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Subject: **Ventilation Screening**
Leadership Academy for Young Men
4115 Lake Ave, Rochester, NY 14612

On Thursday, February 25, 2021, Ed Olmsted and Margaret Sergent, representing the Rochester, NY Teachers Association (RTA) inspected representative classrooms at the Leadership Academy for Young Men located at 4115 Lake Ave, 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, return/exhaust grilles, and univents using a TSI 9515 VelociCalc Air Velocity Meter (anemometer).

The findings include:

1. Most of the classrooms and offices are served by unit ventilators or univents located at the base of the windows in each room. The univents are standalone units that have heating coils and outside air inlet. Return air is drawn in through the base of the unit and outside air through a sleeve that penetrates through the wall to the outside. The outside air grille can be viewed typically outside the building under the windows. The units have been fitted with MERV-13 filters. Filters with MERV-13 or higher ratings can trap 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. Along with the univents, which provide a mixture of outside air and return air, classrooms typically also have windows for natural ventilation and mechanical exhaust ventilation that pull air from the room. The exhaust grilles were typically noted above the head on the ceiling or at the base of a wall in the room.
3. An air handler unit serves the auditorium. The air handler was operated to provide the space all outside air and no recirculation of indoor air. Outside air is safe and does not require filtration for viral particles. However, recirculated (return) air may contain particles that contain the virus especially if there is an infected person in the building. Operating the system with maximum outside air and exhausting all or most of the return (recirculated air) can bypass the need for filtration until more MERV-13 filters arrive and can be installed in the unit.
4. Classrooms and office spaces visited included Rooms 109, 111, 109, 119 (Isolation Room) and the Health Office. All rooms visited all had operable windows and were served by unit ventilators (univents) and exhaust ventilation. The univents in all these classrooms were all operational.
5. The windows were checked in three classrooms to verify that they are operable and can be opened. Air velocities were measured at an opened window, and the room sizes were measured to estimate the air exchange rate through the window through natural ventilation. 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. The following room air exchange rates were estimated for each room:
    a. Classroom 109 – One window was opened 4 inches provided 4 supplemental air changes per hour.
    b. Classroom 111 – One window was opened 4 inches provided 3 supplemental air changes per hour.
    c. Classroom 119 – One window was opened 2 inches provided 10 supplemental air changes per hour.

CONCLUSIONS

The classrooms have univents and operable windows that provide outside air. The mechanical ventilation system is capable of providing a MERV 13 filtered mixture of outside air and return air. In sum, it was found at the time of the inspection that the school's ventilation system was operational and is capable of providing sufficient ventilation capacity to be occupied.

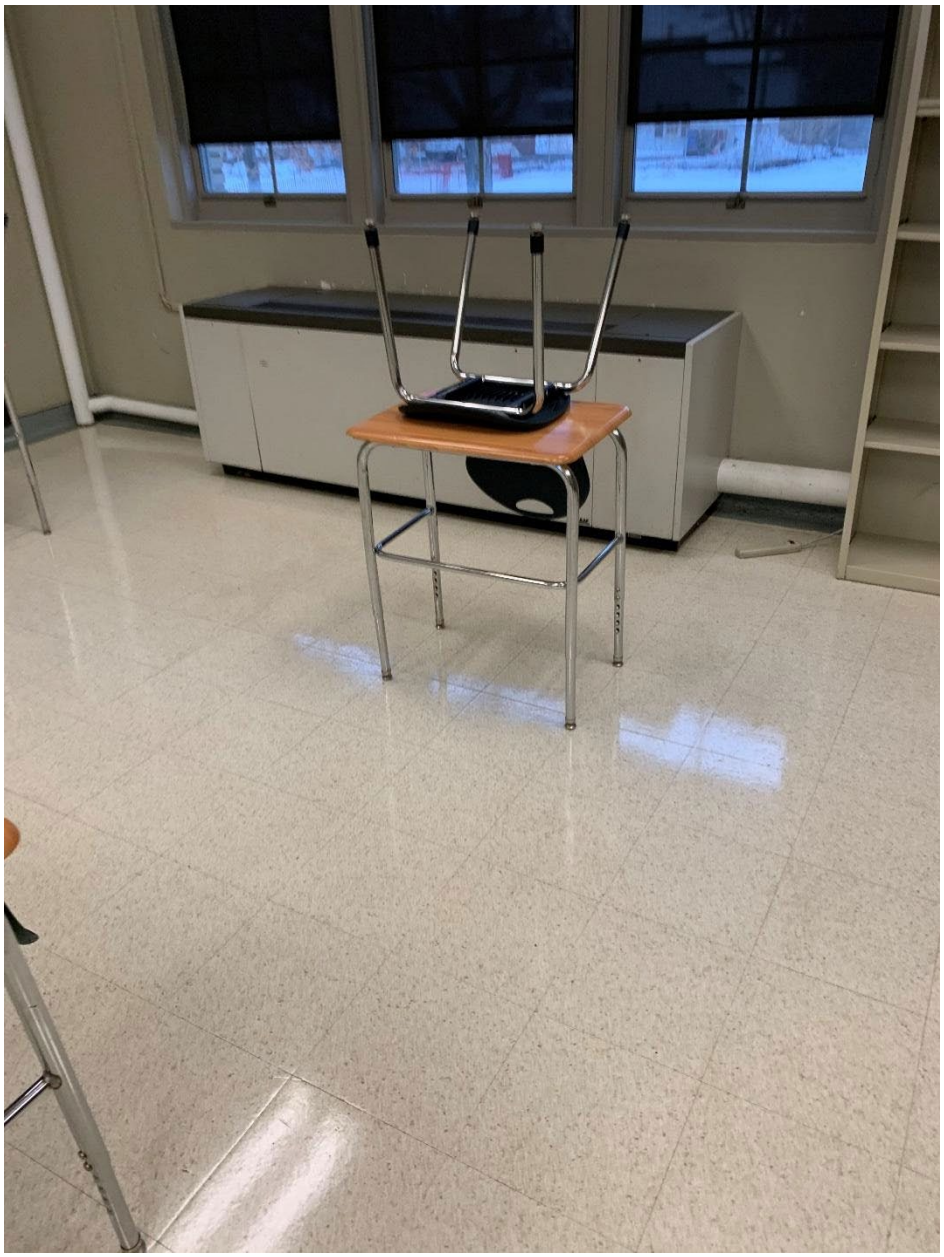
Ventilation is only one of multiple health and safety precautions that is important to preventing the transmission of COVID-19. As such, ensure that other crucial health precautions, such as universal mask-wearing, social distancing, cleaning/sanitization, and routine handwashing, are also practiced to prevent the transmission of SARS-CoV-2.

In light of the findings, the following recommendations are made.

1) The univents should be run continuously when the classroom is occupied. In addition, pedagogical staff should not tamper with the univent to turn them off, instead consult the building engineer to address excess temperatures.
2) Do not block exhaust intakes and keep the tops of the univents clear of stored materials.
3) The univents provide outside air in most classrooms. However, 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.
4) 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 extremely cold and will provide 4 to 5 supplemental air changes per hour. Do note, of course, the building's mechanical ventilation system is also capable of delivering filtered and tempered outside air.

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.



Univent located in Room 119 (Isolation Room)

Exhaust grille at the base of the wall in Room 119 (Isolation Room)