughout the district to the most modern standard. This allows very good control of all ventilation systems.
2. Every classroom in the district has a dedicated unit ventilator that provides fresh air to the classroom. The filters in the unit ventilators are the highest MERV rating that the units are engineered to receive. In many cases a MERV-13 filter cannot be used in our HVAC systems because the motors, fans and electrical systems on most HVAC units are designed and engineered for a MERV-11 filter or less. If we install a filter in an HVAC unit with a higher MERV rating than the system is designed to receive the fan is generally not rated (or strong enough) to pull the correct amount of air through and the fans burn out prematurely, wires overheat and the units then shut down and provide no ventilation.
3. the HVAC systems were reprogrammed to comply with the American Society of Heating and Refrigeration Engineers (ASHRAE) best practices and recommendations for the prevention of COVID-19 transmission in schools. The changes include:
 - a. Ventilation system programmed to run a building flush for two hours prior to occupancy;
 - b. to significantly increase the volume (doubled) of fresh air being brought into the buildings;
 - c. lowered the CO2 setpoint to 800 PPM which significantly increases fresh air volumes in the school;
 - d. Increase the duration of all systems with occupancy sensors to run systems for a minimum of 2 hours. Thus, when you leave the classroom at a break time the system keeps exchanging the air in the classroom; and
 - e. All large air-handling systems such as the gymnasiums, and other large single zones, run the systems at 100% rather than a reduced fan speed which is the normal mode
4. Increased maintenance and monitoring of systems. HVAC filter changes are being conducted at twice the normal rate and an additional HVAC technician was hired to support and maintain the ventilation systems in schools.
5. The District has hired an independent mechanical engineer to review the operation and set up of the HVAC systems in all our schools.
6. Air quality testing will be conducted by the District Safety Officer either as routine or upon request by a Principal.

The Public Health Agency of Canada notes that good ventilation includes increasing indoor/outdoor air exchange, air filtration and opening windows and doors (where possible). This can help reduce spread of COVID-19 in indoor spaces by preventing the accumulation of droplets and aerosols indoors, but must be combined with other public health measures. The modifications to the SD 71 HVAC systems are clearly aligned with this PHAC guidance. In addition, further public health measures such as increased

hand hygiene and enhanced cleaning are clearly detailed in the SD 71 Communicable Disease protocols and are in place for the forthcoming school year.

Recommendation

It is recommended that the Board of Education receive the attached HVAC update report as information.

Respectfully submitted,

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