

Mitigating Indoor Health Risks with Armstrong Ceiling Solutions

Haven Diagnostics AI-driven predictive modeling analyzes and quantifies health risk mitigation with Armstrong solutions: AirAssure™ Ceilings and VidaShield UV24™ Air Purification Systems.

Epidemics and pandemics happen frequently

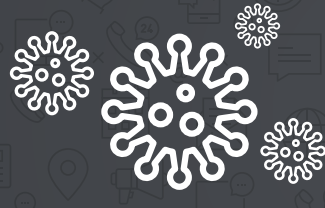
Many people falsely believe the COVID-19 pandemic is a unique, one-time occurrence. But while the mortality and morbidity of the SARS-CoV-2 virus are much greater than usual, epidemics and pandemics happen frequently. In developed countries located outside of tropical climates, these are most commonly due to respiratory viruses, such as those listed here:

"REGULAR FLU" INFLUENZA	ANNUAL
COMMON COLD (many viruses, including coronaviruses)	ANNUAL
SARS (also a coronavirus)	2002
"SWINE FLU" H1N1	2009
MERS (also a coronavirus)	2012
"AVIAN FLU" H7N9	2013
SARS-COV-2	2019+

Four main contributing factors in modeling airborne viruses in the office environment



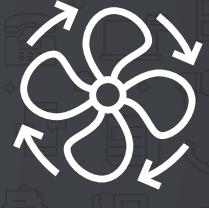
OFFICE PERSONNEL BEHAVIOR
Meetings, common area gatherings, restroom use, talking



PHYSIOLOGICAL KNOWLEDGE
Knowledge of aerosol emission during various activities

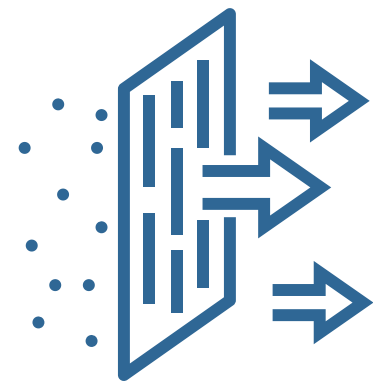
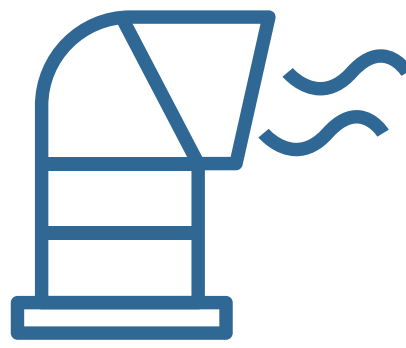
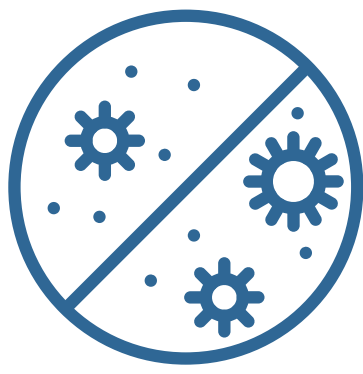


VIRAL DECAY
Based on environmental settings: Temperature, UV exposure, and humidity



HVAC CONFIGURATION
Source/return vent location, airflow between rooms, airflow rate at each duct, fresh air changes per hour, air handling unit (AHU) filtration level and room pressurization

Besides individual behavior, the most important factors for reducing airborne viruses are ventilation and filtration



In modern offices, the HVAC system is largely responsible for removing air from inside a specific room, actively introducing outside air into the building, and filtering recirculated air. Numerous characteristics of the system contribute to the efficacy of the HVAC system as a whole, including air changes per hour, MERV filtration levels, intake of outside air schedule, duct placement, plenum efficiency, and any advanced filtration options employed.

Reduce the risk

Armstrong AirAssure™ Ceilings, VidaShield UV24™ Systems, and fan filter units can reduce the relative risk of the indirect spread of respiratory viruses by up to 25%

(Based on analysis and modeling by Haven Diagnostics when configured correctly and used in combination)

Armstrong products are able to increase both ventilation and filtration as independent systems or in addition to an already sound filtration system

CONFIGURATION	24-PERSON & 8,000 SF OFFICE		108-PERSON & 8,000 SF OFFICE	
	AVERAGE RELATIVE RISK REDUCTION (%)	AVERAGE RELATIVE RISK REDUCTION (CASES)	AVERAGE RELATIVE RISK REDUCTION (%)	AVERAGE RELATIVE RISK REDUCTION (CASES)
Drop Ceiling	0.90%	0.03	0.70%	0.3
AirAssure	1.70%	0.05	1.40%	0.5
AirAssure + 6 FFU	4.80%	0.15	3.60%	1.3
AirAssure + 6 VidaShields	14.20%	0.5	10.90%	3.9
AirAssure + 23 VidaShields	24.90%	0.8	17.40%	6.2
AirAssure + 23 VidaShields + 6 FFU	25.50%	0.8	19.20%	6.9

Source: Haven Diagnostics, "Mitigating Indoor Health Risks with Armstrong Ceiling Solutions," Dr. Michael Gao, MD, Nathan Perilo, Ben Siegel.

For more information about Armstrong solutions to create healthier spaces or to read the full white paper, visit armstrongceilings.com/healthyspaces.

This report is for informational purposes only. It represents analysis and views of relative risk reduction based on Haven Diagnostics proprietary modeling and inputs from Armstrong World Industries regarding various workplace scenarios and referenced products. Results of real-world applications will vary and are dependent upon a wide range of factors, conditions and assumptions.