

Proven Indoor Air Hygiene Solutions for Industrial Facilities

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SAFER | HEALTHIER | MORE PRODUCTIVE

Hygienic Air Solutions for Industrial Facilities

As industrial and manufacturing workplaces reopen after the pandemic, the importance of providing clean, fresh, conditioned air to protect our industrial workspaces is critical.

Adding increased levels of fresh air provides a safer, healthier, and more productive indoor environment for employees.

Infection control was likely not considered a priority when the HVAC systems in most industrial workplaces were specified. However, when properly configured with the correct amount of outdoor air, leveraging make-up air HVAC systems can lead to significant reductions in the spread of airborne pathogens.

Air Hygiene Plays A Role In Protecting Staff & Processes

From factories, to warehouse distribution centers and aircraft hangars, companies are turning toward improving their indoor industrial environments as a way to keep & attract top talent. Adding increased levels of fresh, filtered air and controlled temperature provided by make-up air units into industrial spaces has a number of advantages for workers and industrial process quality.



Leading Organizations Agree...

Leading agencies such as ASHRAE (American Society of Heating Refrigeration and Air Conditioning Engineers), the WHO (World Health Organization), and REHVA (The Federation of European Heating, Ventilation and Air Conditioning Associations) have all recommended increased fresh air ventilation to increase the indoor air quality of building spaces.

ASHRAE: "Provide indoor air quality that will be acceptable to human occupants and is intended to minimize the potential for adverse health effects" (ASHRAE 62.1). "Review HVAC programming to provide (fresh outside air) flushing two hours before and post occupancies" (COVID-19 Building Readiness/Reopening Guidance) WHO: "Whenever possible to make sure the venue is well ventilated" (Getting your workplace ready for COVID-19) REHVA: "The general advice is to supply as much outside air as reasonably possible. The key aspect is the amount of fresh air supplied per person." (REHVA COVID-19 Guidance Document, March 2020)



Industrial Make-Up Air for Clean Air and Building Pressurization

By pressurizing industrial workplaces with conditioned fresh outdoor, air make-up air units allow employees to breathe easier, factory processes stay cleaner and performance of other building systems are enhanced. Make-up air enhances exhaust fan performance, minimizes uncontrolled air infiltration/drafts and allows external doors to operate with ease.

Make-Up Air Energy Savings

- Recirculate and filter an appropriate volume of indoor air in winter to reduce fuel usage.
- Maintain regular filter replacement schedules to reduce pressure drop and electrical usage.
- Maintain moderate heating discharge temperatures to avoid hot air stratification at ceilings.
- Use night time economizer programming for free summer time cooling.

Additional Procedures Needed to Protect Customers and Associates

STEP 1: Flush Your Building with Outdoor Air

□ <u>ASHRAE recommends</u> you review HVAC programming to provide flushing two hours before and post occupancies. This includes operating the exhaust fans as well as opening the outside air dampers. For buildings without the capacity to treat large quantities of outside air and when outside air conditions are moderate, open all windows for a minimum of two hours before reoccupation.

STEP 2: Inspect your current HVAC Filtration System

- □ Have my filters been maintained? Do I need to change them more regularly?
- Do my filters seal into their holding frames or tracks? A filter only works when it is sealed properly eliminating bypass.
- Determine your current filter efficiency. This is typically listed as a MERV rating.

Examples of Common Upgrade Solutions:



STEP 3: Upgrade to the optimal filter

- Upgrade efficiency to MERV 13 or higher which will capture more pathogens.
- Adding chemical filtration to your filter system can remove jet exhaust contaminants along with enhanced antimicrobial properties.

STEP 4: Add localized air purifiers and dehumidifiers

Consider adding localized, stand-alone air purifiers and dehumidifiers in high-traffic and commonly occupied areas to help prevent the spread of bacteria and virus.

Filtration Group and Partners Offer Stand Alone Solutions in Addition to HVAC

PHOENIX GUARDIAN HEPA SYSTEM

- True 1400 CFM Scrubber
- 99.97% HEPA Filtration
- Odor Control filters optional



PURASHIELD 1000

- Patented PuraWard technology
- Removes particles via HEPA Filtration
- 50 lbs of patented antimicrobial media



STEP 5: Implement best practices for changing out your filters

- Change out your filters every 3 months for optimal filtration.
- Ensure maintenance staff are wearing the appropriate PPE when changing filters.
- Dispose of dirty filters in sealed bags and avoid compacting if possible.

STEP 6: Consider upgrading your HVAC system to bring in conditioned fresh, outside air

- Avoid airborne contaminant recirculation.
- □ Maintain proper humidity levels to prohibit virus, bacteria and mold reproduction and function.

Rapid® Direct-Fired Make-Up Air Unit

- Direct-Fired Heat
- 20-100% Outside Air (1,000-120,000 CFM)
- Outdoor & Recirculating Air Filtration

Weather-Rite[™] Indirect-Fired Make-Up Air Unit

- Indirect-Fired Heat
- 0-100% Outside Air (5,000-57,000 CFM)



Outdoor & Recirculating Air Filtration

How Filters Help Stop The Spread of Infectious Diseases

Pathogens such as the coronavirus are transmitted through the air on carriers such as water droplets or dust particles. When someone who is infected coughs, sneezes, or even breaths, there are moisture droplets which become airborne and become the carrier of the virus. Small 0.3-1.0 micron particles are light enough to remain airborne for significant amounts of time and can contribute to the spread of the disease to others at a much greater distance.

All HVAC filters remove a range of particles and different filters have different ratings for this purpose. This is referred to as the MERV rating which stands for Minimum Efficiency Reporting Value. This is a scale from 1 to 16 with filters rated as MERV 1 capturing the least number of particles and MERV 16 filters capturing close to all the particles in the air. Choosing a filter with the correct MERV rating can have a dramatic impact on reducing the number of viral particles in the air, and therefore the chances of spreading airborne infectious diseases within your facility.

¹ Source: HVAC filtration for controlling infectious airborne disease transmission in indoor environments: Predicting risk reductions and operational costs by Parham Azimi and Brent Stephens, 2013 - ASHRAE Position Document on Infectious Aerosols April 14, 2020

PLEASE CONTACT ONE OF OUR SPECIALISTS TO HELP YOU IMPROVE YOUR INDOOR AIR HYGIENE

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