



Mold & Wood Products

No. 1: What is Mold?

Molds have been part of the environment since humans have walked the planet. References to mold can be found in the Bible and scientists estimate molds evolved more than 400 million years ago.

Molds are part of the diverse group of organisms called fungi, which include a wide range of species from tiny molds to large mushrooms. Fungi are part of nature's recycling system and play a key role in breaking down organic materials such as plants, leaves, wood fiber and other natural materials. Fungi extract food from organic material, and they grow and reproduce by way of spores.

Conservatively, more than 100,000 species of mold exist in the world and at least 1,000 species are common in the U.S. Molds and other fungi are estimated to comprise a quarter of the entire biomass on earth.

As such, molds and mold spores are everywhere. The air we breathe is a virtual jungle of fungal spores and we regularly encounter mold spores as part of everyday life.

Mold and wood

There are a host of materials in and around a house that, under proper conditions, can become a breeding ground for mold. Molds require four things for growth: food, suitable temperature, oxygen and moisture. In certain situations, wood can provide the necessary elements to allow mold to grow.

Wood is organic, consisting of biological materials such as cellulose and lignin. Since wood fiber comes from a living tree, it also contains sugars, starches and proteins that can serve as a food source for mold.

Molds have broad temperature requirements, but grow best between 70 and 85 degrees Fahrenheit. Oxygen is readily available in most areas where wood is used, as are favorable temperatures.

The key element for mold growth on wood is moisture. All wood contains moisture. But once the moisture content of wood falls below 20 percent, mold growth cannot be supported. Depending on the climate, framing lumber will dry to below 20 percent moisture content during construction and before the building is enclosed.

What kind of molds grow on wood?

Under proper conditions, a variety of molds can form on wood. Research by Oregon State University revealed that Douglas Fir sapwood was colonized by more than 45 species of fungi within six weeks of sawing. Of the mold species identified, none were *Stachybotrys*, which is commonly referred to as a "toxic mold."

Molds that grow on wood typically discolor the wood through production of pigmented spores that can be yellow, green, orange, black and an array of other colors. The discoloration is usually confined to the surface of the wood.

Stain fungi are different than mold and penetrate more deeply into the wood surface. These fungi darken as they age, creating a "blue stain" in the wood.

Decay fungi may also grow when wood products are exposed to chronic moisture. Decay fungi, unlike molds, attack beyond the surface of the wood into the structural polymers of the fiber, reducing its strength. Generally, decay fungi invade wood only after prolonged exposure to moisture, such as what occurs with plumbing leaks or seeping from outside water sources.

Concerns about mold

Humans have coexisted with molds for thousands of years. So why are molds a concern today? Recent

court cases involving mold, sensationalistic media coverage and publication of questionable scientific research have increased public awareness of the issue.

To date in the U.S., there are no regulations or exposure limits for molds or mold spores, and the mycotoxins that may be present. While there are many claims that so-called "toxic molds" like *Stachybotrys* cause severe health effects, the U.S. Centers for Disease Control (CDC) states: "At present, there is no test that proves an association between *Stachybotrys chartum* (*Stachybotrys atra*) and particular health symptoms."

More information on mold

You can find additional information about mold online at these sites:

Mold, Housing and Wood

Western Wood Products Association

www.wwpa.org/lumberandmold.htm

Mold and Mildew

Restoration Consultants

www.restcon.com/links/articles/mold_and_mildew.html

Facts About Mold for Everyone

American Industrial Hygiene Association

www.aiha.org/governmentaffairs-pr/html/mold-consumer.htm

Mold: Causes, Health Effects and Clean-Up

Building Science Corporation

www.buildingscience.com/resources/mold/mold_causes.pdf

Also, see the other *Fast Facts* on mold and wood products in this series:

No. 1 – *What is Mold?*

No. 2 – *Preventing and Controlling Mold*

No. 3 – *Cleaning Mold on Wood*