

Roaring Brook News

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Demystifying Mold - Part II

In the last issue we focused our attention on the demystification of mold, mold sampling, and the indoor air analysis of mold. In this issue we will continue our discussion of mold, and in specific, Mold Remediation.

An Introduction to Mold

Molds reproduce by producing tiny spores. Mold spores waft through the indoor and outdoor air continually. When mold spores land on a damp spot indoors, they may begin growing and digesting whatever they are growing on in order to survive. There are molds that can grow on wood, paper, carpet, and foods. When excessive moisture or water accumulates indoors, mold growth will often occur, particularly if the moisture problem remains undiscovered or un-addressed. There is no practical way to eliminate all mold and mold spores indoors; the way to control indoor mold growth is to control moisture.

Health Risks of Mold Exposure

Health professionals tell us that human health risks are based on the types of mold present, the relative abundance of the types of mold spores present, and the total indoor area of building materials observed to be involved in the growth of mold. They also tell us that some molds are more toxic or allergenic than others are, and that individual reactions to exposure vary. Furthermore, many molds are poorly studied, and little may be known about their potential health effects.

Mold Sampling

Design of a sampling program is more complex than many people think. At present there are no U.S. Environmental Protection Agency (EPA) or other Federal regulations governing the allowable amounts of mold or mold spores present in buildings. Therefore sampling cannot be used to check a building's compliance with any federal mold standards because there are no standards. Air sampling may, however, be useful to determine if an area has been adequately cleaned or remediated by comparing the mold levels before and after remediation. Sampling can be useful in locating the source of mold contamination, in identifying the species of mold present, and in differentiating between mold and soot or dirt. Types of samples include air samples, surface samples, bulk samples (chunks of carpet, insulation, wallboard, etc.), and water samples taken from condensate drain pans or cooling towers. Note that air sampling reveals what was in the air only at the moment the sample was taken.

Sampling for mold should be conducted by professionals who have specific experience in designing mold sampling protocols, in sampling methods, and in interpreting results. Sample analysis should follow professional guidelines or analytical methods such as those recommended by the American Industrial Hygiene Association (AIHA) or the American Conference of Governmental Industrial Hygienists (ACGIH).

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What is Mold Remediation?

Remediation is the physical removal, collection, and containment of mold growth and mold spores from the air, surfaces, and materials. Remediation should always address the underlying problem(s), such as moisture accumulation or water damage, that led to mold growth in the first place.

Remediation is intended to reduce the likelihood of exposure, correct the deficiencies that caused mold growth, and restore the area to an acceptable condition consistent with the needs and susceptibility of the occupants.

When to Remediate

Remediation is appropriate when the mold growth presents an unacceptable risk to human health and comfort. There are no standards or guidelines for remediation. The level of risk and remedial action depend on many factors, some of which are controllable and some not. The following bulleted items are "no brainers" for when remediation is necessary:

- ï Where there is water damage and/or visible mold growth.
- ï Where there is confirmed medical diagnosis of a fungi-related disease.
- ï Where there is a clear link between negative health effects and extensive visible growth indoors.

Remediation Planning

The first step in remediation planning is to assess the size of the moisture problem and the type of damaged materials before beginning any remediation work. Medium and large size projects should have a written plan in place before work commences. The written plan should include the steps to fix the water or moisture problem. The plan should outline the use of appropriate Personal Protective Equipment (PPE) and include steps to contain and remove the affected building materials to avoid the spreading of the mold. The remediation plan will vary depending on the size and complexity of the job, and may require revisions if circumstances change and when new facts are discovered.

The following questions should be considered prior to remediation:

- ï Are there ongoing moisture problems in the building?
- ï Are there hidden sources of water or moisture?
- ï Have the building materials been wet for more than 48 hours?
- ï Does the building smell musty or moldy?
- ï Are building occupants reporting health problems?
- ï Has the building been recently remodeled or has the building use changed?

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Basic Mold Remediation

The key to mold control is moisture control. It is important to dry water-damaged areas and items within 24-48 hours to prevent mold growth. If mold is a problem in your home, clean up the mold and get rid of the excess water or moisture. Fix leaky plumbing or other sources of water. Wash mold off hard surfaces with detergent and water, and dry completely. Absorbent materials (such as ceiling tiles & carpet) that become moldy may have to be replaced. Here are some important things to keep in mind when considering mold clean-up:

- i There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture.
- i If mold is a problem in your home or school, you must clean up the mold and eliminate sources of moisture.
- i Fix the source of the water problem or leak to prevent mold growth.
- i To decrease mold growth, reduce indoor humidity to 30-60% by: venting bathrooms, dryers, and other moisture-generating sources to the outside; using air conditioners and dehumidifiers; increasing ventilation; and using exhaust fans whenever cooking, dishwashing, or cleaning.

- i Clean and dry any damp or wet building materials and furnishings within 24-48 hours to prevent mold growth.
- i Clean mold off hard surfaces with water and detergent, and dry completely. Absorbent materials may need to be replaced.
- i Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof, or floors) by adding insulation.
- i In areas where there is a perpetual moisture problem, do not install carpeting (for example, by drinking fountains, by classroom sinks, or on concrete floors with leaks or frequent condensation).
- i Molds can be found almost anywhere; they can grow on virtually any substance, providing moisture is present.

Indoor Air Regulations and Mold

Standards or Threshold Limit Values (TLV's) for airborne concentrations of mold or mold spores have not been set. Currently there are no EPA regulations or standards for airborne mold contaminants. There are, however, guidelines for remediation published by the New York City Department of Health. The EPA has published EPA 402-K-01-001, which outlines mold remediation in schools and commercial buildings.

Some of the information presented in this article was gathered from the EPA and others citing the EPA.