

Ensuring Indoor Air Quality in Commercial Buildings



The following interventions were published by the CDC in accordance with The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) to address the challenges of the COVID-19 pandemic as it relates to the effects of heating, ventilation, and air-conditioning systems on disease transmission in commercial buildings. AntrumX's centralized Indoor Air Quality (IAQ) sensing technology helps building managers follow these guidelines, minimizing the likelihood of spreading SARS-CoV-2 and other airborne diseases while optimizing maintenance and ventilation efficiency.

Guidelines for Environmental Infection Control in Commercial Buildings

Outdoor Air

Increase the introduction of outdoor air:

- Open outdoor air dampers beyond minimum settings to reduce or eliminate HVAC air recirculation. In mild weather, this will not affect thermal comfort or humidity. However, this may be difficult to do in cold, hot, or humid weather, and may require consultation with an experienced HVAC professional.
- Open windows and doors, when weather conditions allow, to increase outdoor air flow. Do not open windows and doors if doing so poses a safety or health risk (e.g., risk of falling, triggering asthma symptoms) to occupants in the building. Even a slightly open window can introduce beneficial outdoor air.



Increasing outdoor airflow is an effective strategy to improve IAQ...when outdoor air is cleaner than indoor air. AntrumX™ allows you to monitor the quality of outdoor and indoor air, providing data to the BMS to facilitate increases and decreases in outdoor air when necessary.

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Ventilation Systems

Ensure ventilation systems operate properly and provide acceptable indoor air quality for the current occupancy level for each space.



AntrumX allows you to decide what is “acceptable” for your building’s IAQ with continuous monitoring. Setting targets, monitoring performance, and controlling to the target are critical for safe and healthy indoor spaces. AntrumX not only allows you to define your own setpoints, but integrates with your BMS on a cloud-based scalable platform that generates user-friendly reports.

Monitor your IAQ before remediation efforts take place to develop the most cost-effective solution possible. Then continue monitoring following the facility upgrades to ensure you achieve your intended result.

Ventilation Controls

Turn off any demand-controlled ventilation (DCV) controls that reduce air supply based on occupancy or temperature during occupied hours. In homes and buildings where the HVAC fan operation can be controlled at the thermostat, set the fan to the “on” position instead of “auto,” which will operate the fan continuously, even when heating or air-conditioning is not required.



Disabling DCV can result in “over-ventilated” spaces and thermal discomfort. But if the point of ventilation is to help create a safe and healthy indoor space, disabling demand control ventilation is not enough. AntrumX continuously monitors your building’s IAQ, allowing you to engineer a healthy indoor space by setting a target for what constitutes acceptable IAQ, controlling to the target, and monitoring performance.

If your building isn’t monitoring IAQ parameters, supplying the minimum ventilation is a major concern. To create the cleanest and safest spaces possible, measure the parameters that matter and control accordingly.

Air Filtration

Improve central air filtration:

- Increase air filtration to as high as possible without significantly reducing design airflow. Increased filtration efficiency is especially helpful when enhanced outdoor air delivery options are limited.
- Make sure air filters are properly sized and within their recommended service life.
- Inspect filter housing and racks to ensure appropriate filter fit and minimize air that flows around, instead of through, the filter.



Filters help create cleaner environments, but if the goal is to provide adequate indoor air quality, building managers must set a target, control to the target, and monitor the results. Monitoring IAQ before and after a filter upgrade allows you to verify that you achieve your intended results.

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Use portable high-efficiency particulate air (HEPA) fan/filtration systems to enhance air cleaning (especially in higher risk areas such as a nurse's office or areas frequently inhabited by people with a higher likelihood of having COVID-19 and/or an increased risk of getting COVID-19). See the FAQ below on HEPA filters and portable HEPA air cleaners. (Note: Portable air cleaners that use filters less efficient than HEPA filters also exist and can contribute to room air cleaning. However, they should be clearly labeled as non-HEPA units.)



According to the EPA, [HEPA filters](#) will remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (Qm), but if the goal is to provide adequate indoor air quality, building managers must set a target, control to the target, and monitor the results. Monitoring IAQ before and after a HEPA filter upgrade allows you to verify that you achieve your intended results.

Directional Airflow

Generate clean-to-less-clean air movement by evaluating and repositioning as necessary, the supply louvers, exhaust air grilles, and/or damper settings. See the FAQ on Directional Airflow [here](#). This recommendation is easier to accomplish when the supply and exhaust points are located in a ceiling grid system.



Airflow and dampers are typically employed to create positive and negative pressure rooms, which ultimately create clean and less-clean spaces. AntrumX allows you to continuously monitor the IAQ of clean and less-clean spaces, serving as a troubleshooting tool should the IAQ of both spaces be more similar than different.

UVGI

Use [ultraviolet germicidal irradiation \(UVGI\)](#) as a supplemental treatment to inactivate SARS-CoV-2 when options for increasing room ventilation and filtration are limited. [Upper-room UVGI systems](#) can be used to provide air cleaning within occupied spaces, and in-duct UVGI systems can help enhance air cleaning inside central ventilation systems.



As with the filter upgrades, AntrumX's continuous IAQ monitoring allows building managers to establish a target and control to that target while also serving as a tool to highlight problem areas. Following an upgrade to air cleaning devices, continuous IAQ monitoring ensures that you achieve your intended results.

[Click here](#) to read the CDC's full guidelines for how to mitigate the spread of SARS-CoV-2 in commercial buildings as it pertains to ventilation.

