



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

Last Updated: September 8, 2021

Background and Context

The safety and well-being of our faculty, staff, and students is central to the University's efforts to reunite our campus and as we continue our return to pre-pandemic operations. 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 has always included layered protocols, each of which support the overall goal of protecting employee safety, health, and well-being. Together, these protocols are designed to reduce the risk of COVID-19 transmission within campus buildings.

With the availability of safe, effective vaccines, vaccinating our campus community has emerged as the most effective way to ensure the safety of campus employees, students, and staff. Widespread vaccination is highly effective because it limits the number of naturally occurring infections in the environment; therefore, vaccination significantly reduces the risk of COVID-19 transmission on campus. Together with the [current campus-wide mask mandate](#) and [mandatory testing requirement](#), we continue to provide multiple layers of protection for our campus community.

HVAC Operations

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. 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 feasible to create an environment that is entirely risk-free using engineering controls.

The risk for COVID-19 transmission increases the closer one is to an infected individual, and neither HVAC operation nor sanitizing surfaces provide significant mitigations against this mode of transmission. While HVAC system operation cannot prevent transmission of SARS-CoV-2, building HVAC systems do play a vital role in keeping our buildings healthy. The design of these systems is developed 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.

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.

The [CDC](#) and [ASHRAE](#) 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. While specific ventilation standards exist to help prevent the spread of infectious disease in dedicated healthcare environments, similar standards do not exist for non-healthcare facilities (e.g., office buildings and schools).

UW-Madison maintains building ventilation systems according to state and local building codes and applicable guidelines. Additionally, building HVAC systems are carefully managed to maintain comfortable building environments and to prevent excessive moisture, temperature fluctuations, condensation, and microbial/mold growth. Our goal is to operate each system to provide the best balance between comfortable heating/cooling and efficient operation.

Portable Filters

Portable HEPA air cleaners can remove viruses and other particulates from the air immediately adjacent to the unit and over time, may reduce the particulate concentration in the space. Often it is difficult to achieve a volume of clean air corresponding to the size of the space, and if not properly located, the HEPA unit may direct air flow from one person to another in the space, potentially increasing the risk for transmitting illness. Portable HEPA units must be properly situated to not interfere with the operation of existing HVAC systems, and some HEPA units may produce noise levels that could interfere with normal conversation in the space. Larger units may also draw current above the capability of the circuits in the space. Therefore, the use of portable HEPA air cleaners is not generally recommended, and a careful evaluation of the space and existing HVAC system parameters is needed before adding a portable HEPA unit to an occupied space.

Proper HVAC maintenance and operation, in conjunction with widespread vaccination, mask use while indoors, mandatory testing for unvaccinated individuals, handwashing, respiratory etiquette, and facility cleaning provide layered levels of protection to help reduce the potential spread of person-to-person infections.

Contact Information

Please report concerns about air quality issues (temperature, humidity, etc.) to [Physical Plant Customer Service](#) in one of the following ways:

- **Web.** [Request Service](#) via Assetworks ReADY (NetID authentication required).
- **Email.** Send email to pccustomerservice@fpm.wisc.edu.
- **Telephone.** Call 608-263-3333 for immediate assistance.