



COLD CLIMATE HOUSING RESEARCH CENTER

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ENERGY FOCUS Preventing Mold Growth in Your Home Requires Moisture Control

By Adam Wasch, Energy Outreach Consultant for CCHRC and CES

Seal it. Tighten it. Insulate it. Weatherization has become a high priority among homeowners, contractors, and builders – and for good reason. The cost of heating oil may have declined from last year’s record highs, but making ends meet is increasingly difficult. A tight house uses less heating oil. But beware. If you fail to manage indoor humidity, your home is at risk for mold growth.

There are different types of mold, but any of them in your house is undesirable. Mold infestations can affect your health and, if unchecked long enough, could undermine your home’s structure and cost oodles of money to remediate. On the bright side, preventing mold growth is fairly simple – eliminate excessive moisture. Getting rid of mold after it has grown is more difficult, but not rocket science.

How Mold Happens

Breathing, cooking, and showering – not to mention aquariums, water leaks, dish washing, and grandma – are all causes of indoor humidity. In a healthy and adequately ventilated home, relative humidity – a measure of water vapor content at a given temperature – ranges from between 30 percent and 45 percent. It’s easy to measure. Just pick up an inexpensive hygrometer at a hardware store.

When vapor-rich air cools, its ability to hold water molecules declines and condensation occurs. You can witness this phenomenon on bathroom mirrors after a hot shower. In cold weather, you might see condensation on your window panes. This is often a sign of high relative humidity and an early warning for mold growth. But the condensation you don’t see is the real hazard. Warm air escaping from your house makes contact with cold surfaces behind your walls or above your ceiling and can attract moisture. Moisture is one of the three things mold needs to grow. The other two are above-freezing temperatures and nutrients that are found in almost all building materials. Wood and wall board are a favorite food of mold.

What Mold Does

Mold eats as it grows, causing rot. Rotting wood or other materials will ultimately weaken and be destroyed. In addition, mold produces spores and introduces other irritants or toxins into the environment. These spores are present practically everywhere outdoors and in, but can cause allergic reactions or worse when sufficiently concentrated. Watery eyes, a musty smell, or flu-like symptoms can indicate the presence of mold in unhealthy concentrations. In extreme instances, a home that has

become inundated with mold can become uninhabitable. If in doubt, it's important to contact professional mold and health experts.

Where Mold Happens Most

Windows, spaces around window frames, and bathroom areas tend to be most at risk for mold growth. In bathrooms and kitchens where water is frequently used, humidity tends to be higher. Inadequate or malfunctioning bathroom fans are infamous for leading to mold problems. Crawl spaces and foundations can be another source of mold-attracting moisture. If your home's foundation has inadequate drainage or lacks a necessary vapor barrier, the stack effect of humid air moving up through the bottom of your house can build tremendous humidity inside.

Preventing Mold Growth

Mold cannot grow without moisture. Adequate ventilation is the solution, especially if your home is tightly insulated. Be sure that all vents in your home exhaust directly to the outdoors, are not obstructed with debris or ice, and are powerful enough to produce sufficient air flow. Use your bathroom fan regularly. If you have a dryer, regularly check its vent. Building professionals can measure your home's ventilation and recommend ways to ensure proper air exchange. Heat Recovery Ventilators (HRVs) are excellent tools that conserve your home's heat while exhausting humid air to the outside. If your home is subject to ground-source moisture, repairing or installing a ground vapor barrier might be necessary.

When Mold is Present

If you suspect mold growth in your home, address the situation as soon as possible by finding and eliminating the source of excessive moisture in your home. This process may require removing portions of walls and floors to peer into the framing or obscure parts of your house. Wear gloves, respirator, and eye protection whenever working near suspected mold. Once the moisture problem is resolved, the mold will stop growing and visible mold can be removed. It is impossible to remove every trace of mold – spores exist throughout our environment – so, again, it is essential to eliminate the source of moisture.

Small amounts of mold may be removed by using a soap solution. Larger mold growths may require entire sections of wall board or other materials to be removed completely and replaced. Other approaches include the use of high-efficiency particulate air (HEPA) vacuums. The use of ozone or other toxic cleaning methods is generally ill-advised and often ineffective.

So, go ahead seal it. Tighten it. Insulate it. But remember: Control moisture and be free of mold. For more information, visit the U.S. Environmental Protection Agency's online mold resource at: <http://www.epa.gov/mold>.

Adam Wasch promotes energy awareness for the Cooperative Extension Service (CES) and the Cold Climate Housing Research Center (CCHRC).

For questions or comments please contact CCHRC at (907) 457-3454