Mold Overview

It is essential for mold remediators to fully understand mold's **health issues**, and the current **guidelines published**. This is important because mold remediator's must take the proper safety precautions for their employees and the clients while complying with the Environmental Protection Agency (EPA) guidelines which outlines how to conduct a proper mold remediation based on the size and scope of the job.

Mold Facts

In the last decade, mold and its **health issues** have received increased attention from health educators and the public. This is essential because home owners and commercial customers will have questions. Presently the EPA Guidelines are the standard for the industry. Most states do not have a remediation guideline. However, it is always essential to check with your state to verify whether they have specific rules regarding mold remediation.

Mold Basics

Mold spores cannot be seen with the human eye but they are present. Mold spores are the basis for mold reproduction. Mold spores exist in homes or buildings even with low humidity levels. It is sufficiently low humidity levels and/or a lack of cellulose based materials that prevent the growth of most mold species.

Mold will grow at 60% humidity or greater or water intrusion in the presence of degradable cellulose based materials such as wood and paper. Mycelial fragements (spore endoskeleton fragements) can cause allergic reactions. Some species of mold such as but not limited to Stachybotrys can cause serious health complications in people.

Mold Requires

- Sufficiently high humidity level or moisture intrusion in the presence of spores. Some mold species such as Stachybotrys require free standing water. Availability of cellulose based materials. What Are Cellulose Based Materials? These materials are mold’s nutrient source. Cellulose based materials include wood, paper, cardboard, boxes, upholstery, glues, etc. Mold breaks cellulose based materials down into glucose, a basic sugar.
- Water intrusion or humidity problem not solved within 24-48 hours.

Molds are a member of the fungi family. This family also includes edible mushrooms. Fungi do not require sunlight to grow. Mold species have varied growth requirements and appearance. Molds possess hyphae-branches not visible to the human eye. Spores grow on hyphae and are so light they can become airborne. Molds can be sexual or asexual depending on the mold species. Conidia are asexual externally formed spores. Sporangiospores are formed internally via sexual means.

Lichens can grow with trees and coexist while other fungi are parasitic in nature.

In a home, mold spores are always in the air. In a building there is always a continual flow of air from bottom to top (for example, exiting through the ridge vents). Thus, when moisture is introduced for a sufficient time period and level, the air borne spores will start growing, reproducing, spreading, and degrading many common household items and/or the structure.

Mold Species

Mold remediators need to have an understanding of various mold species, their health effects, and unique growth requirements.

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Primary Requirements For Mold Growth

Mold requires cellulose based material availability. Cellulose based materials have a carbon base and include but are not limited to wood, paper, cardboard, newspapers, upholstery fabric, wallpapers, glues, pressboard, veneers, etc. Mold also requires a water intrusion or high enough humidity level (typically 60% or greater but some molds can grow in much lower humidity levels), time (typically over 24-48 hours), and the presence of mold spores. Mold spores exist in the air and the normal flow of air in a building enters at a lower level (basement) and then rises and exists from a higher level (ex: ridge vents in attic). There are aways spores in the air but in low humidity levels and in the absence of water they do not grow.

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Common Types of Fungi

Some of the most common types of fung are **Cladosporium**, **ascospores**, **basidiospores**, and **Alternaria**.

Cladosporium does not require much moisture and can grow on a wide range of materials. It can cause sneezing, fevers, and excess mucosal production. This is the dark colored mold often found growing on the rubber edging seal on your refrigerator.

Ascospores and **Basidiospores** typically cause allergic reactions in people.

Alternaria Mold

Alternaria mold is often found in kitchens and batherooms around the faucets and sinks. It acts as an allergen.

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Aspergillis, Penicillium, Stachybotrys, and Fusarium are molds commonly found in water damaged buildings. These molds require higher levels of moisture than the common indoor and outdoor molds, and they are linked to much more severe **health effects**.

Penicillium Mold

This is a fairly common mold type. It is commonly found in buildings with burst pipes, damaged foundation, porous foundations etc.-common with old, abandoned, or foreclosed properties. Penicillium mold grows within 48-72 hours after a water intrusion. Aflavatoxin, a carcinogen, can be a byproduct of this mold's growth cycle. It is also an allergen.

Asperigllus and **Penicillium**are the more common molds found in water-damaged buildings.

Aspergillus Mold

This is a fairly common mold type. It is commonly found in buildings with burst pipes, damaged foundation, porous foundations etc.-common with old, abandoned, or foreclosed properties. Aspergillus mold grows within 48-72 hours after a water intrusion. Aflavatoxin, a carcinogen, can be a byproduct of this mold's growth cycle. It is also an allergen.

Stachybotrys Mold

This is the mold species that has received the most publicity regarding adverse health consequences. **Stachybotrys atra**. This is the same mold that some doctors link to the death of infants in Cleveland, Ohio, and around the country. **Stachybotrys** .

Fusarium

Fusarium produces toxins called mycotoxins which can cause memory loss, headaches, fever, and even death. It requires high levels of moisture to grow. It is often found in the vicinity of standing water or regular water intrusions into a facility.

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A Historical Perspective of Mold

The Egyptians used yeast to bake bread and to produce beer and wine. Edible mushrooms have been eaten for thousands of years. Cheeses are made with the aid of specific molds. In more modern times, penicillium was used to create penicillin, an antibiotic.

In the Bible, Leviticus contains instructions on how to deal with a moldy home. Ancient peoples knew not to eat moldy food or grain because it would cause illness even death. In the mid 1800s, the Irish exodus to the U.S. was in great part due to the Potato Famine which was caused by mold attacking the potato crop, a staple part of the Irish diet.

Risk Assessment

A **risk assessment** is the process of entering a building to ascertain the mold situation prior to remediation. It is the basis for setting up a mold remediation plan and includes a visual inspection, client interview, gathering a description of how the situation occurring, often taking photos, assessing who and how the location is normally used, assessing the basic state of the contents, and conducting pre remediation testing with indoor and outdoor air sampling recommended and often taking physical samples.