WESTERN WOOD PRODUCTS ASSOCIATION FAST FACTS

Mold & Wood Products

No. 2: Preventing and Controlling Mold

Molds are part of the fungi kingdom and all fungi have four basic requirements for growth: suitable temperature, oxygen, food and moisture. Controlling moisture offers the best opportunity to prevent mold growth on lumber and wood products.

Wood is a hygroscopic material, which means it readily retains and takes up moisture. Under a microscope, wood fiber resembles a series of hollow tubular cells which serve to transport water and other nutrients in a living tree. When a tree is harvested and sawn into lumber products, the moisture remains in the wood cells until it evaporates to match the moisture conditions of the surrounding environment.

In some circumstances, the moisture in wood may contribute to mold growth, such as when the evaporating moisture is trapped and condenses on the surface. Once the moisture content of wood declines to less than 20 percent, it will no longer support mold growth. Lumber used in construction typically dries to below 20 percent moisture content before the structure is enclosed.

There are many ways to control the moisture in wood and block the formation of mold. The best long-term protection against mold growth is lowering the moisture content of wood to below 20 percent and keeping other sources of moisture away from the wood.

Green lumber

Unseasoned or green lumber has a moisture content greater than 20 percent. This lumber will dry naturally, usually during the framing stages, to match the surrounding environment. If there is not sufficient airflow to carry the evaporating moisture away from the wood, the trapped water may contribute to the formation of mold.

Airflow in and around green lumber plays an important role in drying the wood to below 20 percent moisture content. Since most green lumber is used as framing material, the wood typically dries in place as the outdoor air carries away the moisture. In warmer climates, the framing can dry to below 20 percent moisture content in just a few days.

Many mills in the West reduce the risk of mold and stain on green lumber by applying anti-stain treatment (also called sapstain treatment) to the wood prior to shipping. Anti-stain treatments provide a thin coating of fungicide on the surface of the wood. These fungicides are applied by dipping entire bundles of lumber into a treatment solution or by spraying all four surfaces of individual pieces.

Anti-stain treatments provide a microscopic barrier against molds that last from three to six months, depending on the chemical, the concentration used, the wood species and the climatic conditions. The chemicals used for preventing mold and stain are usually very mild and include many that are used on food crops as well as in shampoos and paints. They are not designed for long-term protection.

Protecting lumber from moisture

Some lumber buyers have responded to mold concerns by switching from green to dry lumber. Using dry lumber can reduce the likelihood of mold formation, but it will not guarantee that the wood will remain free of mold. Lumber that is exposed to moisture after it has dried can support mold growth.

Dry lumber may become wet through direct sources, such as rainfall or condensation. Improper storage, such as placing lumber bundles near puddles or other water sources, also creates moisture conditions for mold growth. Even wet pieces inside a bundle of dry lumber could generate moisture for mold. If the

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wrapped bundle is exposed to direct sunlight, the evaporating moisture could be trapped inside the wrapping and condense on the wood in sufficient quantities to support mold growth.

Given the importance of controlling moisture in preventing mold, proper lumber storage is essential. The following recommendations are detailed in WWPA's *Lumber Storage* TIP sheet:

Green lumber

- Move inventory quickly using the first in, first out rule.
- Sticker green lumber to allow air circulation if wood is to be stored for a long period.
- Place cover boards, extending beyond the ends of the stack, on the top package of lumber to protect the wood from the sun.
- Do not store lumber near standing water; ensure the storage area has good drainage.
- Raise stacks of lumber at least 12 to 18 inches off the ground to allow cool, moist air to move downward and away from the lumber.

Dry lumber

- Open or closed storage sheds are preferable to outside storage.
- If stored outdoors, cover dry lumber with tarpaulins, canvas or paper wrapping.
- Repair any tears in paper wrapping immediately.
- Store high-grade dry items, such as shop, moulding and millwork, in a closed, heated shed that has a clean, paved floor.

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

Lumber Storage
Western Wood Products Association
www.wwpa.org/pdf/TG5.pdf

Mold, Moisture and Lumber
Southern Pine Council
www.southernpine.com/mold.htm

Construction Tips for Building Moisture Resistant Houses
APA – The Engineered Wood Association
www.buildabetterhome.org

Mold: Cause, Effect and Response
Foundation of the Wall and Ceiling Industry
www.awci.org/mold-series-1.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*