

# **OLMSTED ENVIRONMENTAL SERVICES, INC.**

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Subject: **Ventilation System Screening**  
**School 46 – Charles Carroll School, 250 Newcastle Road, Rochester, NY**

On Friday, January 29<sup>th</sup>, 2021 Ed Olmsted and Margaret Sergent, representing the Rochester NY Teachers Association and Matthew Seeger, representing the Rochester City School District Facilities Management office, inspected representative classrooms, and the ventilation systems at the Charles Carroll School, 250 Newcastle Road, Rochester, NY.

The ventilation survey was done as part of the exposure control program for pandemic SARS-CoV-2. The Rochester City Schools District instituted many exposure control measures for the coming year including mandatory wearing of masks, distancing of occupants (reduced occupancy), enhanced cleaning, operating the ventilation systems with a maximum fraction of outside air, and installation of ASHRAE MERV 13 filters, where the HVAC units can accommodate them. 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.

The building will be utilized for in-school classes for elementary school students. This inspection was requested prior to the students return in mid-February 2021. The survey included the following:

1. A visual inspection of a number of representative classrooms, nurses office and isolation room as well as the mechanical rooms.
2. Taking airflow measurement at exhaust grilles and open windows using a TSI 9515 VelociCalc Air Velocity Meter (anemometer); and
3. A visual inspection of the building ventilation system(s).

Rooms inspected include 212A, 205, 209, 200, 118 and the nurses office. Observations and measurements are summarized below:

1. School 46 was renovated and the interior is of modern construction. The school building has a masonry exterior and is of concrete and steel construction. The building is served by univents in each classroom that provide a mixture of outside air and room air. The univents have a heating coil and filters are rated at MERV 13. The rooms are also heated by perimeter steam radiators.
2. There are exhaust fans on the roof that pull air from the bathrooms. Each classroom has operable windows that can be opened for outside air. There are gravity (passive) vents in the coat closets in each classroom that allow for natural exhaust of air to the roof. Air flows to the roof from the classrooms by stack effect and thermal effects and also to relieve pressure from the univent mechanical supply of outside air.
3. There is a large exhaust fan located in the attic that is not working. This fan will be repaired prior to beginning school.
4. Univents were inspected in rooms 101, 118, Art Classroom. They were found to be working, however they were turned off. These were turned on at the time of this survey. The other rooms all had working univents. It was indicated that the custodian will make sure all units are turned on prior to starting school.
5. Windows were opened in each classroom to verify they are working.
6. Room 212A. The windows are operable and the univent is working. The measurements indicate that with one window open 3 inches the flow of outside air through the window is 300 cubic feet per minute (cfm). This calculates to 4.75 air changes per hour with outside air.
7. Room 205 – The univent is operational. One window was opened 4 inches and found to provide 800 cfm of outside air and 7.5 room air changes per hour with fresh air.
8. Room 209 The univent was working in this room. The exhaust ventilation is working. The windows are operable.
9. Room 200 Art Room – There are two exhaust vents in this room that are not pulling air. These exhausts are on the fan in the attic that is in the process of repair. The univent is working properly but there are many plastic storage bins stored on the unit. This can block flow.
10. Room 118 - This room has two operable univents that are working and has operable windows.
11. Nurse's Room – This office has a working univent and operable window. The bathroom has a working exhaust vent and there is a HEPA air cleaner running in the nurse's office.
12. Isolation Room – The room adjacent to the boiler room will be used for an isolation room. This room has operable windows and there is an exhaust fan that discharges into the boiler room. A MERV 13 filter should be secured over the exhaust fan so that air does not bypass the filter.

## CONCLUSIONS

The school has univents with MERV 13 filters and that provide a mixture of outside air taken from the roof and return air. All air is filtered and heated. The exhaust fans were mostly working, however one exhaust fan in the attic was not working and must be repaired. This should be done as soon as practical. Opening a window a few inches was found to provide sufficient air changes through natural ventilation. The school is ready for occupancy. The operable windows, 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.





Exhaust in the closets



Operable windows and univents – prevent blocking of the vent with stored materials



Exhaust vents are also in the upper corners of most rooms

