

Carlisle Public School HVAC Summary



Prepared by:

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Emcor HVAC Services North East

Daiken Applied HVAC

Enviro-Test Engineering

Viking Controls

DESE Statement July 2020:

Based on the combination of health and safety requirements and rigorous protocols that we are putting in place for the fall, we believe the risk of transmission in schools is likely lower than the risk of transmission in many other settings.

ASHRAE Statement July 2020:

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.

Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of SARS-CoV-2 and thus the risk of transmission through the air. Unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection. In general, disabling of heating, ventilating, and air-conditioning systems is not a recommended measure to reduce the transmission of the virus.

In accordance to DESE guidelines, and ASHRAE recommendations from July 2020, the following steps have been made to ensure a safe re-opening of the Carlisle Public Schools.

Recommended changes that are in effect:

- Increase runtime of occupied schedules. Occupied schedules have been increased to start 4 hours prior to occupancy, and 4 hours after to provide more fresh air exchanges**
- Perform a complete HVAC flush out one week prior to re-opening. Flush out currently underway.**
- Increase filtration media efficiency to highest MERV rating possible. Air handling units upgraded to MERV 13, Merv 14 Varicel filters for the Gymnasium Rooftop Unit.**
- Increase the number of times Preventive Maintenance is performed to quarterly.**
- Provide as much fresh air as possible to spaces without Mechanical cooling. Installation of window screen kits underway for the Wilkins & Grant Buildings.**

Viking Controls Service July 2020:

Viking Controls and Rich Price replaced (9) defective Co2 sensors, programmed, and installed throughout the Grant and Wilkins building classroom Univents. Viking Controls diagnosed these sensors while performing their bi-annual inspection of the Automated Control System in June 2020.

Testing of the new sensors confirmed the Univents functioned properly based on Ventilation demand. The outside air damper position increased with high Co2 levels detected, and modulated properly once levels decreased.

Recommendation:

To monitor the Co2 levels in the classrooms, and develop trend data reports between the Co2 levels, and the Univent Outside Air Damper positioning when alarms are populated in the Automated Controls System.

In August 2020, Viking reprogrammed Control Boards on both ERTU1 and ERTU2 on the Robbins buildings, after a power outage. The technician verified that communication was restored and that the ERTU's operated properly,

Recommendation:

To check the Energy Management System after future power outages, to ensure proper communication to each HVAC piece of equipment.

Daiken Applied Service:

In August, Daiken Applied HVAC Installed a new Coil Temperature sensor on the Spalding Administration Rooftop Unit #7. Technician also performed an evaluation on both RTU7 and the adjacent Spalding Classroom RTU6. No

Recommendation:

To monitor the equipment to ensure no erroneous readings from sensors, and to correct any issues found ASAP

Emcor Services Northeast HVAC Service:

Performed the following independent HVAC assessment in August 2020.

RTU1 Corey Gymnasium:

Ventilation and Heating Rooftop Unit only, no cooling capacity. The RTU operates properly for each mode as commanded, no repairs are necessary. No recommendations for modifications.

RTU 2 Corey Locker Rooms/Exercise Room:

Ventilation and Heating Rooftop Unit only, no cooling capacity. The RTU operates properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

RTU3 Corey Auditorium:

Ventilation, Heating, and Cooling Rooftop Unit. The RTU operates properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

RTU4 Corey Music Room:

Ventilation, Heating, and Cooling Rooftop Unit. The RTU operates properly for each mode as commanded.

Repairs: The Technician replaced a defective Outside Air Damper Actuator.

No recommendations for modifications necessary.

RTU5 Corey Cafeteria/Kitchen Hood:

Ventilation and Heating Rooftop Unit, with Hood command interlock. The RTU operates properly for each mode as commanded.

Repairs: The Technician replaced a worn supply fan belt.

No recommendations for modifications necessary.

RTU6 Spalding Classrooms:

Full Dehumidification Air Displacement Rooftop Unit, that operated properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

RTU7 Spalding Administration:

Full Dehumidification Air Displacement Rooftop Unit, that operated properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

ERTU1 Robbins Library:

Ventilation, Heating, and Cooling Rooftop Unit. The RTU operates properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

ERTU2 Robbins Offices:

Ventilation, Heating, and Cooling Rooftop Unit. The RTU operates properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

ERTU3 Grant:

Ventilation and Heating Rooftop Unit only, no cooling.

The RTU operates properly for each mode as commanded, no repairs are necessary.

No recommendations for modifications necessary.

Exhaust Fans:

Technician replaced EF24G, above 5th grade classrooms in Grant. It had seized bearings.

Recommendations:

To replace the remaining Grant Building Exhaust Fans due to age. To also replace a couple of Corey Building Exhaust fans due to wear and tear. This would be a Capital Request.

There were two EMCOR Recommendations from Assessment:

- (1) To perform Air Balancing on interior office spaces, and/or instructional spaces, to ensure proper airflow. These are spaces without direct windows. Air Balancing is crucial to providing confidence in occupants to these spaces, that they are being provided enough fresh air.**

Adjustments to the balancing will be made as needed, as the Technician services each interior room.

(Note: Air Balancing completed Thursday, September 10.)

- (2) To perform Indoor Air Quality testing, to ensure occupants are receiving air free from hazardous conditions.**

Enviro-Test Engineering, our existing AHERA consultant, will be performing the IAQ testing on Thursday, September 10.

They will also be surface swabbing to test for the Covid-19 Virus directly. This is a 24 hour turn around test.

From the results of these two recommended tests, Emcor will conclude whether or not we need any Air Purification or UV-C remediation.