

**Mold and fungi are bad news,  
but their existence provides  
an opportunity for build-  
ers who are interested in  
solving the problem.**

**By Dr. Jeff Lloyd**

# SILVER Lining

**D**ecay fungi cause more damage than subterranean termites and can easily compromise the structural integrity of wood components. Just a 2 percent loss of weight can reduce the strength of a piece of wood by as much as 50 percent. While these fungi are a serious problem, they can present builders with a financial opportunity.

Homeowners want to hire concerned, capable builders, and those building professionals who learn how to control mold and decay fungi can not only avoid structural damage to their projects—and the potential liabilities that go along with it—they can give themselves a competitive advantage.

One reason we control any pest is to mitigate potential health effects. Fungi, other wood-destroying organ-

isms, and insects all like the same conditions that lead to problems, namely moisture and humidity. And builders could be held directly or indirectly responsible for mold and decay fungi issues by allowing these growth conditions to exist or by failing to deal with the problem. Fortunately, these conditions can be identified and corrected.

#### **WHAT ARE WE DEALING WITH?**

Fungi are a group of microorganisms that digest and absorb their food from their surroundings. In nature, fungi can be beneficial to mankind, but they can also be pests when our homes become their food source, or when some of their by-products are harmful to our health.

The most common fungi that grow in buildings or on construction materials are mold fungi, stain fungi, and de-



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Applied to wood on site, Bora-Care with Mold-Care kills and prevents mold, decay, and insect damage.

cay fungi. Decay fungi grow within materials—typically wood—and use the structural components as a food source, resulting in wood rot.

In a damp home with active fungal infestation, fungal spores are continually produced as part of the normal life cycle of both decay fungi and mold fungi. These spores are particles similar to pollen and can cause hay fever-type symptoms, asthma, eczema, or other types of allergies.

In rare situations, fungi can also be parasitic (grow on us) and pathogenic (grow on us and kill us). A number of both common decay fungi and mold fungi are opportunistic and, if given the chance, will take advantage of a person with a poorly functioning immune system.

Dampness problems that fuel fungal growth are far more common than most people realize. In a survey of homes in 24 U.S. cities, nearly 50 percent of them had moisture problems. The majority of the fungi found in these homes were types known to be able to cause chronic sinus infections, respiratory infections, and other allergic responses.

### WATERY GRAVE

The modern home environment can easily provide all of the elements needed for successful fungal growth, but water is the only requirement we can control (aside from applying a fungal growth inhibitor), and the amount of moisture is the most important factor in determining the rate and extent of mold and decay infestation.

Burst water pipes and leaky roofs are obvious moisture sources, but perhaps less apparent is penetrating and rising dampness. This is water that can come up from the ground or through exterior walls because the wall material (such as brick) is porous and can conduct water. This moisture is the reason we see fungal growth on interior walls near cracked exterior stucco or

In this picture mold is shown growing on wet construction materials.



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blocked or damaged roof gutters.

The least obvious source of water is the air itself. Air with high relative humidity carries a lot of water vapor, and warm air can hold much more moisture than cold air. If warm air with a high relative humidity is cooled, it will drop its water when it reaches the dew point. Such “dropped” water is called condensation. Areas of our homes where we produce a lot of water are also more likely to produce condensation. For this reason we often find fungal problems in bath-

The three most common types of fungi that grow on construction materials: decay (top), stain (left), and mold (right).

rooms, washing areas, and kitchens.

Water vapor produced during the day when it is warm condenses at night when it cools, so interior condensation tends to be a problem in the North during the winter, and condensation in crawl spaces and wall voids tend to be a problem in the Southeast during the summer, especially when homeowners set their air-condition-



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Factory-applied treatments like FrameGuard (shown here) protect against mold, decay, and insects.

ing too low and below the dew point. (78 F is the lowest you should use.)

In new buildings, large amounts of water vapor are produced as construction materials dry. Mixing water in plaster/mud and concrete produces a lot of moisture, and exposure to the weather during construction can contribute even more. There can be as much as six tons of water in a new home, which can take up to a year to dry out properly.

For an environment free of fungal problems, it is necessary to avoid excess moisture. The good news is that all the situations that put water into a house can normally be avoided, repaired, or protected against with treatments.

### CHOICES TO CONSIDER

There are several treatment options for fungal problems that adequately deal with both occasional and accidental moisture exposure. This is a win-win situation—the problems can be avoided, plus the situation offers builders opportunities to add new profit centers and differentiate themselves in a competitive market.

The first approach uses factory-applied systems. BluWood from WoodSmart Solutions offers some

protection from both wood-destroying organisms and mold fungi, and FrameGuard from Arch Chemicals has shown great performance against insects and decay as well as the best mold protection in independent tests run by the Canadian Forintec laboratory. Factory-applied options are very good and provide already-treated materials at the jobsite so the builder does not have to mess with anything. Plus, the materials are fully protected during storage and transport.

Unfortunately, it is very difficult to get fully treated materials for all the commodities currently used, so there is a strong market for applied products where treatments are done at the jobsite. Such treatments are normally used in conjunction with wood-applied termite pretreatments, which have largely replaced soil poisons for environmental reasons.

These systems include Sostram's Mold-Ram, which is capable of preventing mold growth, or Bora-Care with Mold-Care from Nisus Corp. The latter has the advantage of being able to kill and prevent mold, but, more important, it also kills and prevents decay fungi and wood-destroying insects.

Some great "green" news is that both Arch and Nisus products have recently received green building awards. FrameGuard was awarded the 2007 NAHB Green Building Award for the Green Product Mar-

keting Project of the Year, and Bora-Care was recognized by *Green Builder* magazine for its inaugural Grand Prize, Best of Show award at the 2006 National Green Building Show. By prolonging the life of wood, a natural renewable resource, these products make a consistent and positive impact on the environment.

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## BUYER BEWARE

**W**atch out for illegal paint products that claim to kill and prevent mold but don't have an EPA registration. These only stop mold in the paint film—not in the wood. As a result, they can actually increase the risk of fungal decay, creating a bigger problem than just using untreated wood alone.

Bottom line: Make sure the product you get clearly states that it is EPA registered and that it both kills and prevents mold and decay fungi—don't do half the job.

### EPA Rule Summary

Simply stated, the EPA's rule regarding pesticides says that pesticide products must be registered before they can be sold.

And what is a pesticide? The EPA makes it clear. Any product claiming to perform as a pesticide must be registered if:

- n it makes claims that it can be used alone or in combination with other products as a pesticide;
- n it contains active ingredients that can be used to manufacture a pesticide;
- n it contains active ingredients and has no real use other than that of a pesticide or in the manufacture of a pesticide; and
- n the distributor or seller knows that the product has a pesticidal purpose.

This rule is there for the protection of consumers of all kinds—builders, pest control companies, and homeowners—and is one simple way to make sure you're getting a quality product.