Galway Central School District
Ventilation and Filtration System Information
August 2020

Galway Central School District has just completed a $27 million capital project which included major upgrades to our ventilation and filtration systems.

Turner Construction Company	Construction Management
CS Arch	Architects
Sage Engineering	Engineers
DiGesare	Mechanical
TBS	Controls

As the project is concluding, TBS maintains our heating and cooling systems per contract.

The recently completed capital project involved a large amount of work to replace many of the school building's existing mechanical heating and ventilating systems. The following is a summary of the completed work.

ALL existing classroom space unit ventilators were replaced with new unit ventilators utilizing either floor mounted or horizontal, ceiling hung style units. The unit ventilators are all equipped with heating coils and outside air ventilation intake systems. 11 of the new unit ventilators including mechanical cooling systems connected to remote condensing units, including each new unit ventilator in the Pod J wing. New unit ventilators were also provided for the Elementary library and for multiple corridors throughout the building to satisfy mechanical ventilation requirements for corridors, which previously had no ventilation. The outside air ventilation rates for the classrooms, the elementary library and the corridors were all sized to at least meet the requirements of the New York State Mechanical Code, which is the criteria set for by the State Education Department. In addition, the unit ventilator control systems were upgraded to allow the unit ventilators to bring in up to 100% outdoor air through the units based on outside air conditions and indoor space temperatures. Even at below freezing temperatures additional outdoor air above minimum code requirements is available as the control systems provide multiple layers of monitoring capability to ensure heating coils don't freeze. Each classroom and library space with a unit ventilator is matched with an associated roof exhaust fan that exhausts the same amount of air that is brought on by the unit ventilator. Lastly, since unit ventilators have limitations on static pressure output capability, their normal filter MERV rating is typically

7/8. However, it has been recommended to provide MERV 11 rated filters for the unit ventilators to achieve a higher filtration level, but this will require more frequent filter change outs since the pressure drop through the MERV 11 filter will be higher than the normal MERV 7/8 filter, so it will be important to keep the filters clean to limit pressure drop.

The Elementary Cafeteria was provided with a new indoor air handling unit that includes a heating coil and MERV 14 filter system. The outdoor air ventilation rate was sized to both exceed the ventilation rate requirements by code for cafeterias AND to match the adjacent kitchen's exhaust air rate as the kitchen utilizes transfer air from the cafeteria for make-up air purposes as a result from the kitchen's multiple exhaust air fan systems. The control system in the cafeteria also includes carbon dioxide monitoring sensors that increase ventilation to the space whenever carbon dioxide levels increase above normal outdoor air carbon dioxide levels. The cafeteria unit was equipped with MERV 14 filters due to the proximity to the kitchen's cooking operations.

Lastly, the capital project included the installation of 17 new packaged rooftop units that all include heating coils and MERV 13 filters. Nine of the new rooftop units including mechanical cooling systems. The rooftop units serve varying types of spaces including all 3 gyms, the middle school cafeteria, office spaces, the Nurse's Suite, the Elementary Guidance and Sensor area, the Home and Careers classroom and the Distance Learning area. Each rooftop unit includes outdoor ventilation air rates to meet or exceed the code requirement rate for the particular space served the unit. In addition, each rooftop unit includes a supply fan and exhaust fan so that the exhaust air rate matches the intake ventilation rate to allow for proper air exchanges. In addition, the control system upgrades allow for each rooftop unit to bring in 100% outdoor air when outdoor air temperature and indoor temperatures allow.

OUTDOOR AIR VENTILATION

The Galway Central School District will increase outdoor air ventilation rates well above minimum code requirements, especially in outdoor air temperature conditions above freezing. Once freezing temperatures are approached, the district will evaluate what the maximum outdoor air rate the individual system can handle while still meeting heating demands and avoid potential coil freezing conditions. Outside air-intakes are located directly behind each heating unit in all classrooms.

FILTRATION

TBS, as part of their contract, changes district filters every six months. Currently our filters are rated from MERV 8 to MERV 14. MERV 8's are being replaced by MERV 11's. The HVAC system, the rooftop units, filters are rated MERV 13 and 14.