



# The Facts About Mold Growth

in Glass Fiber Insulated Air Transmission Systems





## Know the truth

**Fiberglass duct liners and duct board have been incorrectly blamed for contributing to mold growth in high humidity and high temperature conditions.**

The fact is that fiberglass is inherently resistant to mold growth. Stringent testing in accordance with UL and ASTM standards confirms that fiberglass duct liners and duct board do not support mold growth.<sup>1, 2</sup>

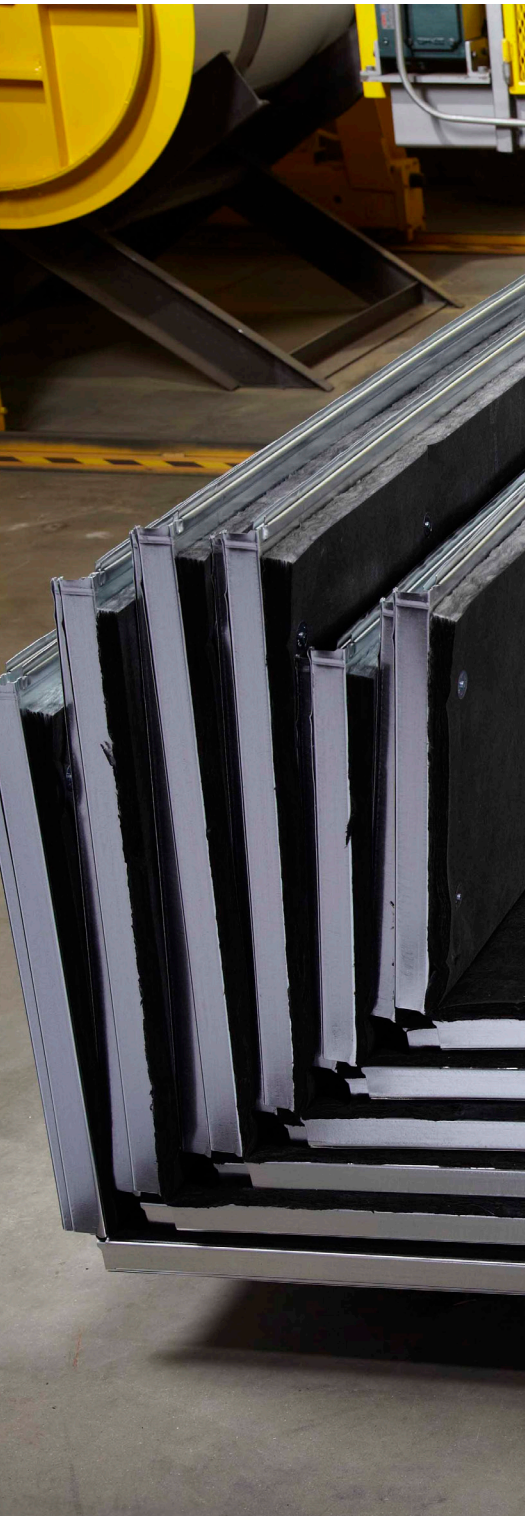
In instances where mold growth has been detected on the interior surfaces of the duct system, the cause has been an accumulation of dust and dirt combined with the presence of water, which serves as a nutrient source for growth—in contrast to fiberglass which does not support mold growth. Under these conditions, mold can grow on the interior surface of any HVAC system.

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<sup>1</sup> UL181 Standard for Factory-Made Air Duct and Air Connectors.

<sup>2</sup> ASTM C1338, Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.

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# Fact 01

High humidity may not lead to microbial growth

According to a Duke University study,<sup>3</sup> mold growth appears to be linked to dew point conditions rather than just the relative humidity.

Researchers found that sustained mold growth could occur when wet conditions were produced through condensation, as the air is cooled past its dew point.

It is important to note, however, that condensation is not the only source of water in an HVAC system. It can also occur as a result of water carryover due to faulty coil design, dirty coils, failure of the drain pan to operate properly, or improperly operating humidifiers.

<sup>3</sup>Fungal Contamination of HVAC Surfaces: The Role of the Dew Point in Microbial Amplification, Jerry J. Tulis, and Wayne R. Thomann; Occupational and Environmental Medicine Division, Duke University Medical Center, Durham, N.C., 1997.







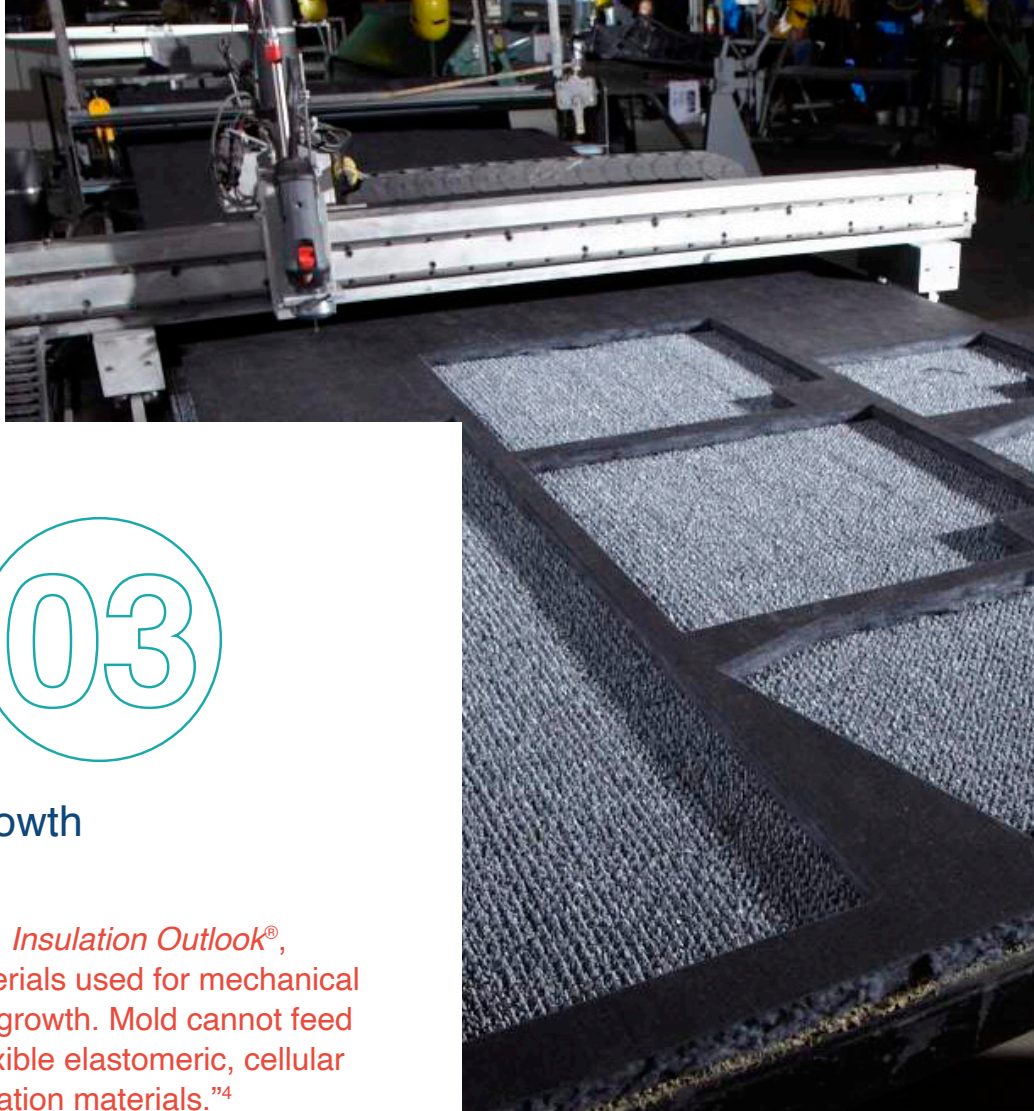
# Fact

02

Mold growth is not  
surface specific

The Duke study also confirmed that wherever water was available, microbial growth could be found on any surface of the HVAC system, including the metal “flex” duct, the flat surfaces of metal ducts, plastic-lined flex duct, caulks and sealants, conditioning coils, metal sound attenuators, mixing box dampers, and internal duct liners.

The Duke researchers strongly suggest that removing excess water from the supply air will minimize conditions that can result in sustained microbial growth on HVAC system surface materials.



# Fact 03

## Fiber glass insulations do not support mold growth

The award-winning publication, *Insulation Outlook*<sup>®</sup>, stated “Thermal insulation materials used for mechanical insulation do not support mold growth. Mold cannot feed off fiberglass, mineral wool, flexible elastomeric, cellular glass, or any plastic foam insulation materials.”<sup>4</sup>

The fibers used to make fiberglass insulations are inorganic and inert and do not support mold growth. There is a myth that has been circulated that suggests microbes can use fiberglass and binder materials as food sources, allowing microbial growth and deterioration of the insulation product—this is not the case.

It's important to note, fiberglass products used within ductwork all comply with the resistance

to mold growth requirements for airstream surfaces as specified in ANSI/ASHRAE Standard 62.1-2019 Ventilation for Acceptable Indoor Air Quality. Specifically, fiberglass products are tested to standards relating to mold and fungi growth, including UL 181, ASTM C1338, or ASTM D3273.

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<sup>4</sup> Mold and Insulation in Hot and Humid Climates. Gordon H. Hart. *Insulation Outlook*. 2011.

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# Fact 04

Mold growth can  
be prevented

The conditions which promote mold growth—the presence of dust and dirt combined with water—do not normally occur in systems that are properly designed, installed, operated and maintained.

The accumulation of dust and debris in HVAC systems can result in microbial growth on these materials. Prevention of dirt and debris accumulation through adequate filtration is important in protecting the HVAC system from microbial growth. A regular maintenance schedule, along with an efficient filtration system, assures protection of both HVAC system components and building occupants. Additionally, most fiberglass duct liners and boards have an interior surface that is treated with an EPA-registered anti-microbial agent to protect that surface from damage that could be caused by mold.



# Maintenance Procedures

Maintenance procedures include inspection, detection, and remediation of probable sources of airborne contaminants and water.

In its publication, *Indoor Air Quality*, SMACNA (Sheet Metal and Air Conditioning Contractors' National Association, Inc.) makes several system design and maintenance recommendations to prevent mold growth:



Promptly detect and permanently repair all areas where water collection or leakage has occurred.



During the summer, cooling coils should be run at a low enough temperature to properly dehumidify conditioned air.



Water-damaged furnishings, including carpets, upholstery, and ceiling tiles, should be discarded rather than disinfected to effectively eliminate microbial contamination.



Check for, correct, and prevent further accumulation of stagnant water under cooling deck coils of air handling units through proper inclination and continuous drainage of drain pans.



Materials with hard surfaces where moisture collection has promoted microbial growth (e.g., drain pans, cooling coils) should be cleaned and disinfected with detergents, chlorine-generating slimicides (bleach), and/or proprietary biocides. Care should be taken to ensure that these chemical agents are removed before air handling units are reactivated.



Air handling units should be constructed so that equipment maintenance personnel have easy and direct access to both heat exchange components and drain pans for checking drainage and cleaning. Access panels or doors should be installed where needed.





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## Conclusion

The conditions that promote mold growth do not normally occur in systems that are properly designed, installed, operated, and maintained.

However, in instances where water is allowed to accumulate in the system and/or the system is shut down for periods of time, conditions can occur which allow mold growth in the air handling duct system, whatever the surface material may be.



# Insulation Institute™

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NAIMA is the association for North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Its role is to promote energy efficiency and environmental preservation through the use of fiber glass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials. Through the Insulation Institute™, we leverage the collective insulation expertise of our organization and our members to empower homeowners and professionals to make informed insulation choices. Our mission is to enable a more comfortable, energy-efficient and sustainable future through insulation — and we are constantly working with building professionals, homeowners, government agencies, and public interest, energy and environmental groups to realize that vision.

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PUB. NO. AH113 5/22