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September 3, 2020

Raymond Karaty, Business Administrator
Saddle Brook Public Schools
355 Mayhill Street
Saddle Brook, New Jersey 07663

RE: HVAC Systems at the
Saddle Brook Schools

Dear Mr. Karaty:

All of our clients are facing the enormous task of opening schools during the difficult time of a nation-wide pandemic. We have been working in your school district for many years, and we offer the following to help assure your staff that the ventilation system is operating to provide the required air changes.

At all schools, the buildings are heated and cooled by a combination of unit ventilators (UV) and rooftop units (RTU). There are some rooms that are cooled using window air conditioners. Both UV's and RTU's bring outside air into the space. A UV is typically found in a classroom and provides heating and cooling to just the space in which it is located. An RTU is found on the roof and typically provides heating and cooling to larger spaces such as gymnasiums, multi-purpose rooms, libraries, etc. A small RTU can provide heating and cooling to one classroom but is typically used for larger spaces.

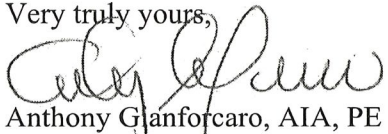
An RTU and a UV both have filters located within the units. The purpose of the filter is to stop dust and small particles for getting onto the heating and cooling coils. If the coils get clogged with debris (dust, etc.), there will be a lack of air flowing across the coil. This will cause the equipment to freeze up in the cooling season and provide inadequate air flow to warm the space during the heating season. All filters have a MERV rating. The higher the MERV rating the less particles that will be able to pass through the filter. The higher the MERV rating the less air flow will pass through the filter. If the unit is not designed to accept a "high" MERV rating, this will cause the unit to fail. The fan supplying air through the unit will have an excessive amount of static pressure and this will decrease the life of the fan motor. For example, a MERV 17 filter is generally found in hospital operating rooms and "clean rooms" in research labs. We contacted a unit ventilator manufacturer and that one particular manufacturer is recommending no higher than a MERV 10 for a two (2) inch pleated filter.

Both UV's and RTU's bring in outside air. A window air conditioner does not bring in outside air. During the cooling season, if the space is being cooled with a window air conditioner, the UV in the room must be left in the on position so outside air is brought into the space. It is a Mechanical Code requirement along with the New Jersey Department of Education requirement when designing schools. In order to provide the required outside air; the equipment contains dampers that open and close during the occupied cycle (when people are in the building) and unoccupied cycle (when the building is vacant). Most equipment is controlled through a building management system (BMS). The BMS is programmed with a schedule that the owner can change to decide when the equipment goes into occupied cycle or unoccupied cycle. During the occupied cycle, the dampers open bring in the required outside air.

I hope this helps with some of the concerns and anxiety that are apparent with every district we work with. Again, please do not hesitate to reach out, as we are here to assist everyone during these difficult times.

Should you have any questions, we will be pleased to answer them.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'Anthony Gianforcaro', written over the typed name.

Anthony Gianforcaro, AIA, PE
Licensed Architect/Professional Engineer
State of New Jersey