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Subject: **Ventilation System Screening**
School 17 - Enrico Fermi School, 158 Orchard Street, Rochester, NY

On Thursday, January 28th, 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 School 17, which is the Enrico Fermi School located at 158 Orchard Street, 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. More information on the RCSD reopening plans can be found on the [RCSD website](#).

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 the mechanical rooms, kitchen/cafeteria, G105, nurses office (room 107, 108, 153, 330, and room 328). Observations and measurements are summarized below:

1. School 17 is an older building and was completely renovated in the last two years. This included installation of all new mechanical equipment. The school building has a masonry exterior and is of concrete and steel construction.
2. The interior portions (windowless rooms) in the building are served by a central ventilation system that include exhaust/return fans and supply air-handlers. The supply ventilation provides air through ceiling diffusers located in each classroom. The vent system has variable air volume dampers that modulate the volume of air provided to each classroom. The air handler has a variable speed drive and MERV 15 box filters with MERV 8 pre-filters. Inspection of the central ventilation units revealed the outside air dampers to be set at the maximum open position.
3. Classrooms with openable windows have univents which provide a mix of return air and outside air. There are MERV 13 filters installed on the univents.
4. Most classrooms have windows, which can be opened for outside air, however opening windows is not necessary since the ventilation units provide efficient filtration of recirculated air. Classrooms with windows have univents that draw outside air from a duct that penetrates the wall below the windows. There are some interior rooms without windows that are served by the central ventilation system.
5. Windows were checked in some classrooms and found to be working.
6. Classroom inspections revealed the following:
 - a. Room G105 Music Room – This is an interior room that does not have windows. The supply vents were moving air and working. There are 8 supply vents serving the room and velocity measurements from the outlets are as follows: 340, 235, 300, 246, 307, 370, 200, and 218 feet per minute (fpm).
 - b. Room 107 (Nurse's office) - The two supply vents were moving air and working. Measured velocity at the outlets were 467 and 397 fpm. The bathroom exhaust was working and measured 50 fpm. The small office within the nurse's suite has a supply vent that measured at 329 fpm. The nurse's office has a HEPA air cleaner.
 - c. Room 108 (office) - The supply vent was moving air and working measuring 270 fpm. The exhaust was also working.
 - d. Room 330 - The univent was not running at the time of this survey. The unit was turned on and found to be working. The custodian will inspect all classrooms and verify that the univents are turned on. The windows are operable and airflow was measured at one window opened to a height of 3 inches. The flow of outside air through the window is 200 cubic feet per minute. This calculates to 1.75 air changes per hour with outside air.
 - e. Room 328 – The univent was working and velocity measured at the grill was 350 fpm. The windows are operable.
 - f. Mechanical room – The air handlers are new and were found to be in good condition and working properly.

CONCLUSIONS

The school has a ventilation system that provides a mixture of outside air. The chilled beam induction units also recirculate air. The DOAS air handlers on the roof provide 100% outside air and no recirculated air. All outside air is filtered and heated. Windows can be opened but it is not

necessary. Teachers are permitted to open a window a small amount during winter months. 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.



Interior rooms have supply diffusers and are on the central ventilation



MERV 8 and MERV 15 box filters in the air handlers provide good filtration



The air handler provides a mix of outside air and return air and filters through MERV 15 filters.



Air Handler