TerranearPMC Safety Share

Week of June 23, 2014 – Mold

Not that long ago, my wife informed me that our dishwasher had seen its last days. So off to Home Depot we went and purchased our replacement. We scheduled its delivery and installation, waiting anxiously for its arrival. When it came, the installers removed our old unit and then walked up to my wife and I and looked like a doctor about to give a patient some really sobering news. "I'm sorry to tell you this, but you have mold on your kitchen walls and we are not allowed to install your new unit until you get it removed."

Before we knew it, our kitchen was wrapped in sheets of polyethylene plastic with a negative ventilation machine, hooked up to a HEPA filter designed to create a negative pressure inside our contained kitchen. For about one month our kitchen was a remediation site, having dry wall removed, cabinets dismantled while air pumps for mold collection was continuously humming.

What's the big deal about mold?! Can mold really damage our homes and cause sickness to humans? Well, the short answer to both these questions is "Yes." Just from a structural point of view, mold feeds off of organic materials, such as wood and gypsum board, which will degrade these items, eventually leading to serious damage to the physical structure of a home or building. So mold can destroy your home. But what about causing sickness or compromising human health?

Molds are fungi that can be found both indoors and outdoors. No one knows how many species of fungi exist but estimates range from tens of thousands to perhaps three hundred thousand or more. Molds grow best in warm, damp, and humid conditions, and spread and reproduce by making spores. Mold spores can survive harsh environmental conditions, such as dry conditions, that do not support normal mold growth and therefore can become airborne and be transported to new environments. Molds are classified by genus and species (genus is the broader category of the many specific species within a given genus). The more common genus of mold found indoors are: Cladosporium, Penicillium, Alternaria, and Aspergillus.

Some people are sensitive to molds. For these people, exposure to molds can cause symptoms such as nasal stuffiness, eye irritation, wheezing, or skin irritation. Some people, such as those with serious allergies to mold, may have more severe reactions. Severe reactions may occur among workers exposed to large amounts of molds in occupational settings, such as farmers working around moldy hay. Severe reactions may include fever and shortness of breath. Some people with chronic lung illnesses, such as obstructive lung disease, may develop mold infections in their lungs.

In the 1990's a concern throughout the country rose to such heightened levels that the National Academy of Sciences conducted research on the subject of m*ycotoxins*. Mycotoxins are complex organic molecules that are emitted by the various types of mold. Essentially they are volatile organic compounds or VOCs. It is the VOCs that are released and become airborne that results in that all too familiar "moldy smell." Each mold type (genus and species designation) emits its unique mycotoxin. Mycotoxins are released by mold as a means to kill off other mold types that

are competing for the same food source (typically referred to as a substrate and are materials such as wood, paper, drywall, etc). Thus, this fight for food within the micro world of mold is probably the first known events of chemical warfare on Earth.

Since mycotoxins are airborne contaminants, they are readily inhaled by humans. Because these substances are quite odorous (as is the case with most VOCs), they are easily detectable and can typically cause a concern to our health. Nevertheless studies from the National Academy of Science indicate non-conclusive results when relating human health and the inhalation of these VOCs, stating…..”it is not known whether the indoor air concentrations of mycotoxins caused by microbial growth in damp buildings can become high enough to cause health effects (LBNL Indoor Environmental Group -2014).”

This does not mean that contact with mold cannot cause harm to humans. In 2004 the Institute of Medicine (IOM) found there was sufficient evidence to link indoor exposure to mold with upper respiratory tract symptoms, causing coughing, and wheezing in otherwise healthy people; with people having asthma resulting in hypersensitivity pneumonitis (lung inflammation) including susceptible to immune-mediated conditions. These specific health symptoms are not associated with merely inhaling VOCs, but rather mold spore particulate that enter the respiratory tract and begin colonization within the lungs.

Molds are found in virtually every environment and can be detected all year; both indoors and outdoors. Mold growth is encouraged by warm and humid conditions. Outdoors they can be found in shady, damp areas or places where leaves or other vegetation is decomposing. Indoors they can be found where humidity levels are high, such as basements or showers.

Sensitive individuals should avoid areas that are likely to have mold, such as compost piles, cut grass, and wooded areas. Inside homes, mold growth can be slowed by controlling humidity levels and ventilating showers and cooking areas. If there is mold growth in your home, you should clean up the mold and fix water problems. Mold growth can be removed from hard surfaces with commercial products, soap and water, or a bleach solution of no more than 1 cup of bleach in 1 gallon of water. If you choose to use bleach to clean up mold, here are some things you need to be aware:

- Never mix bleach with ammonia or other household cleaners. Mixing bleach with ammonia or other cleaning products will produce dangerous, toxic fumes.
- Open windows and doors to provide fresh air.
- Wear non-porous gloves and protective eye wear.
- Always follow the manufacturer’s instructions when using bleach or any other cleaning product.
- Keep humidity levels as low as you can—no higher than 50%--all day long. An air conditioner or dehumidifier will help you keep the level low.
- Be sure the home has adequate ventilation, including exhaust fans.
- Add mold inhibitors to paints before application.
- Clean bathrooms with mold killing products.
- Do not carpet bathrooms and basements.
- Remove or replace previously soaked carpets and upholstery.

If you stand for nothing, you’ll fall for anything (Pinterest.com)