Guidance for Heating, Ventilation, and Air Conditioning (HVAC) Systems During the COVID-19 Pandemic

Last Updated: May 12, 2021

Executive Summary

Both the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) recommend the use of engineering controls to modify HVAC systems when possible to help mitigate the spread of COVID-19, but neither agency has established that changes to HVAC systems will fully eliminate the possibility of aerosol transmission. However, FP&M has proactively implemented changes to building systems that potentially reduce airborne viral particles or droplets and we will continue to do so within the existing capabilities of each system and in accordance with industry standards and recommendations. While this helps support a healthy environment, it is not possible to create an environment that is entirely risk-free using engineering controls.

Background and Context

The safety and well-being of our faculty, staff, and students is central to the University’s efforts to prepare the campus for more on-site work and in-person instruction. Creating an environment that minimizes the risk of spreading of COVID-19 will allow the university community to return to campus feeling safe and confident in their learning and work environment.

The University’s risk mitigation framework includes a number of layered protocols, each of which supports the overall goal of protecting employee safety, health, and wellbeing. Together, they are designed to reduce the risk of COVID-19 transmission within campus buildings and are based on best practices and guidance from the CDC, UW- Madison health and safety experts, and other subject matter experts. For the most up-to-date version of these protocols, visit the UW-Madison COVID-19 Response site.

Established public health practices, including vaccination, proactive testing protocols, physical distancing, hand-washing and other hygiene, and the use of masks and cloth face coverings continue to be the best ways to limit the spread of COVID-19.

Widespread vaccine availability plays a key role in the University’s plans for repopulating campus. COVID-19 vaccination is an important tool to help us get back to normal and to be able to start doing some of the things put on hold because of the pandemic. The University and other local agencies now have ample vaccine supplies and anyone seeking a vaccine can obtain one.

Evidence continues to indicate COVID-19 is most often transmitted directly from an infected individual to another nearby person, and neither HVAC operation nor sanitizing surfaces provide significant mitigations against this mode of transmission. Research has not demonstrated that air containing SARS-CoV-2 virus removed from one space and recirculated through an HVAC system into another space can cause infections. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) notes that the most robust HVAC systems cannot completely control the dissemination of infectious aerosols or disease transmission by droplets or aerosols.
HVAC Operations

While HVAC system operation does not appear to play a significant role in mitigating transmission of SARS-CoV-2, building HVAC systems do play a vital role in keeping our buildings healthy. The design of these systems is shaped by engineers to meet the intent of the building’s function and are based on best practices intended to maintain a healthy environment. Maintaining normal operation of HVAC systems (including window air-conditioning units) is important. As such, it is critical that building occupants do not modify or disable HVAC systems due to the possibility of causing negative impacts to the health and safety of other occupants within the building.

The [CDC](https://www.cdc.gov) and [ASHRAE](https://www.ashrae.org) have released guidance that identifies a suite of mitigations that can be used to help reduce the concentration of virus particles in some scenarios. Each building on campus—and its HVAC system—is unique. As such, there is not a single, one-size-fits-all strategy for operating every HVAC system across campus. We carefully select and implement mitigations based on the building type, occupancies, and activities in the context of environmental and seasonal conditions. Careful management is necessary to maintain building environments and prevent excessive moisture, temperature fluctuations, condensation, and microbial/mold growth. Physical Plant maintenance staff operate each building’s HVAC system to manage ventilation, temperature, and relative humidity.

Portable Filters

Portable HEPA filters can remove virus and other contaminants in their immediate vicinity but can increase occupant exposure where they direct air between occupants, draw their return air through the breathing zone, or blow on surfaces re-suspending the virus. Noise generated by properly sized units can also be problematic. These units generally do not provide significant mitigation of COVID-19 transmission compared to these associated risks and may adversely impact the operation of existing HVAC systems.

Contact Information

Please report concerns about air quality issues (temperature, humidity, etc.) to [Physical Plant Customer Service](https://ppcustomerservice@fpm.wisc.edu) in one of the following ways:

- **Web.** [Request Service](https://assetworks.ready.org) via Assetworks ReADY (NetID authentication required).
- **Email.** Send email to ppcustomerservice@fpm.wisc.edu.
- **Telephone.** Call 608-263-3333 for immediate assistance.