



WALDINGER WISDOM

INSIGHT FOR FACILITY MANAGERS

INDOOR AIR QUALITY CONSIDERATIONS TO EVALUATE FOR YOUR FACILITY

IAQ TECHNOLOGIES

BY ADAM GUDENKAUF

Facility managers have been faced with an unprecedented challenge in the midst of the COVID-19 pandemic. While the health and safety of building occupants has always been a priority, the risk to the health of building occupants has never been greater. And, in light of recent findings that COVID-19 could be airborne, it poses an even greater challenge.

There are several strategies that ASHRAE recommends to control airborne infectious diseases which include but are not limited to ventilation, temperature, humidity, exhaust, filtration, pressurization and technology strategies. In this article we would like to discuss technologies that could be considered to address the indoor air quality needs of your facility.

When evaluating indoor air quality technologies for your facility, it's important to consider that many manufacturers claim to improve indoor air quality, but do not necessarily reduce virus pathogens within a facility. There are many pollutants that affect the air quality in commercial facilities including molds, allergens, bacteria, pathogens, dust, particulates and others. While some technologies may actually reduce various pollutants, there are only some that have proven to reduce airborne virus pathogens.

In order to assess the technology that would serve best for your facility, it is highly recommended that you confer with a service provider like The Waldinger Corporation. A number of factors will determine your needs, including facility type, equipment sizing and existing policies. To get you started thinking about the various types of technologies for consideration, you will find an overview of them on the following page.

For further information, please email info@waldinger.com



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MERV FILTERS



THE BASICS: MERV is a term used by ASHRAE to classify the effective levels of filters. Filters with a higher MERV value trap smaller airborne particles.

ADVANTAGES: MERV filters are common use and readily available. Filters rated MERV 13 and above have been proven to trap bacteria and nuclei from sneezes.

DISADVANTAGES: While higher rated MERV filters catch more particles, they are not guaranteed to remove viruses from the air. In addition, the higher resistance of the filters can cause pressure drops across the filter which can reduce the air flow and create a host of other problems.

CONSIDERATIONS: Due to the impact on your HVAC systems, please discuss applications with your Waldinger contact prior to making filter changes.

HVAC ULTRA-VIOLET GERMICIDAL IRRADIATION

THE BASICS: Short-wave ultraviolet radiation is installed in HVAC equipment to destroy bacteria, mold, yeast and viruses. Typically, the light is installed on the discharge side of the cooling coil to expose the coil and the drain pan thus inactivating and breaking down bio-aerosols and organisms.

ADVANTAGES: A scientifically proven technology recognized by ASHRAE and healthcare industries as effective on viruses and has been used for many years.

DISADVANTAGES: Must be used safely to avoid injury to humans. Installation and operational requirements can increase costs due to retrofit needs. With UV, only the air that is in direct sight of the light is impacted. Considered more effective at cleaning surfaces than air.

CONSIDERATIONS: There are a number of factors that should be considered when implementing a UV solution. Waldinger's engineering resources can help determine the best application to maximize impact on air quality and minimize retrofit costs.



BIPOLAR IONIZATION*

THE BASICS: Bipolar ionization equipment is typically installed in the air handling unit. Pollutants are destroyed in the air as they pass through the field. The equipment produces positively and negatively charged oxygen ions that travel into occupied spaces, neutralizing bacteria, viruses and other air contaminants.

ADVANTAGES: This type of technology does not produce ozone compared to technology that ionizes air with only positive charges. This product is a lower cost product and requires a simple installation. This technology is proven to make a better impact at cleaning air.

DISADVANTAGES: While certain studies claim that the technology works and it is utilized in major airports including LAX, this is still considered an unproven technology that has yet to be a strategy adopted by ASHRAE.

CONSIDERATIONS: Bipolar ionization is relatively simple to install, however does require sizing to determine requirements. Reach out to your Waldinger contact to discuss the scalable solution that would meet the needs of your facility.



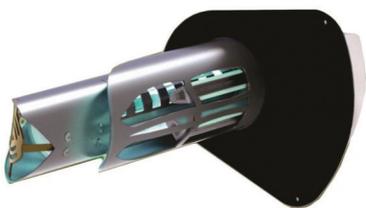
PHOTOCATALYTIC OXIDATION*

THE BASICS: The air purification process of using photocatalytic oxidation often works by using an existing air system that pulls air through the HVAC which passes through the professionally installed ultraviolet light/titanium dioxide chambers resulting in harmless water molecules, carbon dioxide and dust.

ADVANTAGES: PCO has been shown to remove harmful contaminants to levels below the associated regulatory exposure limits for reducing health risks. Currently it is approved by the US military for use in hospitals and by the USDA and FDA for use in food processing plants.

DISADVANTAGES: There are some PCO technologies that have also been shown to generate harmful contaminants (such as ozone) during the air-cleaning process and therefore is a strategy that has yet to be adopted by ASHRAE. Waldinger recommends brands that generate ozone well below OSHA limits.

CONSIDERATIONS: PCO is relatively simple to install and have low initial installation costs but requires sizing information to determine the appropriate size for your equipment. Before implementing, be sure to connect with your Waldinger contact to identify if this is the right fit for your facility.



*Product shown here is a combination of bipolar ionization and photocatalytic oxidation

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HVAC SYSTEMS DURING COVID-19

BY SCOTT HILL



Properly maintaining and operating your commercial HVAC system can reduce the amount of airborne pathogens. Working with service experts like The Waldinger Corporation, the following steps are recommendations for building owners, managers and staff to take to ensure your HVAC systems are optimized to improve the health and safety of building occupants.

- Carry out HVAC preventative maintenance as prescribed by the recognized standards and adhere to proper maintenance procedures. Confer with your service provider to determine what additional building access safety measures should be taken at this time. Waldinger screens all technicians prior to starting their day with a fit for duty questionnaire and exam. Ensuring the health and safety of our employees and customers are our top priorities.
- It is critical to make sure that HVAC systems are properly commissioned and operating correctly. Check the outside air flow rates and controls to confirm that the minimum outside air rates are achieved as a basic requirement and, if possible, increase the outside air rates.
- Maintain a range of 40-60% internal relative humidity.
- Consider a professional audit of your air conditioning system filtration and general cleanliness along with a review of the preventive maintenance inspection records to confirm they meet your duty of care responsibilities for facility operation.
- Check the current air filtration type and condition and upgrade or replace the filter to F7-F9 grade (subject to fan capacity). This can reduce transmission of the virus through the system.
- If your system requires service, your contractor should change air filters, clean and disinfect cooling and heating coil surfaces, as well as induction-type chilled beams (if your units contain them) using approved methods and chemicals. Note: Fogging and fumigating are not recommended for normal facilities and standard HVAC systems not specifically designed for this treatment.

The maintenance and optimization of your HVAC system can be an effective in reducing the spread of infection and should be considered part of your overall virus protection strategy.

REOPENING AN IDLE FACILITY

BY NICK WAGNER

Buildings which have been idle, shut or slowed down during this pandemic have the potential for water quality degradation from stagnation.

Stagnant or standing water can cause conditions that increase the risk for growth and spread of Legionella and other biofilm-associated bacteria. It can lead to low or undetectable levels of undesirable elements in your water system. The longer systems are idle, the more likely such problems will exist.

The Waldinger Corporation has established a comprehensive water management program following recommendations of the CDC as well as relevant ASHRAE standards.

This program includes, but is not limited to:

- Flushing of all appliances such as ice machines, dishwashers and water coolers.
- Inspection of mechanical equipment such as cooling towers, boilers, pumps, backflow preventers and hot water systems.

After flushing, we will take water samples for analysis to a qualified independent testing laboratory for results. If test results indicate the need for disinfection, we will chlorinate your water systems and have them back online for you quickly.

Contact your Waldinger support team to determine if your facility could benefit from a program like this.

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