

# **OLMSTED ENVIRONMENTAL SERVICES, INC.**

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Subject: **Ventilation Screening**  
**Monroe Lower and Upper Schools**  
**164 Alexander Street, Rochester, NY 14607**

On Wednesday, February 25, 2021, Ed Olmsted and Margaret Sergent, representing the Rochester, NY Teachers Association (RTA) inspected representative classrooms at Monroe Lower and Upper Schools at 164 Alexander Street, 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 Monroe Campus of prewar construction but the mechanical ventilation system has been recently modernized. The school building has the original masonry exterior with operable windows. The building is served by a central ventilation system that consists of air-handlers in mechanical rooms in the basement and third floor. The outside air taken into these units and subsequently delivered throughout the building is filtered through pre-filter and then MERV 13 filters. 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.<sup>1</sup>
2. From these air handler units, that tempered and filtered outside air is distributed via a system of ductwork. The ductwork terminates in an occupiable space at an is active chilled beam system in the ceiling of the room it serves. The active chilled beams deliver outside air through induction nozzles, which mix with return air, and ventilates the room. There are secondary water pipes serving each chilled beam induction unit that provide heating or cooling to the zone. There are no filters in these chilled beam induction units.
3. The air handlers in the mechanical room were inspected. The air handler units were inspected and found to be new and in good condition.
4. Levels of carbon dioxide were measured in the school to assess the air exchanges. The levels were between 500 and 550 ppm. This suggests a good outside air exchange rate.
5. Not all rooms in the building could be inspected but a representative number was included in the inspection. These rooms included the Nurses' office, Room 026A (Isolation Room), 203, and 309. The supply inlets in the chill beam induction units were screened with a thermal anemometer to determine whether supply air was discharging from the outlet. There was measurable flow at each supply air vent in the rooms visited except in Room 026A.
  - 1) Room 026A, which was selected as the isolation room. The isolation room is used to hold and isolate student(s) that tested positive for COVID-19 or who is exhibit COVID-19 like symptoms until a guardian can pick up the student from the school. This room had no mechanical supply or exhaust ventilation system. It has windows for natural ventilation and an air purifier to supplement ventilation. When the room is in use, ensure that the windows are opened and that the air purifier is on. Supplemental air changes can be achieved by installing a box fan in the window.

## CONCLUSIONS

The school has a central mechanical ventilation system with MERV 13 filters and that provides a mixture of outside air and return air. All air is filtered and heated and provided to all rooms. The return and supply fans were all working. The windows are operable in all classrooms and can be opened for outside air. It is recommended that window openings be limited to an inch or two to prevent the room from becoming too cold during cold outside weather. It is not necessary to open windows to full open. The exhaust fans were also working. The school is ready for occupancy. The ventilation system in combination with wearing of masks, screening students, social distancing, and sanitizing of surfaces as well as other controls provide a sufficient level of infection prevention.

## 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>.



Pre-filter and MERV 13 filter in air handler units



Chill beam system in the nurses' office. Outside air is delivered out the slots and return air through adjacent egg crate grilles.



Chill beam system in a classroom. Outside air is delivered out the perimeter and return air through center egg crate grilles.