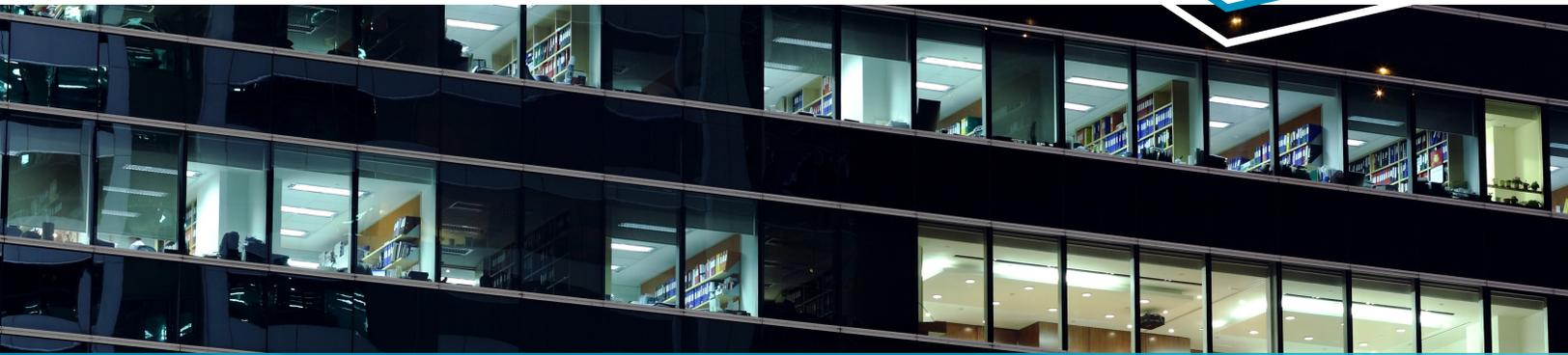


TECHNICAL BRIEF: DUCT SEALING'S IMPACT ON SARS COV-2 VIRUS



Duct Sealing Improves Airflow, Ventilation in Commercial Facilities with Duct Sealing

This technical brief looks at how Aeroseal duct sealing technology can help reduce airborne exposures, while improving IAQ. As part of this, it also describes how leaky ducts contribute to poor IAQ and reduce the dilution rate of contaminated air.

Strategies to Reduce Virus Transmission

There are three major strategies to reduce transmission of the SARS CoV-2 virus: dilution, filtration, and destruction.

- 1. Dilution:** Using supply or fresh air to dilute contaminated air that may be in a room, this also improves indoor air quality.
- 2. Filtration:** Using filters or a HEPA air purifier in a room to remove contaminants from the air.
- 3. Destruction:** Exposing the SARS CoV-2 virus to UVC light, as well as cleaning or sanitizing surfaces to remove it.

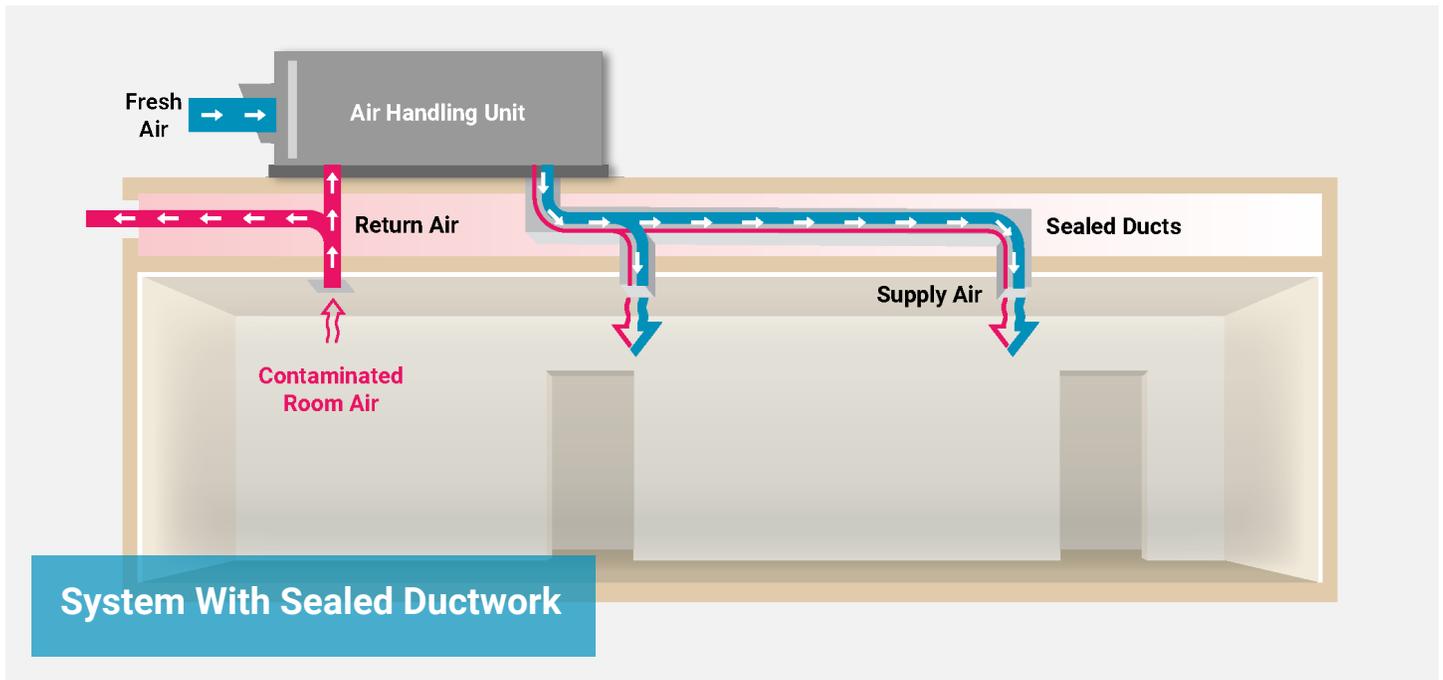
Aeroseal duct sealing has a significant, direct impact in the dilution strategy. Indirectly, Aeroseal provides utility savings that can offset the cost of enhanced filtration and destruction strategies.



Transmission of the SARS CoV-2 virus through the air is sufficiently likely that airborne exposure to the virus should be controlled. Changes to building operations, including the operation of heating, ventilating, and air-conditioning systems, can reduce airborne exposures.*

– **ASHRAE on the Transmission of SARS CoV-2**

*ASHRAE Position Document on Infectious Aerosols, updated 14 April 2020, (www.ashrae.org/covid19)



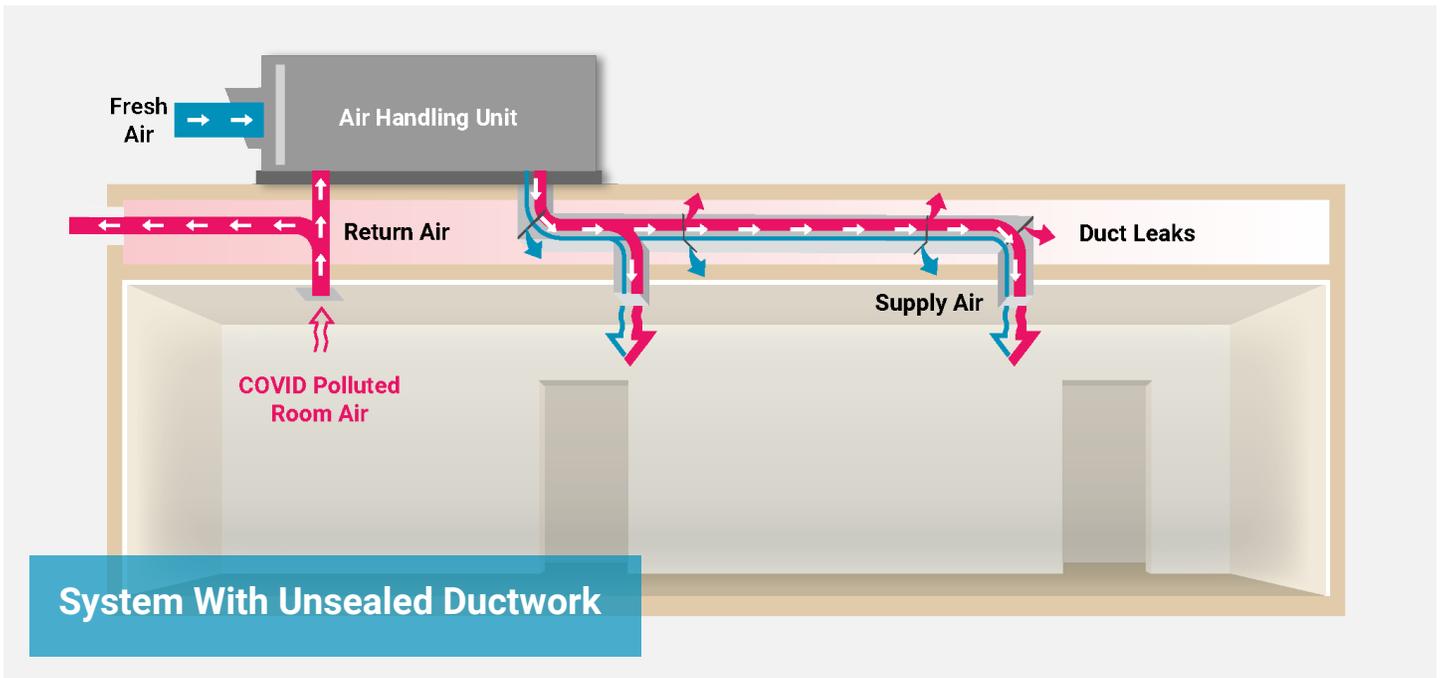
Sealed Ducts Help Dilution

Properly sealed supply and return ducts maximize the air changes per hour (ACH) in a building's occupied zones. The more supply air flowing into the space the more gases, dust, mold, pollen, and pathogens are diluted.

In a properly sealed system, the fresh air induced at the air handler unit (AHU) is delivered to the occupied zone at its maximum rate and not leaked to the plenum, further diluting the air.

Sealed Ducts Allow For Maximum Supply Air And Fresh Air To The Occupied Zone

This visual shows the supply air reaching the occupied zone. Also note the exhaust and return air pulls the designed amount of contaminated air from the room for increased dilution.



How Leaking Supply & Return Ducts Impact Dilution

For an AHU system that has a leaky supply duct, air supplied to the occupied zone is reduced. Less supply air translates to a higher concentration of gases, dust, mold, pollen, and pathogens in the space. The reduced supply also provides less fresh air to the occupied zone, further reducing the IAQ. Leaking return ducts worsen the problem by reducing the flow of contaminated air out of the occupied space and back to the AHU for exhaust and filtration.

Cross Contamination: Another Leaky Duct Issue

Leaking supply and return ducts in the plenum pose an additional IAQ concern. Ceiling plenums are dirty environments, filled with dust, debris and sometimes mold and rodents. Leaking supply air in the plenum is exposed to these conditions, short cycled back to the AHU through the leaking return duct. Some undesirable particles and pathogens will be exhausted and filtered, but some will recycle through to the occupied zone.

Free Project Audit

Aeroseal duct sealing technology can help reduce airborne exposures, while improving IAQ. Contact us today to get a free project audit from our team of experts and learn how Aeroseal can improve your next project.

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Disclaimer: The transmission of the SARS-CoV-2 Virus may occur in many ways, and not all aspects of transmission are not currently known. Most strategies outlined in this paper have not been tested for their effectiveness in reducing the spread of the SARS-CoV-2 virus. However, Dilution is a proven strategy to improve overall IAQ.