

Moisture Control and Mold

Mold spores are found everywhere. Mold spores require three things to grow: moisture, source of food, and adequate temperatures. Since mold likes the same temperatures as humans, and buildings are built out of mold food; to control mold, we must control moisture. There are many different kinds of mold. Molds can produce allergens, toxins, and irritants. Molds can cause discoloration and odor problems, deteriorate building materials, and lead to health problems -- such as asthma episodes and allergic reactions -- in susceptible individuals.

Where does moisture come from?

Moisture can come from leaks in the roof or plumbing leaks or it can come up from the ground. Moisture also comes from the air when the relative humidity of the air is high. When air contains all of the water vapor it can hold, it is at 100 percent RH or greater, and the water vapor condenses, changing from a gas to a liquid. The temperature at which condensation occurs is the "dew point." Reaching 100 percent RH without changing the air temperature is possible by increasing the amount of water vapor in the air (the "absolute humidity" or "vapor pressure"). It is also possible to reach 100 percent RH without changing the amount of water vapor in the air, by lowering the air temperature to the "dew point."

The highest RH in a room is always next to the coldest surface. This is referred to as the "first condensing surface," as it will be the location where condensation happens first, if the relative humidity of the air next to the surface reaches 100 percent. Understanding this is important when trying to understand why mold is growing on one patch of wall or only along the wall-ceiling joint. The surface of the wall is likely to be cooler than the room air because of a gap in the insulation or because the wind is blowing through cracks in the exterior of the building.

Why measure mold?

Molds are a major source of indoor allergens. Molds can also trigger asthma. Even when dead or unable to grow, mold can cause health effects such as allergic reactions. The types and severity of health effects associated with exposure to mold depend, in part, on the type of mold present, and the extent of the occupants' exposure and existing sensitivities or allergies. Prompt and effective remediation of moisture problems is essential to minimize potential mold exposures and their potential health effects.

How do I measure mold and moisture ?

Generally, it is not necessary to identify the species of mold, and Center for Disease Control (CDC) does not recommend routine sampling for molds. Current evidence indicates that allergies are the type of diseases most often associated with molds. Since the susceptibility of individuals can vary greatly either because of the amount or type of mold, sampling and culturing are not reliable in determining your health risk. If you are

susceptible to mold and mold is seen or smelled, there is a potential health risk; therefore, no matter what type of mold is present, you should arrange for its removal. Furthermore, reliable sampling for mold can be expensive, and standards for judging what is and what is not an acceptable or tolerable quantity of mold have not been established.

A microscope can help identify spores or mold growth. This can be done with a microscope to look at a surface or by doing a tape-lift. A microscope that can view mold with a top viewing light is convenient and a 150X magnification provides adequate detail. If you get a microscope that uses a battery light, it will be portable for building assessment work. Google “microscope +”wide stand””.

A moisture meter can help identify moisture in walls that cannot be seen or felt. There are two basic types of meters – destructive and nondestructive. Google “moisture meter”.

Air sampling for mold or mold spores is generally not recommended.

What standards are there for mold and moisture ?

The EPA has not established standards for mold or moisture in indoor air. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommend maintaining relative humidity (RH) from 30% to 60%.

If there is mold impacting on indoor air quality, it should be removed. For more details on mold removal, go to the EPA website.