AUTHOR: Mark Ritacco, President of Certified Indoor Environmental
o: 503-610-3661
e: cmt@certifiedie.com
w: www.certifiedie.com

Attic Mold – A Guide to Proper Remediation and Prevention

NEW ROOF AFTER 5 MONTHS WITHOUT PROPER VENTILATION

Attic mold is extremely common within our Northwest climate. The correct way to properly remediate the mold and correct the moisture source can be hard to know, depending on your point of view. While many individuals have heard horror stories regarding mold being a major health issue, the fact is attic mold rarely affects the indoor air quality. However, if not addressed, the moisture can reduce the life expectancy of the roof and cause extensive damage to the roof sheathing, framing, firewalls and in some cases interior ceiling drywall.

What is the first step if mold has been identified in your attic? Methods of attic mold remediation and correction vary widely and too many times fail, resulting in additional costs to property owners. The first step is to schedule a professional attic assessment with a contractor that has an extensive knowledge of proper ventilation, roofing products, insulation, and current mold remediation best practices.

Attic mold prevention. Attic mold can grow unnoticed for years. If left unchecked, mold can negatively affect your property's value and lead to costly repairs. It is a good practice to conduct annual attic inspections during the winter months to rule out potential moisture intrusion issues including roof leaks that may lead to organic growth.

The #1 reason for attic mold is condensation. Hot moist air rises into the unconditioned attic space and condensates on the cold roof sheathing creating an ideal environment for mold growth. This concept is easily explained by imagining a cold glass of ice water on a hot summer day. On the outside of the glass we can see condensation. This is what happens when hot humid air escapes into the attic without proper ventilation. Condensation can become so heavy that the roof sheathing is perpetually wet and begins to rot and degrade. In worst case scenarios, the attic condensation can be so extreme will water will drip down saturating the insulation and ceiling drywall.

Is the attic ventilation inadequate and/or improper? Proper ventilation is the most important part of the attic assessment but also the most controversial. How much is enough ventilation? Can you over ventilate? Just because the ventilation is to code, it may not be sufficient to prevent mold growth. Current Oregon building code allows for 80% of airflow to be exhaust and 20% to be intake. However, the NRCA (National Roofing Contractor Association) guidelines recommends the amount of ventilation in static ventilation systems be balanced 50/50 between the soffits or eaves and the upper portion of the space being ventilated. In a balanced ventilation configuration, ambient outside air enters the attic via intake vents such as soffit, eave or edge vents. Moisture-laden air passes through the attic and then exits the attic through exhaust vents at or near the peak of the roof. In addition, the NRCA recommends designers provide at least 1 square foot of Net Free Ventilation Area, NFVA for every 150 square feet of attic space (1:150 ventilation ratio) measured at the attic floor level (ceiling). This is double current building code and, in some structures,, it is impossible to ventilate to this standard.

Check for attic bypass leaks. Ceilings are full of opportunities for air leaks, not only around the perimeter where ceilings meet walls, but also via the many penetrations points that are common in the ceiling. They include gaps around electrical and plumbing chases, recessed ceiling lighting, chimneys, and holes for ducting, wiring and pipes. If not properly sealed and insulated at the edges, warm air from the structure can escape into the attic. This leads to severe energy loss, as well as moisture problems in the attic.

Ensure kitchen, bathroom and laundry fans exhaust outside the structure. Prior Oregon building code allowed the fan ducts to be connected to an exhaust vent. Over time these vents get clogged with debris allowing moisture to escape into the attic. Kitchens, bathrooms and laundry rooms produce a lot of warm, humid air which should be vented outside the structure. If this air escapes into the attic, it creates a moisture source ideal for mold growth. New building code mandates these vents are connected to a dedicated stem vent ensuring warm moist air is being vented outside the structure.

Is the insulation adequate? The attic floor must be properly insulated to avoid drafts and moisture that escape from your living space and rises into the attic. Also keep in mind that the attic hatch needs to be insulated and properly sealed.

Often not addressed areas inside the structure: There are situations when the attic is properly vented and moisture issues inside the structure overwhelm the attic ventilation system. Managing moisture levels can be divided into two basic areas. The first step is to reduce excess sources of moisture by insuring exhaust fans have the correct CFM's (cubic feet per minute) for the space being vented/exhausted and is operating correctly. The second is having a good air barrier between the heated portion of the living space and the attic. Plumbing vent pipes, chimneys, recessed lights and attic access are examples of penetrations that need to be carefully air-sealed. Also, the number of occupants and living habits including cooking, showering, watering plants, drying clothes and excessive use of heat can overwhelm even the best designed attic ventilation systems.

A full assessment of the attic and interior is recommended if attic mold is identified. If the ventilation system wasn't properly designed and you are close (within a few years) of a full roof replacement, plan on implementing these changes as part of the roof replacement. However, if the roof replacement project is further out, consider upgrading the ventilation immediately to help prolong the roof life.

Attic mold remediation methods. Unfortunately, not all mold remediation methods are effective or follow EPA recommended guidelines. According to the EPA "The purpose of mold remediation is to **REMOVE** the mold to prevent human exposure and damage to building materials and furnishings." This means all visible mold staining and the root structure "hyphae" of the mold must be removed. Encapsulation or "Painting" is not a recognized method of mold remediation. Protective barriers or anti-microbial paints have a limited shelf life and fail over time if the moisture source has not been properly addressed. Simply stated mold needs moisture to grow. Fix the moisture source and you will never have mold growth.

The above photo is an example of Certified Indoor Environmental before and after treatment. The mold is completely removed from the roof sheathing. No need to encapsulate or paint over the mold.

The photo on the left is an example of improper remediation. The contractor failed to remove the mold staining in the attic and then applied an encapsulant covering up the mold. The encapsulant had a mold inhibitor to prevent future mold growth. As you can see in the photo mold is growing on the protective coating and visible staining is seen through the encapsulant.

Mold inhibitors and protective barriers will break down over time if the moisture source has not been properly corrected.

Should I test for mold? There is quite a bit of public confusion when it comes to mold testing. Consumers are paying hundreds of dollars to mold testing companies under the guise that they need to know if the discoloration is really mold, what species of mold is present or to properly remediate it or to determine what health concerns may exists. Generally, it is not necessary to identify the species of mold and the CDC (Centers for Disease Control and Prevention) does not recommend routine sampling for molds. Current evidence indicates that allergies are the type of diseases most often associated with molds. According to the EPA, no matter what type of mold is present, you should remove it.

Certified Indoor Environmental assesses and remediates thousands of attics a year using the latest methods in mold remediation while identifying and correcting the source of moisture.