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Subject: **Ventilation Screening
East Lower & Upper Schools
1801 E Main St, Rochester, NY 14609**

On Wednesday, February 25, 2021, Ed Olmsted and Margaret Sergent, representing the Rochester, NY Teachers Association (RTA) inspected representative classrooms at East Lower and Upper Schools at 1801 E Main St, Rochester. The survey team also included a representative of the Rochester City School District (RCSD), Matthew Seeger, Schools Facilities Management.

The survey was done as part of the exposure control program for pandemic SARS-CoV-2. RCSD instituted many exposure control measures for the coming year including mandatory wearing of masks, distancing of occupants (reduced occupancy), enhanced cleaning, in-school COVID-19 testing, operating the ventilation systems with a maximum fraction of outside air, installation of ASHRAE MERV 13 filters, where the HVAC units can accommodate them, and the provision of air purifiers to all occupied spaces. Each school will temperature screen entrants and have a nurse's office. Students with symptoms or suspected of having COVID-19 will be isolated in an isolation room. More information on the RCSD reopening plans can be found on the [RCSD website](#).

The building is intended to be utilized in the Phase 3 February reopening for blended and in-school classes in middle and high schools. This inspection was requested prior to the staff and students' return and conducted after their return. The survey included the following:

1. A visual inspection of a number of representative classrooms;
2. A visual inspection of the building ventilation system(s); and
3. Taking airflow measurement at supply outlets, and return/exhaust grilles using a TSI 9515 VelociCalc Air Velocity Meter (anemometer).

The findings include:

1. The East Campus has a modern central heating and air conditioning ventilation system that serves all classrooms. The units are located in mechanical spaces in the basement level. The central air handler units are designed to provide a constant volume of a mixture of outside air and return air. Each supply fan has an associated return fan. Depending on the unit, mixed air is filtered through either MERV 13 or MERV 14 filters and heated or cooled in the unit. Filters with MERV-13 or higher ratings are recommended for HVAC systems due to their ability to filter smaller particles, including viruses. As such, upgrades to a MERV-13 rated filter, or the highest-rated filter in HVAC systems have been recommended by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) as a method to reduce the transmission of the SARS-CoV-2 virus in recirculated air.¹
2. From these air handler units, that tempered and filtered air is distributed via a system of ductwork. The ductwork terminates in an occupiable space at units located under the windows. Staff should take care not to store too many items on slot vents located under the window. In addition, the space above the drop ceiling serves as a return air plenum.
3. All the above-mentioned components of the school's central mechanical ventilation systems were examined and found to be working.
4. Not all rooms could be inspected but a representative number was included in the inspection. These rooms included Rooms 111, Nurses' office, B101 (Isolation Room), Main office, and 139. The supply outlets were screened with a thermal anemometer to determine whether supply air was discharging from the outlet. There was measurable flow at each supply outlet in the rooms visited.
5. The windows were checked in Room 111 to verify that they are operable and can be opened. Air velocities were measured at an opened window, and the room size was measured to estimate the air exchange rate through the window through natural ventilation. With one window was opened 1 inch provided 9 supplemental air changes per hour. There are no set ventilation guidelines or standards regarding air changes per hour in classrooms, however, most experts suggest at least 3 air changes per hour, and ideally 6 air changes per hour in classrooms.
6. Levels of carbon dioxide were measured in the building to assess outside air exchange rates. The levels were 487 parts per million. This level suggests the building receives a significant fraction of outside air.

CONCLUSIONS

Overall, the school's ventilation can help reduce the risk of exposure to SARs-CoV-2 and meets the published guidelines. The mechanical ventilation system is capable of providing at MERV 13 filtered mixture of outside air and return air. In addition, most classrooms also have operable windows that can be used to provide natural ventilation. Where possible and if necessary, teachers can open two windows in each room to an opening of two inches. This will provide natural ventilation without causing the room to become cold and will provide 4 to 5 air changes per hour. Lastly, ensure other safety and health precautions, such as mask-wearing, social distancing, cleaning/sanitization, and routine handwashing, are also practiced to prevent the transmission of SARS-CoV-2.

REFERENCE

1. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Reopening of Schools and Universities. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). 2020. Available at: <https://www.ashrae.org/technical-resources/reopening-of-schools-and-universities>.



Supply vent located under the window



Keep the supply vents under the window clear



An air handler unit



MERV 13 filters in the air handler unit