

October 15, 2020

Timothy E. Ames  
Ken-Ton Schools  
1500 Colvin Boulevard  
Buffalo, NY 14223

**RE: KEN-TON COVID-19 HVAC SUMMARY**

Dear Mr. Ames:

Thank you for the recent opportunity to walk through your schools and evaluate your heating, ventilating and air-conditioning (HVAC) systems. This letter provides a brief summary of typical HVAC systems in the district as well as recommendations for improving air quality in response to the COVID-19 pandemic.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has issued the following statement regarding the transmission of SARS-CoV-2 and the operation of HVAC systems during the COVID-19 pandemic. “Transmission of SARS-CoV-2 through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.”

The primary means for decreasing airborne bio-burden with HVAC systems are ventilation and filtration. Modifications to the ventilation or filtration in existing buildings have potentially negative impacts on system performance. It is important to understand and carefully consider the impacts prior to implementing changes.

Classrooms in Ken-Ton School District are mechanically ventilated by either unit ventilators or central outdoor air ventilation fans ducted independently to classrooms. Air handling units typically ventilate and condition larger spaces such as gymnasiums, auditoriums and natatoriums. Office spaces are conditioned with a mix of air-handling units and unitary equipment.

Based on our site observations and review of existing drawings, the district’s HVAC systems are designed to provide appropriate levels of outdoor ventilation air for full occupancy per the applicable Codes at the time of design. The State Education Department (SED) currently requires ventilation rates for typical classrooms to be calculated using 30-occupants. This occupant count is based on Code and SED design requirements and not necessarily on the actual number of occupants in a classroom. The actual number of occupants in Ken-Ton



classrooms at full occupancy is fewer than 30. Additionally, Ken-Ton schools are opening at 50% of typical classroom occupancy. This results in HVAC systems which are designed to provide higher outdoor airflow rates than are required for the actual occupant load.

Unit ventilators and central ventilation fans, as are found in Ken-Ton schools, effectively isolate mechanical air circulation to within individual classrooms. This is a great benefit when attempting to minimize the spread of COVID-19 between rooms through the HVAC systems and provides better zone separation than common systems with high-efficiency filtration.

The district's HVAC equipment has standard efficiency filtration for removing dust and other particulate from the air, but is typically not equipped with high-efficiency filtration effective in filtering virus-sized particles. ASHRAE considers MERV-13 filtration or better to be efficient at capturing airborne viruses. Increasing the filtration to MERV-13 in equipment not originally designed for this level of filtration will result in higher pressure drops, reduce system airflow, negatively effect thermal performance and decrease outdoor air ventilation rates. For these reasons, it is not recommended that Ken-Ton replace existing filtration with MERV-13 or higher filters.

Equipment vendors are contacting building owners and engineering firms with new technologies claiming to purify air. The State Education Department's (SED's) position on new technologies is that they are not permitted until proven save by independent and impartial studies by a nationally recognized governing body. Please continue to consult with CPL when evaluating potential new technologies to improve air quality.

HVAC control strategies intended to increase and optimize ventilation rates may be implemented without compromising occupant thermal comfort. These strategies include pre- and post-occupancy purge cycles and increased ventilation control. The negative side effect of these increased ventilation strategies is higher energy consumption and the associated higher energy bills.

We look forward to continuing to work with you on safe and efficient design of your schools.

Very truly yours,  
CPL

Michael Pena, P.E.  
Senior Associate