Ensuring Indoor Air Quality for Healthcare

The following pertains to HVAC/Indoor Air Quality guidelines published by the CDC to mitigate the spread of infections in healthcare facilities. AntrumX's centralized Indoor Air Quality (IAQ) sensing technology helps building managers adhere to 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 Healthcare Facilities

Optimal Performance

Monitor ventilation systems in accordance with engineers' and manufacturers' recommendations to ensure preventive engineering, optimal performance for removal of particulates, and elimination of excess moisture. (AIA: 7.2, 7.31.D, 8.31.D, 9.31.D, 10.31.D, 11.31.D, EPA guidance)

Ensuring optimal performance requires a target for optimal performance. Ventilation systems should be designed and maintained to continuously achieve that target. AntrumX™ allows building managers to continuously monitor the performance of HVAC systems with respect to IAQ, ensuring optimal performance for the life of the building.

HVAC Filters

Ensure that heating, ventilation, air conditioning (HVAC) filters are properly installed and maintained to prevent air leakages and dust overloads.

Most building managers are used to monitoring filter performance based on run hours and/or the overall life of the filter. AntrumX allows you to continuously monitor the spaces the filters are serving. If the filters are too restrictive, they can negatively impact ventilation, which can negatively impact CO2 levels in the space. Continuously monitoring your indoor air quality ensures filters are working properly while also ensuring optimized IAQ and ventilation.

Guidelines for Environmental Infection Control in Healthcare Facilities

Special Ventilation Requirements

Monitor areas with special ventilation requirements (e.g., AII or PE) for ACH, filtration, and pressure differentials. (AIA: 7.2.C7, 7.2.D6)

- Develop and implement a maintenance schedule for ACH, pressure differentials, and filtration efficiencies using facility-specific data as part of the multidisciplinary risk assessment. Take into account the age and reliability of the system.
- Document these parameters, especially the pressure differentials.

●●●

Don't all spaces have special ventilation requirements to ensure they are safe and healthy for occupants? IF safe and healthy spaces is the goal, continuous IAQ monitoring of each space is critical.

Fresh Air

Ensure that fresh-air requirements for the area are met.

●●●

AntrumX's centralized CO_2 sensing technology produces more accurate IAQ data than space or duct-mounted sensors, allowing you to verify that your intended results are the ACTUAL results. There is no better way to ensure that your space is clean and safe for occupants than by ensuring your building management system responds to your building's IAQ needs accurately and in real time with centralized sensing.

Air Cleaning

When UVGI is used as a supplemental engineering control, install fixtures

- on the wall near the ceiling or suspended from the ceiling as an upper air unit;
- in the air-return duct of an AII room; or
- in designated enclosed areas or booths for sputum induction.

●●●

AntrumX allows building managers to verify both the need to clean the air and that the intended result is achieved with UVGI.

Restoring Air Quality

Emphasize restoration of proper air quality and ventilation conditions in AII rooms, PE rooms, operating rooms, emergency departments, and intensive care units. (AIA: 1.5.A1; JCAHO: EC 1.4)

●●●

You can't "restore proper air quality" without an IAQ target. AntrumX's continuous IAQ monitoring allows building managers to set a target, control to the target, and monitor performance against the target.

Portable Ventilation

For areas not served by installed emergency ventilation and backup systems, use portable units and monitor ventilation parameters and patients in those areas.

●●●

AntrumX allows building managers to establish and monitor ventilation parameters for PM2.5, PM10, RH, etc. Understanding that ventilation parameters may change over the life of the building, AntrumX is built on a scalable platform ready to evolve with sensing technology.

Guidelines for Environmental Infection Control in Healthcare Facilities

Humidity Controls

Engineer humidity controls into the HVAC system and monitor the controls to ensure proper moisture removal. (AIA: 7.31.D9)

- Locate duct humidifiers upstream from the final filters.
- Incorporate a water-removal mechanism into the system.
- Locate all duct takeoffs sufficiently down-stream from the humidifier so that moisture is completely absorbed.

●●●

AntrumX allows building managers to monitor particulate matter from C.I.B, CO2 from C.I.B.1 and RH. Use AntrumX to establish a target for RH and to ensure that the space is ventilated with the goal of achieving that target in mind.

Incorporate steam humidifiers, if possible, to reduce potential for microbial proliferation within the system, and avoid use of cool mist humidifiers.

●●●

AntrumX allows building managers to continuously monitor when and where humidification is necessary, which is critical for IAQ and ventilation. AntrumX also monitors space RH, allowing building managers to monitor the performance of the humidifier.

Dust and Filters

Bag dust-filled filters immediately upon removal to prevent dispersion of dust and fungal spores during transport within the facility.

- Seal or close the bag containing the discarded filter.
- Discard spent filters as regular solid waste, regardless of the area from which they were removed.

Prevent dust accumulation by cleaning air-duct grilles in accordance with facility-specific procedures and schedules when rooms are not occupied by patients. (AIA: 7.31.D10)

Periodically measure output to monitor system function; clean ventilation ducts as part of routine HVAC maintenance to ensure optimum performance. (AIA: 7.31.D10)

Use portable, industrial-grade HEPA filter units capable of filtration rates in the range of 300–800 ft3/min. to augment removal of respirable particles as needed.

●●●

Particulate matter presents several health concerns with smaller particles, PM2.5, posing the greatest concern: epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm

AntrumX allows building managers to continuously monitor both particulate matter and your building's particulate-mitigation performance, which is critical to ensuring occupant health and safety.

Where portable, industrial-grade HEPA filter units are needed, AntrumX allows you monitor IAQ both before and after, ensuring that the units work and that spaces are healthy and safe for occupants.

Click here to read the full HVAC/Indoor Air Quality guidelines published by the CDC to mitigate the spread of infections in healthcare facilities.

antrum™