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Subject: **Ventilation System Screening**
John Williams School 5
555 Plymouth Ave, Rochester, NY 14608

On Monday December 21, 2020, Ed Olmsted and Jennifer Long as well as Margaret Sergent, representing the Rochester NY Teachers Association inspected representative classrooms, and the ventilation systems at The John Williams School #5 located at 555 Plymouth Avenue in Rochester, NY. The survey team included representatives of the Rochester City School District (RCSD) including Stacie Darby, Environmental Health and Safety, Matthew Seeger, Schools Facilities Management, and Tom Keysa of Schools Facilities Management. 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.

School #5 is of prewar construction but was gut renovated five years ago and the interior is of modern construction. The school building has the original masonry exterior with operable windows. The building is of concrete and steel construction and is served by a central ventilation system that consists of four primary supply air-handlers in mechanical rooms in the basement and an active chilled beam system. The active chilled beams are served by ductwork that delivers outside air that is primary air to the pressurized plenum within the device that is discharged through induction nozzles, mix with entrained air, and ventilates the room. There are secondary water pipes serving each chilled beam induction unit that provide heating or cooling to the zone.

The building has a chiller that provides chilled water for air conditioning and a boiler that provides hot water. The supply fans are new and provide outside air that is filtered through MERV 14 filters. Each supply fan has an associated exhaust fan and there are heat recovery wheels in the exhaust and supply units. The ventilation outside air supply system is ducted to each ceiling mounted chilled beam induction unit. Classrooms also have windows, which can be opened for outside air, however opening windows is not permissible in the summer months because condensation forms on the chilled beam induction units. The windows can be opened in the winter. There are also exhaust fans that serve the bathrooms. There is no perimeter heat and all heating and cooling is provided by the chilled beam induction units.

The building will be utilized this January for in-school classes starting with special education students and phasing in elementary and middle school students. This inspection was requested prior to the students return. The survey was done on December 21, 2020 and included the following:

1. A visual inspection of a number of representative classrooms, nurse's office and isolation room as well as the mechanical room;
2. Taking airflow measurement at supply outlets, return/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).

The findings include:

1. The air handlers in the basement mechanical room were inspected. The supply fans and the return / exhaust fan were inspected and found to be new and in good condition. The supply air units are operating and have MERV 8 pre-filters and MERV14 primary box filters. These are recommended by ASHRAE for infection prevention. The supply air handler units deliver all outside air. The return fans have a heat exchanger in common with the supply fan and discharge return air to the outdoors. There are no filters in the chilled beam induction units.
2. The nurse's office had measurable supply air out of each ceiling outlet. There is a stand-alone HEPA air cleaner in the nurse's office.
3. Classroom 105, the isolation room, had good airflow from each of the four induction unit supply diffusers. This room also has operable windows that can be opened for outside air.
4. Classrooms 115, 119, 207, 314 and 315 will be used first during the January reopening and were found to be clean and had flow of supply air from the ceiling induction unit outlets. This room has operable windows that can be opened for outside air.
5. Room temperature levels were in the low 70° range, which is comfortable.
6. The exhaust fans were found to be operating.

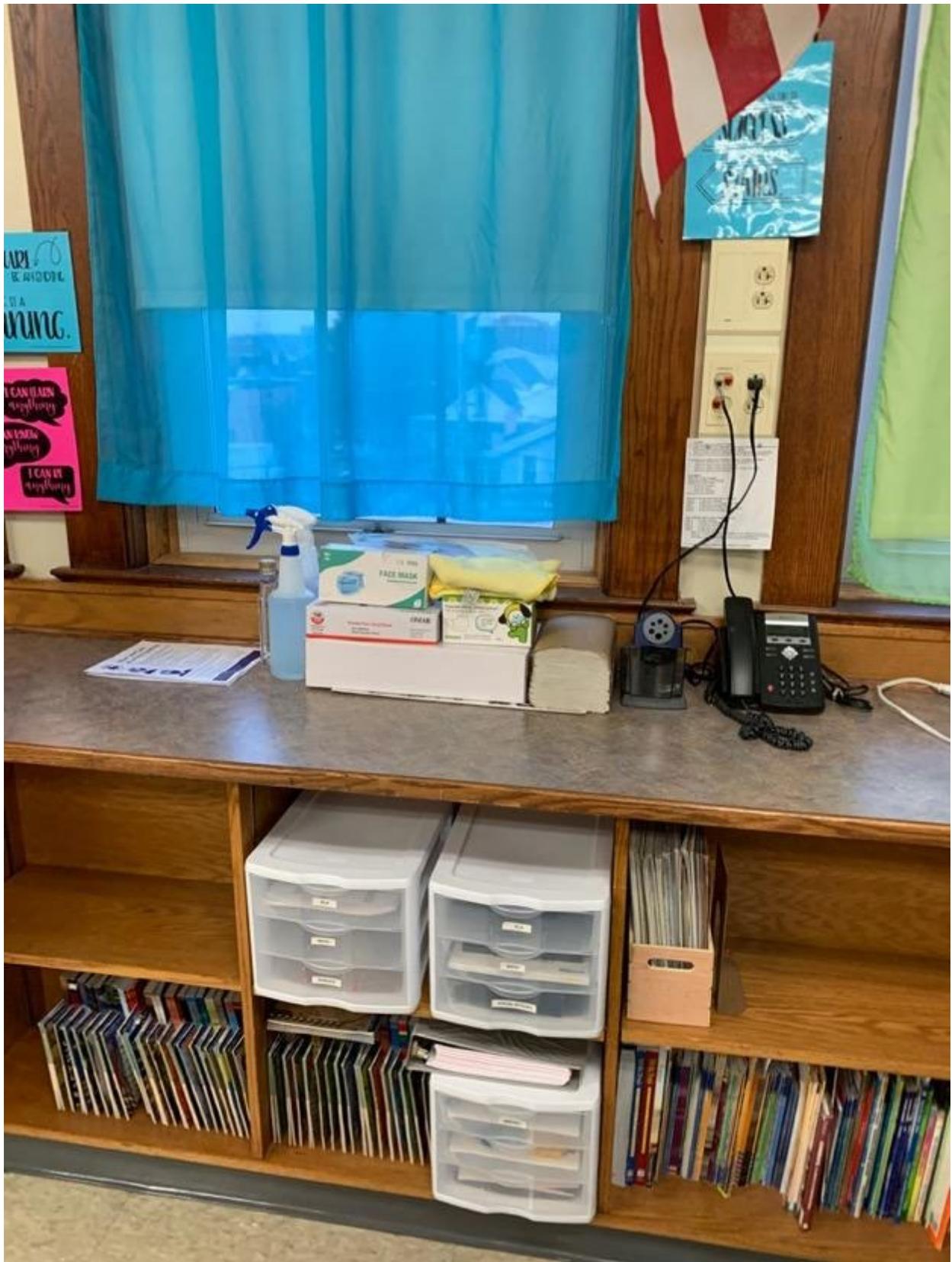
CONCLUSIONS

The school has a central mechanical ventilation system with MERV 14 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. It is not necessary to open windows to full open. The exhaust fans were also working. Temperature readings indicate the heating system is working in

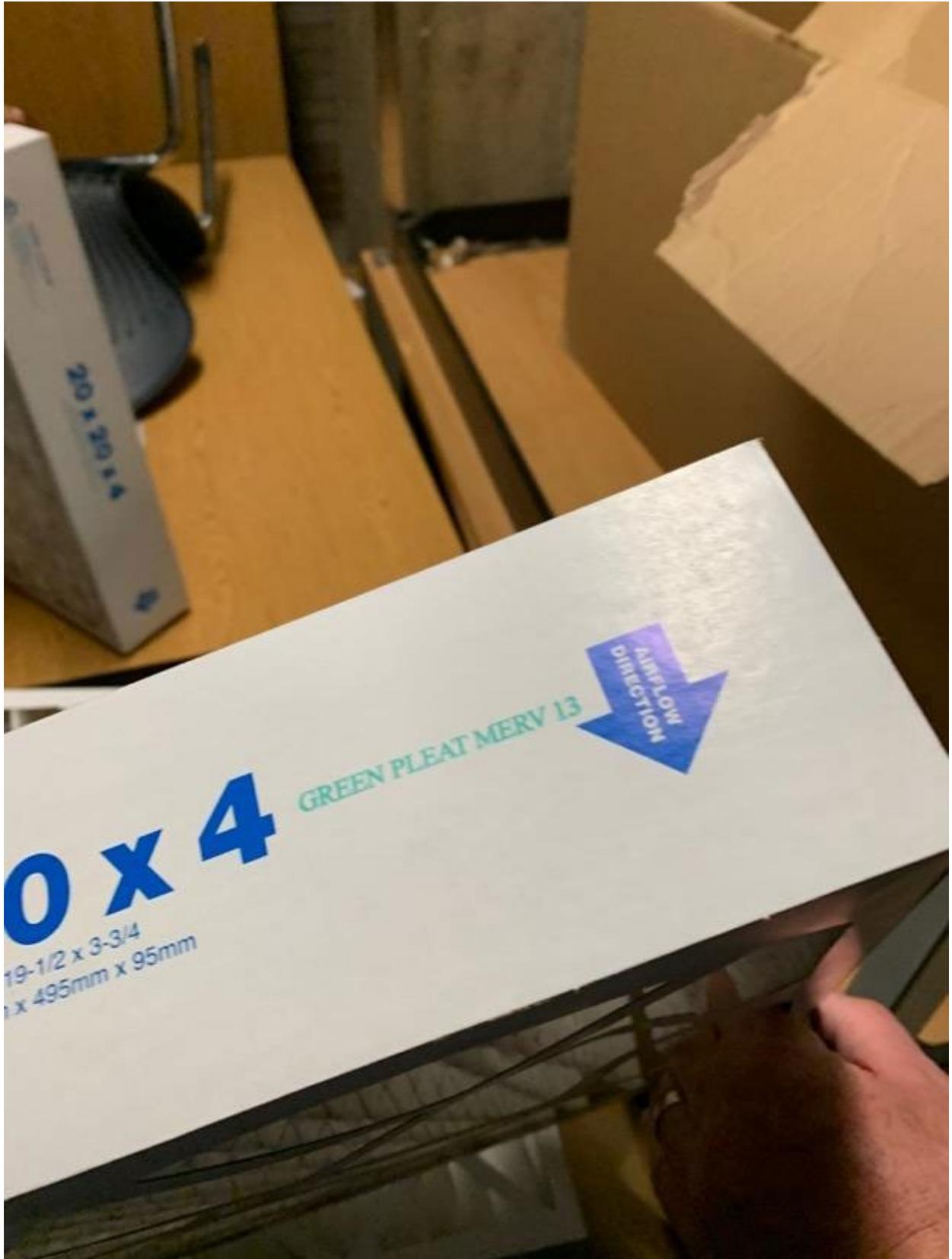
each classroom. The school is ready for occupancy. The ventilation system in combination with wearing of masks, screening students, social distancing and sanitizing of surfaces as well as other controls provide a sufficient level of infection prevention.



Chilled beam induction unit in the drop ceiling



Operable windows and cleaning supplies



MERV 14 filters in the air handlers



Chilled beam induction unit with cover removed



MERV 8 prefilters and MERV 14 filters in the air handler