

Memo – AHEC HVAC Systems as related to COVID-19 and Safe Return to Campus

From: Rob Byers, AHEC Interim Chief Operations Officer
Subject: AHEC Heating, Ventilation, and Air Conditioning (HVAC) systems as related to COVID-19
Date: September 2, 2020

Our building systems have been operational at normal occupancy levels since April 1. Full operation and monitoring continue. No matter what building staff, faculty, and students enter, we want to ensure a healthy environment.

A. HVAC operation changes

To the extent feasible within the constraints of existing HVAC systems, adjustments have been implemented following CDC best practices to increase building safety while minimizing unintended consequences to equipment and throughout buildings. Operational changes to building systems include, but are not limited to:

- Indoor air exchanges with outside air at a rate of 100% until the outside air temperature reaches 50 – 55 degrees. At that time the outside air dampers will begin to slowly close as the outdoor temperatures climb, to maintain comfort cooling indoors
- We have overridden the outside air dampers to double the minimum outside air introduced into a building during peak cooling and heating needs. We are introducing a minimum of 20% outside air at all times, even in extreme temperatures.
- We have scheduled the air handler units in the buildings to stay on longer each day to achieve more building air exchanges over 24 hours. We have lengthened the duration from 10 to 12 hours per day, a 20% increase.
- Currently, we are achieving 8 to 12 air exchanges per hour. Please refer to the CDC chart linked below. A rate of 10 exchanges per hour will result in a 99% removal of airborne contaminants in 28 minutes.
<https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#tableb1>
- We have increased the filtration ratings of our filters from a MERV-8 rating to MERV-13. The higher rating will improve indoor air quality by trapping harmful particulates in the outside and recirculated air. The CDC has recommended that office buildings and other indoor spaces upgrade their air filters to MERV-13, based on guidance from the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). Under normal conditions, the MERV-13 rated filters are commonly used in industrial or medical facilities with specific air quality concerns. Denser filtration has resulted in more frequent filter changes because they capture more particulates and fill more quickly.
- CO2 levels in buildings have been the topic of recent articles. We do have the equipment to test CO2 levels. We perform random testing in spaces throughout campus to alleviate concerns. However, these tests are likely to prove to be of little

value. The classroom buildings across campus have ventilation systems designed for occupancy levels 3 to 4 times the density of the current utilization. Because rooms designed for 35 students are only holding classes of 10, It is doubtful that a buildup of CO2 in these locations is possible with HVAC systems running at increased capacity.

- For two weeks in March, our HVAC systems were on “unoccupied” mode. With full ventilation operational since April 1, we are confident that we will experience no dormancy issues moving forward. However, we continue to monitor all building HVAC systems to avoid dormancy issues such as bacterial growth in condensate collectors.