

Mold In Homes

Mold has become a four letter word but it does not necessarily deserve such a reputation. Mold has a place in the world and through understanding we may be able to actually appreciate this perceived monster. We just need to more effectively keep it in its place where it truly serves us well.

The book of Leviticus, 14:33-53, gives us an account of mold in homes 3 to 4 thousand years ago. In more recent years we have had many accounts of mold issues in the media due to floods, hurricanes and poor construction. Awareness thru the media, though a good thing, sometimes causes over concern and over reaction.

So what is mold?

Merriam-Webster definition:

1. A superficial often woolly growth produced especially on damp or decaying organic matter or on living organisms by a fungus.
2. A fungus that produces mold.

The Free Dictionary.com says:

1. Any of various fungi that often cause disintegration of organic matter.
2. The growth of such fungi.

Notice the use of **fungus** and **fungi** in each of these definitions. Molds are a sub class of fungi. Fungi are a kingdom all their own. Fungi are not animal, vegetable or mineral.

There are over 100,000 identified species of organisms commonly classed as fungi. The most common names include mold, mildew, smut and rust. Also included are mushrooms, yeast, truffles and ringworm. Mildews are a common type of mold commonly found in homes. While they sometimes produce an unpleasant odor, they are easily treated and are usually not a health concern.

There are only a few molds or fungi that can cause infection in healthy humans but many molds can cause infections in people with compromised immune systems. The biggest health problem from exposure to mold is for individuals with allergies and asthma.

Outside of our homes mold is good – NOT a four letter word. Molds and fungi are responsible for the decomposition of plant matter, wood, paper, cardboard, etc. If not for mold and fungi, we would be living in a world of dead trees, limbs, leaves and discarded wood and paper products. The decomposition of these materials, thanks to mold and fungi, amends the soil and returns the nutrients necessary for new plant growth.

Molds are used in Agriculture to assist soil fertility, in food and beverage production such as bread, wine, beer and cheeses and in the production of chemicals, drugs and antibiotics. Penicillin, our most widely used antibiotic is derived from the mold Penicillium.

So what is the mold problem? Mold creates MVOC's (microbial volatile organic compounds) and mycotoxins while metabolizing organic matter. These compounds and the spores are irritants and are sometimes poisonous. Spores and MVOC's are present everywhere in the general atmosphere but most healthy individuals bodies are accustomed to the levels encountered outside and therefore have little reaction. Inside of homes, moisture problems cause elevated levels of spores and MVOC;s which are problematic.

Mold spores produced outside come into homes in numerous ways. Think of these spores as you would a package of flower seeds.

To become mold, spores require 3 things:

A source of moisture A food source A surface to grow on

You cannot stop spores from entering a home and you would have a difficult time eliminating all food sources, organic matter from your home.

The solution then is controlling moisture.

Molds moisture requirements. If mold spores (again, think of them as you would flower seed) land on organic matter such as wood or paper that has a moisture content of as little as 20% or a surrounding atmosphere with a relative humidity of 60% or more, and, if these conditions exist for as little

as 24 hours, the mold spores become mold, just as a flower seed becomes a flower.

When trees and other plant-life are used to produce lumber and other products, they are dried to have a moisture content much below 20%. The heating and cooling systems (air conditioning) in our homes are designed to maintain relative humidity in our homes well below 60 %, ideally between 30 to 50% which is our general comfort level.

Then how does mold become a problem in homes? Moisture is the enemy. Keep moisture and high humidity out of your home and you are not very likely to have a mold problem. If your roof is functioning, the exterior walls are maintained, the grade is maintained to cause water to flow away from the home and if your gutters, downspouts and downspouts extensions are maintained, moisture is not likely to enter from rain events.

Common moisture sources inside of the home are plumbing leaks, condensation and poor ventilation. Minor moisture leaks often go unnoticed under sinks and in crawlspaces. Condensation often occurs around the air handler units, exposed un-insulated cold water pipes and drains above suspended ceilings and around windows. Unventilated bathrooms and cooktops deposit major moisture into the home as do improperly vented clothes dryers.

Mold is often a problem in basements. Basement walls often leak and allow wicking of moisture thru the walls. If a basement is not properly prepared prior to finishing and if a heating and cooling system or dehumidifier system is not installed, mold may become a problem.

The homes heating and cooling systems (HVAC) if not serviced properly may become a breeding ground for mold. Humidity in the indoor air is converted to condensation at the evaporator coils in the air handler/furnace unit. Because these coils are damp, they over time collect dust not trapped by the air filter. Dust is a food source and surface for mold and the condensation is the moisture source. Now spores may be produced and deposited into the home thru the cooling registers. **CLEAN OR REPLACE YOUR AIR FILTERS REGULARLY AND HAVE YOUR SYSTEM INSPECTED AND CLEANED ANNUALLY.**

What do we do if we have mold? This depends on a number of factors. How big is the problem, what caused the problem? Is it a health issue?

Is mold sampling necessary? Not usually. And it is sometimes expensive. For large remediation projects it may be necessary to do pre & post remediation testing to determine that the remediation was effective. Other times testing may be desirable is if a homeowner/occupant has health concerns, has unknown health issues or if there is uncertainty about the possibility of covered-up mold in a remodeled or restored property.

Who should do the remediation and how should it be done? The first step is to determine the moisture source(s) and correct them. You may want to hire a trained inspector to do this for you. The next step if necessary is sampling, and then remediation.

Level 1 remediation is when the affected area is less than 10 square feet (less than roughly 3 ft. x 3 ft.). The EPA suggest that anyone (the homeowner), in most cases, can do the job if the EPA guidelines are followed and the proper personal protection equipment (PPE) are used.

Level 2 remediation is when the affected area is more than 10 square feet and less than 100 square feet.

Level 3 remediation is when the affected area is more than 100 square feet.

Level 4 remediation is when you suspect that the heating/ventilation/air conditioning (HVAC) system may be contaminated with mold (it is part of an identified moisture problem, for instance, or there is mold near the intake to the system). Consult EPA's guide *Should You Have the Air Ducts in Your Home Cleaned?* before taking further action. Do not run the HVAC system if you know or suspect that it is contaminated with mold - it could spread mold throughout the building.

If there has been a lot of water damage, and/or mold growth covers more than 10 square feet, Consider hiring a contractor (or other professional service provider) to do the cleanup, make sure the contractor has experience cleaning up mold. Check references and ask the contractor to follow the recommendations in EPA's *Mold Remediation in Schools and Commercial Buildings*, and the guidelines of the American Conference of Governmental Industrial Hygienists (ACGIH).

Resources

EPA – www.epa.gov/mold has many resources, publications & a mold course that any one can take for free.

CDC - www.cdc.gov/mold/

IICRC - www.iicrc.org/

