

ASHRAE's 2022 Indoor Air Quality Guidelines

Air cleaning devices such as CASPR's NCC technology, based on PCO, are recognized and approved for indoor use by ASHRAE.

1

ASHRAE Standard 62.1 – Ventilation for Acceptable Indoor Air Quality – page 6 defines an Air Cleaning System, as

"a device or combination of devices applied to reduce the concentration of airborne contaminants such as microorganisms, dusts, fumes, respirable particles, other particulate matter, gases, vapors, or any combination thereof."

Standard 62.1, paragraph 5.7.1 also states:

"Air-cleaning devices shall be listed and labeled in accordance with UL 2998."

CASPR meets UL 2998 standards and will provide verification upon request.

2

ASHRAE Position Document on Filtration and Air Cleaning, paragraph 3 – Conclusions and Recommendations states that

"Air cleaners using photocatalytic oxidation (PCO) have been documented to remove harmful contaminants to levels being below the associated regulatory exposure limits"

Are Air Cleaning Products Approved By The CDC, ASHRAE or OSHA?

Neither the CDC, OSHA, or ASHRAE approves products. They only issue recommendations for the best utilization of products and/or processes. ASHRAE does however suggest the use of air-cleaning systems to supplement the existing ventilation/filtration of a building.

Why not just bring in more outdoor air?

How Will It Impact Your Energy Consumption?

GOOD:

New ASHRAE, CDC, and OSHA guidelines recommend upgrading building ventilation by increasing the introduction of outdoor air. This is a good recommendation if it can be achieved in mild weather.

BAD:

Increasing outdoor Arizona air in the middle of the summer at 110 degrees or Michigan air in the middle of the winter at 20 degrees below zero, or bringing in extremely humid air is not practical, creates adverse conditions, increases energy costs to heat cool that new outdoor air, and can sometimes be unhealthy.

An [EPA study](#) found for an educational facility with a central air conditioning system, increasing outdoor airflow from 5 cfm to 15 cfm per person **increased** cooling **costs** by 20% and heating costs by over **500%**

Why not just install a MERV 13 Filter?

How Will It Impact Your HVAC System?

GOOD:

Those same updated guidelines recommend upgrading building ventilation filtration to MERV 13 to improve indoor air quality (IAQ) and reduce exposures of SARS-CoV-2, the virus that causes COVID-19. It is good to reduce exposure to and transmission of SARS-CoV-2!

BAD:

Upgrading to MERV 13 filtration may compromise overall HVAC ventilation performance and provide inadequate filtration. See 6 reasons below.

Top 6 Reasons MERV 13 Filters Can Hinder Overall Performance

1 Higher Resistance, Drop In Air Pressure

The additional resistance with higher-rated filters causes considerable pressure drops. The average increase ranged from 0.13 to 0.52 inches of water (i.w.c.) across the filter, and HVAC air handler might not be rated for the associated pressure drops.

2 Increase In Energy Consumption

Upgrades in a typical office building and addressing the associated additional pressure drop increases energy consumption \$0.01 to \$0.02 per square foot an **11% to 18% increase** total energy costs annually.

3 Increase Cost In Filter Replacement

Assuming filters are replaced every 90 days, upgrading to MERV-13 filters in a 50,000 square foot facility with hundreds of filters could cost an **additional \$8,000 to \$10,000** annually.

4 Reduced Airflow, Less Air Exchanges

Dr. Joseph Allen from the Harvard School of Public Health recommends a target of 3-4 air exchanges per hour (ACH). Associated reductions in the airflow hinder the system's ability to achieve optimal ACH for viral mitigation.

5 Delayed SARS-Cov-2 Reduction In Rooms

The air within a room is filtered when drawn through the intake handler and pushed through the ventilation ductwork. The ACH within a room and distance the air must travel for filtration is not optimal for viral mitigation without in-room filtration.

6 Upgrading System To Account For Guidelines

HVAC system upgrades are more extensive and costly than an in-room portable air purifier to meet the minimum operational federal guidelines for improving indoor air quality.

What Are HVAC Systems Designed To Do?



Providing Heating & Cooling



Distribute Fresh Air Inside



Prevent Buildup Of Moisture & Humidity



Exhaust Spent Air From The Facility

What Are Localized Air Purification Systems Designed To



Improve (IAQ) Through Localized Disinfection



Increase Air Exchange Rates (ACH)



Reduce In-Room Airborne Pathogens



Reduce In-Room Surface Pathogens

Increased Ventilation AND Portable Air & Surface disinfection



Upgrading filtration with an HVAC system helps capture particulate from the air, but it is not enough to provide safe and clean air and disinfect surfaces.

The CDC recommends using portable air purification systems, to enhance air cleaning. Especially in higher risk areas such as a nurse's office, conference room, breakroom, cafeterias, or areas frequently inhabited by people with a higher likelihood of having COVID-19 and/or an increased risk of getting COVID-19.

What are the Benefits Of Complimenting HVAC Systems? With Duct Mounted or Portable Air Purifiers

1

Localized Disinfection & Air Exchanges

Localized air purifiers are a perfect solution for increasing airflow within indoor spaces.

By placing air purification systems in each protected area, you can achieve localized disinfection, increase air exchanges for a significantly improved reduction of airborne contaminants and improved indoor air quality (IAQ).

2

Increase Health, & Wellness

Improved ventilation improves indoor air quality and increases overall occupant health and wellness.

In a study conducted by Underwriter Laboratories (UL), indoor environmental quality directly impacts an individual's health, leading to increased performance, productivity, and reduction in sick days.

3

Affordable, Effective, & Low Maintenance

Air purifiers not only effectively reduce airborne contaminants but are also affordable and low maintenance.

Most systems are plug-and-go and are low maintenance. Most air cleaner filters only need to be changed every 6-12 months and have an equivalent yearly energy cost compared to a light bulb.

**We are here to answer
any further questions you may have!**