It is the policy of Ursinus College to provide Facilities Services employees information on the hazards of mold, how to detect mold, where mold is found, the health hazards of exposure to mold, how to clean up minor mold contaminations, and how to prevent mold. Although OSHA has no specific standards stating how much mold is hazardous to your health, there should be no visible mold growth or strong mold odors in the workplace.

Introduction

Molds, or mildew, are part of the natural environment. Molds are fungi that can be found anywhere, inside or outside, throughout the year. About 1,000 species of mold can be found in the United States, with more than 10 species worldwide. You are exposed to them daily via the air you breathe.

Outdoors, molds play an important role in nature by breaking down organic matter such as toppled trees, leaves and dead animals. We would not have food and medicines, like cheeses and penicillin, without molds.

Indoors, mold growth can be problematic and should be avoided. Problems may arise when mold starts eating away at materials, affecting the look, smell, and structural integrity of the buildings (if wood framed).

Molds become a problem when the spores land on a damp spot and begin growing. They digest whatever they land on in order to survive. There are molds that grow on paper, wood carpet, foods and insulation, while other molds feast on the everyday dust and dirt that gather in the moist regions of a building. Controlling moisture can control indoor mold even if all molds and mold spores cannot be eliminated.

Characteristics of molds

- able to grow without sunlight
- need a viable seed (spore) and a nutrient source
- need moisture
- need the right temperature

Hence, mold growth is often found in damp, dark, hidden spaces because it doesn't like light and air circulation that dry out areas.

Common sources of indoor moisture that can cause problems include:

- Flooding
- Roof leaks
- Plumbing leaks
- Damp basements or crawl spaces
- Anywhere moist air condenses on cold surfaces

- Bathroom showers and steam from cooking may also create problems if not well ventilated

Molds also need a food source such as

- Drywall
- Wood
- Carpets
- Ceiling tiles

If left unchecked, mold can eventually cause structural damage to a wood framed building, weakening floors and walls as it feeds on moist wooden structural members.

Detection

- Visually in any color including white, orange, green, brown, or black.
- Smell – musty or earthy odor

Indoors, look for mold on wet or damp walls, carpets, ceilings, behind wallpapers, inside walls, or even in heating, ventilation, and air-conditioning (HVAC) systems.

Health Effects

When exposed to molds, most people will be unaffected; however, some people have other health conditions that make them more sensitive to the effects of mold exposure and include:

- Individuals with other allergies
- Individuals with respiratory conditions such as asthma or other lung disease
- Persons with weakened immune systems
- The elderly
- Pregnant women
- Infants and children

Allergic reactions similar to pollen or animal allergies are the most common health effects of mold. They include:

- Dermatitis – red itchy skin and/or rash caused by physical contact with mold, mold spores, or mycotoxins (mold toxins produced under certain environmental conditions to ward off predators and competing molds or fungi).
- Asthma – aggravated or caused by the mold exposure leading to acute attacks of coughing, wheezing, and shortness of breath and occurs within minutes of exposure and then may repeat 6-10 hours later.

- Mold allergy – symptoms similar to a cold and include sneezing, runny nose, irritated or red eyes, irritated or scratchy throat, cough, congestion and dry scaling skin.

Mold allergies may last the entire summer due to outdoor molds, or year-round if symptoms are due to indoor molds.

Currently, there are no federal standards or recommendations for airborne concentrations of mold or mold spores.

Mold Prevention

Moisture control is the key to mold control. Eliminating all mold and mold spores from inside a building is impossible, but acting quickly when water leaks or spills will help to prevent or limit mold growth. You can prevent mold in several ways:

- Repair leaking plumbing.
- Look for condensation and wet spots and fix as soon as possible.
- Prevent condensation by increasing the surface temperature (insulate or increase air circulation) or reducing the moisture level in the air (repair leaks, increase ventilation or dehumidify).
- Keep HVAC drip pans clean, flowing properly and unobstructed.
- Perform regularly scheduled building/HVAC inspections and maintenance, including filter changes.
- Maintain indoor humidity between 25-60%.
- Vent moisture-generating appliances like dryers to the outside where possible.
- Vent kitchens and cooking areas as directed by local code requirements.
- Clean and dry wet or damp spots as soon as possible, within 48 hours after discovery.
- Provide adequate drainage around buildings and slope the ground away from the building foundations.
- Locate where leaks have occurred, identify the causes, and take action to prevent future leaks.
- Scour sinks and tubs at least monthly.
- Change garbage pails frequently.
- Clean refrigerator door gasket and drip pans.
- Clean mold off of hard surfaces with water and detergent, and dry completely. Absorbent materials such as ceiling tiles may need to be replaced.

Training Requirements - all Facilities Services employees expected to clean-up mold must be properly trained in clean-up procedures, in the use of personal protective equipment, and health hazards associated with mold.

Mold Remediation:

Identifying and correcting the conditions that permit mold growth is the most important step in solving a mold problem. It is also important to know the steps to safely and effectively remove mold-damaged materials. No employee with symptoms or at risk for mold-related illness should participate in the cleanup – employees should be free of allergies, asthma, and immune suppressive disorders.

For small mold problems (10 sq. ft. or less – ceiling tiles, small areas on walls):

1. Don appropriate PPE that include at least gloves and non-vented safety goggles.
2. Use detergent and water to wash mold off a hard surface.
3. Porous or absorbent materials, such as ceiling tiles, wallboard, and carpeting that become moldy should be replaced and may be disposed of in the regular trash.
4. Dry the cleaned surfaces completely. Dry water-damaged areas and items within 24-48 hours to prevent further mold growth.
5. Clean work area and egress area for employees with a damp cloth or mop and a detergent solution.
6. Areas should be left dry and free of any contaminated debris.

For large mold problems (greater than 10 sq. ft. – one or more wallboard panels)

1. Remove occupants of the area and if deemed necessary, the adjacent occupants as well.
2. Cover surfaces that could become contaminated with a secured plastic sheet to contain dust/debris during removal of the contaminated materials.
3. Don appropriate PPE that include at least gloves and non-vented safety goggles. Depending on the size of the job and location of the contamination, an N95 Respirator may be required. Employees donning respirators must be properly fitted. See the Environmental Health and Safety/Risk Manager for assistance. In addition, disposable coveralls and head and shoe covers may be necessary for the cleanup process.
4. Use detergent and water to wash mold off a hard surface
5. Remove contaminated materials in sealed permeable plastic bags and dispose of in the regular trash.
6. Using a HEPA vacuum cleaner, clean the work area and surrounding areas. Then clean the areas with a damp cloth or mop and a detergent solution.
7. Areas should be left dry and free of any contaminated debris.

For extensive mold problems (greater than 100 contiguous square feet)
When the mold contamination is too large for physical plant workers to control, a mold remediation company will be contacted for assistance.

Personal Protective Equipment:

1. **Gloves** – ordinary household rubber gloves are appropriate
2. **Eye Protection** - use properly fitting safety goggles without open vent holes; available in the EH&S office
3. **Respiratory Protection** – N95 face respirators may be needed. See the Environmental Health and Safety Coordinator for proper fit testing. If a half face or full face respirator is deemed necessary, a mold remediation company shall be contacted.
4. **Protective Clothing** – may include head and shoe covers, aprons, and coveralls.

Summary

Knowing where and how to detect mold, the hazards of mold and the exposure hazards of mold, you will be able to safely clean-up most mold situations. Controlling moisture is the key to mold control. By performing routine inspection and maintenance plans, preventing condensation from forming, repairing leaking plumbing, and cleaning up wet areas, the growth of mold can be prevented.

References

1. "NYC Guidelines on Assessment and Remediation of Fungi in Indoor Environments" – https://www1.nyc.gov/assets/doh/downloads/pdf/epi/epi-mold-guidelines.pdf
2. "A Brief Guide to Mold in the Workplace", http://www.osha.gov/dts/shib/shib101003.html
3. "Mold Awareness" Safety Meetings Library, Business & Legal Reports, Inc.