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| Regular Board Meeting |
| August 24, 2021 |
| UPDATE ON VENTILATION OPTIMIZATION AT DPCDSB |
| Multi-Year Strategic Plan Values: Believe, Excel, Thrive |

“Ehud came to him, while he was sitting alone in his cool roof-chamber, and said, ‘I have a message from God for you.’ So he rose from his seat.”

Judges 3:20

PURPOSE

The purpose of this report is to provide information on measures implemented to optimize ventilation and air quality in Dufferin-Peel Catholic District School Board (DPCDSB) schools to support healthy and safe learning environments for students and staff for the upcoming 2021-2022 school year.

BACKGROUND

Optimizing air quality in classrooms and learning environments through improving ventilation and/or filtration is a key element in the multiple protective strategies, such as screening, masking, physical distancing, and hand hygiene, to support healthy and safe learning environments for students and staff.

Ventilation and filtration are important components of an indoor air quality improvement strategy to help reduce the risk of transmission of COVID-19:

- **Ventilation:** Increasing the flow of outdoor/fresh air by mechanical or natural means in order to dilute the concentration of any infectious particles.
- **Filtration:** Involves filtering air to remove particles from the airstream.

Throughout the pandemic, DPCDSB staff have followed the guidance of the Ministry of Education and our local public health units to improve ventilation and air quality in schools.

Investments in Improving Ventilation and Air Quality

During the 2020-2021 school year, DPCDSB invested the following amounts towards improvements in ventilation and air quality with funding received from the Ministry of Education and the Government of Canada:

- **\$3.4 million** to support the acquisition of portable HEPA air purifiers, HEPA filters, and higher-grade (MERV-13) filters for ventilation systems in schools. The Ministry of Education indicated that this funding was not to be used for major capital infrastructure improvements.
- **\$12.5 million** from the COVID-19 Resilience Infrastructure Stream (CVRIS) to support needed HVAC infrastructure improvements in schools, including new air handling units, rooftop units, and exhaust fans; and

- **\$9.4 million** from School Condition Improvement (SCI) funding for new air handling units, rooftop units, unit ventilators, replacement heat pumps, and exhaust fans in schools.

For the 2021-2022 school year, the Ministry of Education has already announced that DPCDSB will receive the following investments to support improvements in ventilation and air quality in schools:

- **\$1.0 million*** for increased costs related to school operations in recognition of the need to operate ventilation systems longer and replace filters more frequently.
- An allocation of **160 new portable HEPA air purifiers** to be deployed in classrooms prior to the start of the school year and **\$131,000** in incremental funding to acquire additional portable HEPA units.

**The Ministry has indicated that school boards are to budget for only half of this amount (for the first half of the school year) until a confirmation is issued that these funds may be used for the second half of the school year.*

Ministry Guidance on Ventilation and Air Quality Improvement

On August 4, 2021, the Ministry of Education issued memorandum **2021:B14** which included updated ventilation best practice guidance and the introduction of a standardized school ventilation report. This memorandum also included a summary of results from school boards with mechanical ventilation. The Ministry expects all school boards to continue implementation of best practice measures to improve ventilation and/or filtration in schools for the 2021-2022 school year.

It should be noted that DPCDSB has a renewal backlog of approximately \$345 million, of which about \$60 million is for required HVAC projects. Based on the current annual funding allocation for school renewal, this backlog is equivalent to approximately 11 years of funding. In addition, it is estimated that the measures to improve ventilation in schools will cost DPCDSB an additional \$2 million in utilities on an annual basis going forward.

Staff and students' health and safety has always been the first priority. To this end, DPCDSB management and staff continue to make every effort to implement this ventilation optimization plan within and beyond the available resources.

DISCUSSION

Summary of HVAC Infrastructure at DPCDSB

- All DPCDSB schools and board facilities are supplied by mechanical ventilation systems of various types.
 - There are no schools at DPCDSB relying solely on "natural ventilation" mechanisms for fresh air supply
 - 58 schools and facilities are supplied with 100% fresh air

- The remainder of the schools have recirculating air units supplying varying amounts of fresh air subject to the type of mechanical equipment and outside air temperature conditions. This includes portable classrooms.
- All our schools are equipped with building automation systems (BAS) of various types, enabling better control of the HVAC systems.
- Most of our schools are fully or partially air conditioned.
 - As part of the CVRIS funding program, the investments to improve ventilation will allow for cooling to be added to the remaining 15 schools that currently have no or minimal air conditioning.
 - Upon the completion of these projects, 100% of our schools will have full or partial air conditioning.

Actions Taken to Improve Ventilation and Air Quality

As per the requirements outlined in the Ministry of Education memoranda **2020:B12** (August 25, 2020) and more recently, **2021:B14** (August 5, 2021) and **2021:B16** (August 13, 2021), the following HVAC maintenance and operations measures have been implemented in DPCDSB schools:

1. Enhanced Maintenance

DPCDSB's in-house Maintenance staff have performed HVAC assessments, repairs and adjustments to ensure mechanical systems are fully operational, along with ongoing preventive maintenance.

2. Filter Upgrading

The filters in ventilation equipment have been upgraded from MERV-10 to superior commercial grade MERV-13. The frequency of filter changes has been increased from three times per year to five times annually throughout the school year. DPCDSB has an inventory of approximately 15,000 air filters.

3. Portable Air Scrubbers

DPCDSB has already purchased and deployed over 1,500 portable HEPA air scrubbers in schools with recirculating air and other spaces assessed to be of greater risk for virus transmission. All Kindergarten classrooms will receive HEPA filter units for the 2021-2022 school year, as required by the Ministry of Education. At present, 160 units are being shipped to DPCDSB by the Ministry along with an additional 130 units being procured through DPCDSB's Supply Chain Department with the additional funding provided by the Ministry as noted in its **2021:B14** memorandum. As noted in this memorandum, schools with mechanical ventilation are not required to place a portable HEPA filter unit in every occupied classroom.

4. Extended Operating Ventilation Periods

The school ventilation systems have been scheduled to operate two hours or more before and after school occupancy. In addition, as a best practice recommended by the Ministry of Education, the mechanical systems will be operated in 'occupied mode' for a period of one week prior to students returning under normal operating hours (from August 30 to September 3) to flush the air within the buildings.

5. Standardized School Ventilation Measures Report

The Ministry has mandated that all school boards communicate school-level ventilation measures centrally on their school board website using a Ministry-issued standardized template. A sample copy of this template can be found in Appendix 1. This report will be based on the school-by-school measures already completed over the summer, along with continuing inspection and maintenance throughout the year. The report will be posted on DPCDSB's public website by September 3, 2021.

Three DPCDSB approved consultants are currently engaged to conduct an independent, third-party ventilation inspection at all DPCDSB schools and to prepare the required Standardized School Ventilation Measures Report. An inspection checklist recommended by the Ministry of Education is being used for these inspections. This independent and objective assessment is a continued measure to further enhance our ventilation system program in addition to the ongoing inspections and maintenance already performed by DPCDSB Maintenance staff.

Major Ventilation Infrastructure Improvement Projects

As noted above, DPCDSB received \$12.5 million in 2021 in funding from the COVID-19 Resilience Infrastructure Stream (CVRIS) to support needed HVAC infrastructure improvements in schools, including new air handling units, rooftop units, and exhaust fans. DPCDSB has also invested \$9.4 million in SCI funding from the 2020-2021 and 2021-2022 school years for new air handling units, rooftop units, unit ventilators, replacement heat pumps, and exhaust fans in schools. A list of all CVRIS and recent SCI investments in ventilation improvement projects in DPCDSB schools can be found in Appendix 2.

The CVRIS projects are required to be completed by December 31, 2021. Due to significant industry related supply chain challenges and very long lead times for the air-handling units and exhaust fans, the majority of CVRIS ventilation improvement projects are anticipated to be completed closer to the end of 2021.

CONCLUSION

Staff have undertaken a multi-faceted plan of action to optimize ventilation and air quality in DPCDSB's schools and board facilities. These measures span the areas of daily operations, routine and preventive maintenance, and investments in ventilation infrastructure improvements. All measures are in alignment with the best practice guidelines for school ventilation as outlined by the Ministry of Education. Examples include upgrades to air filters, increasing the frequency of filter changes, increasing fresh air intake, acquiring over 1,500 portable HEPA air purifiers (with more to come), investing in major ventilation infrastructure improvements, and completing and publicizing the new Standardized School Ventilation Measures Report before the start of the 2021-2022 school year to enhance transparency for students, parents/guardians, and staff from every school.

The COVID-19 pandemic continues to pose a series of challenges as more information emerges through science and practice. Therefore, continuous commitment and long-term efforts are essential to achieve a higher standard of ventilation and indoor air quality as required.

THE FOLLOWING RECOMMENDATION IS PROVIDED FOR CONSIDERATION:

- 1. THAT THE REPORT TO THE BOARD OF TRUSTEES, *UPDATE ON VENTILATION OPTIMIZATION AT DPCDSB*, BE RECEIVED.**

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