

WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES  
INDOOR AIR QUALITY INFO SHEET/MOLD IN MY HOME: WHAT DO I DO?

## Mold in my home:



## Is it a HEALTH CONCERN?

This fact sheet provides information to people who have experienced water damage to their home and presents the health concern related to mold exposure. It also provides general guidelines on mold detection.

### ABOUT MOLD

#### What is it?

Molds are simple, microscopic organisms, found virtually everywhere, indoors and outdoors. Molds can be found on plants, foods, dry leaves, and other organic material. Mold spores are very tiny and lightweight, which allows them to travel through the air. Mold growths can often be seen in the form of discoloration, ranging from white to orange and from green to brown and black. When molds are present in large quantities, they can cause allergic symptoms similar to those caused by plant pollen.

#### Should I be concerned about mold in my home?

Yes, if the contamination is extensive. When airborne mold spores are present in large numbers, they can cause allergic reactions, asthma episodes, infections, and other respiratory problems for people. Exposure to high spore levels can cause the development of an allergy to the mold. Mold can also cause structural damage to your home. Similarly, when wood goes through a period of wetting, then drying, it can eventually warp and can cause walls to crack or become structurally weak.

#### What does mold need to grow?

For mold to grow, it needs:

- ❖ food sources—such as leaves, wood, paper, or dirt
- ❖ sources of moisture
- ❖ a place to grow

#### Questions?

Call the West Virginia  
Bureau for Public Health  
1-304-558-2981

#### Can mold become a problem in my home?

Yes, if there is moisture available to allow mold to thrive and multiply. The following are sources of indoor moisture that may cause problems:

- ❖ flooding
- ❖ backed-up sewers
- ❖ leaky roofs
- ❖ humidifier
  - Z<sup>o</sup> mud or ice dams
- ❖ damp basement or crawl spaces
  - 3 constant plumbing leaks
- ❖ house plants—watering can generate a large amounts of moisture
- ❖ steam from cooking
- ❖ shower/bath steam and leaks
- ❖ wet clothes on indoor drying lines
- ❖ clothes dryers vented indoors
- ❖ combustion appliances (e.g., stoves) not exhausted to the outdoors
- ❖ high relative humidity

#### CAUTION:

If you see moisture condensation on the windows or walls, it is also possible that you have a combustion problem in your home. It is important to have sufficient fresh air available for fuel burning appliances, such as the furnace, water heaters, stove/range, clothes dryer, as well as a fireplace. A shortage of air for these appliances can result in *back drafting* of dangerous gases such as **carbon monoxide** into the home. To prevent back drafting of air, you need to open either vents or a ventilation system that brings fresh air into the home to replace air that is exhausted out. *Have your local utility company or a professional heating contractor inspect your fuel-burning appliances annually.*

### HEALTH EFFECTS

#### How am I exposed to indoor molds?

Mold is found everywhere, indoors and outdoors. It is common to find mold spores in the air of homes and growing on damp surfaces. Much of the mold found indoors comes from outdoor sources. Therefore, everyone is exposed to some mold on a daily basis without evident harm. Mold spores primarily cause health problems when they enter the air and are inhaled in large numbers. People can also be exposed to mold through skin contact and eating.

#### How much mold can make me sick?

It depends. For some people, a relatively small number of mold spores can cause health problems. For other people, it may take many more. The basic rule is, if you can see or smell it, take steps to eliminate the excess moisture, and to cleanup and remove the mold.

#### Who is at greater risk when exposed to Mold?

Exposure to mold is not healthy for anyone inside buildings. It is important to quickly identify and correct any moisture sources before health problems develop. The following individuals appear to be at high risk for adverse health effects of molds:

- ❖ Infants and children
- ❖ elderly
- ❖ immune compromised patients (people with HIV infection, cancer, chemotherapy, liver

disease, etc.)

- ❖ pregnant women
- individuals with existing breathing, and/or respiratory conditions such as allergies, multiple chemical sensitivity, and asthma.

**People with these special concerns should consult a physician if they are having health problems.**

### **What symptoms are common?**

Allergic reactions may be the most common health problem of mold exposure. Typical symptoms reported (alone or in combination) include:

- > respiratory problems, such as wheezing, and difficulty in breathing
- ❖ nasal and sinus congestion
- ❖ eyes-burning, watery, reddened, blurry vision, light sensitivity.
- ❖ dry, hacking cough
- ❖ sore throat
- 3 nose and throat irritation
- ❖ skin irritation
- ❖ central nervous system problems (constant headaches, memory problems, and mood changes)
- ❖ aches and pains
- ❖ possible fever

### **Are some molds more hazardous than other?**

Yes. Certain types of molds can produce toxins. Molds produce toxins called mycotoxins. Molds are able to produce a number of toxic substances that can inhibit or prevent the growth of other organisms. Mycotoxins are found in both living and dead mold spores. Moldy materials need to be **removed**, not just killed, with cleaning solutions. Allergic and toxic effects can remain in dead spores. Exposure to mycotoxins may present a greater hazard to occupants than that of allergenic or irritative molds. Mycotoxins have been found in agricultural settings, in food, and indoor spaces of homes and office buildings. Health effects observed in humans vary with the specific toxin, the amount of exposure, and the route of exposure.

### **What symptoms will I see?**

**Allergic reactions** may be the most common health problem of mold exposure. Typical symptoms (alone

or in combination) reported by people exposed to mold include:

- respiratory problems
- nasal and sinus congestion
- dry, hacking cough
- wheezing, and difficulty in breathing
- sore throat
- shortness of breath
- eyes-burning, watery, reddened, blurry vision, light sensitivity
- skin irritation
- central nervous system problems (constant headaches, memory problems, mood changes)

### **Detection of Mold**

#### **How can I tell if I have mold in my house?**

If you can see mold or if there is an earthy musty odor, you can assume that you have a mold problem. Allergic individuals will have reactions in areas of mold growth. Possible symptoms of mold exposure include sneezing, coughing, shortness of breath, tightness in the chest, allergic reactions, asthmatic episodes, eye irritation, nose and throat irritation, fever, chills, aches and pains. Look for previous water damage on porous materials. Visible mold growth is often found underneath materials where water has damaged surfaces or behind walls. Look for discoloration and leaching from plaster

#### **Should I test my home for mold?**

*The West Virginia Bureau for Public Health does not recommend testing as the first step to determine if you have a mold problem.* Mold sampling can be expensive. If you can see or smell mold, you have a moisture and mold problem. The first step is to identify the moisture source and correct it. Then clean, disinfect, and dry the mold area. Airborne mold assessments require sampling equipment not available to the public. Standard assessment methods will vary depending on the type of material sampled. If sampling is done, normally a combination of source samples (carpet dust, discolored

sheetrock) and airborne samples is recommended. Currently, there are no air standards for levels of mold indoors. Outdoor mold levels should always be taken during the same sampling time to compare with indoor air mold levels to provide a baseline for comparison.

***Remember unless the source of moisture is removed and the contaminated area is cleaned and disinfected, mold growth is likely to reoccur.***

### **Cleanup and Removal of Mold**

#### **What can I save? What can I toss?**

In this situation, use your best judgement. If the material absorb water, it is considered porous. Porous materials should be thrown out or decontaminated if exposed to long periods of dampness. Materials such as hard plastic, glass and metal can be cleaned and disinfected. (Concerning food items consult your local Health Department)

#### **How do I clean and disinfect my home?**

##### **Identify the moisture problem:**

1. Identify and remove the source of moisture. After the moisture source has been corrected, begin the cleanup and drying out process.
2. Remove and throw out porous materials (example: ceiling tiles, sheetrock, plaster, wood products, carpet/carpet pad) and begin drying the area within 24 to 48 hours. Mold-contaminated materials should be bagged and discarded. Remove and replace all sheetrock and insulation damaged by water up to a minimum of 12 inches above the high water mark. You will need to visually inspect to see if you need to remove more than the 12 inches above the high water mark.

##### **Clean surfaces:**

1. You must clean the contaminated area to remove existing mold.

2. Use a non-ammonia soap/detergent and hot water or a commercial cleaner.
3. Thoroughly scrub all contaminated surfaces (use a stiff brush to clean block walls) with the soap/detergent. It is best to use an excessive amount of cleaning solution.
4. Rinse clean with water. You can use a wet-dry vacuum to collect excess water.

**NEVER MIX BLEACH WITH AMMONIA - FUMES ARE TOXIC.**

**YOU SHOULD ALWAYS WEAR EYE PROTECTION & RUBBER GLOVES.**

**IN ADDITION, ALWAYS VENTILATE THE WORKING AREA WELL.**

#### **Disinfect surfaces:**

1. After cleaning, apply disinfection solution of household bleach (**1/4 cup bleach per gallon of water**) to the surface. If the mold has already started to grow back, try a stronger solution-**1/2 gallon of bleach in five gallons of water**. Bleach solution should be applied with a handheld garden sprayer. Be sure to thoroughly wet the studs, wall cavities, and floors. Avoid excess run off. Use wet-dry vacuum to collect extra bleach solution. **Allow the bleach solution to dry naturally for a 6 to 8-hour period.** The bleach solution should not be removed or dried quickly an extended contact time is important.

*Bleach can irritate your eyes, nose and throat. Ventilate the work area well.*

#### **Dry surfaces:**

1. Dry out the affected area as quickly as possible, using fans and dehumidifiers. Be patient-allow **six** weeks or **more** for the drying process before installing new building materials (carpeting, paint, sheetrock). Allow inside of walls to dry thoroughly.

#### **If I cannot see mold growth, am I finished cleaning?**

Do not assume that if you have cleaned the front side of a moldy surface that the back side is not moldy. Mold often grows under cabinets, inside walls (insulation), in carpet padding, and under vinyl wall coverings. You will have to be on **"MOLD ALERT."** If you have a persistent mold problem, cleaning and disinfecting may have to be repeated using a stronger solution. People have to be especially vigilant and continue to use their eyes and nose for any signs of mold growth. Be particularly careful about those areas where moisture could trigger mold growth.

#### **Can cleaning up mold be hazardous to my health?**

Yes. Exposure to mold can occur during the cleaning stage. Mold count in the air is typically 10 to 1,000 times higher than background levels during the cleaning of mold-damaged materials. If this work is not performed by properly trained professionals, then you need to take steps to **protect your health during cleanup.** Consider using the N95 particulate respirator (sometimes referred to as the TC-2 1 C particulate respirator approved by the National Institute of Occupational Safety and Health), **but 'only after consulting and receiving the approval of your physician.**

1. Wear protective clothing that is easily cleaned or disposable.
2. Use rubber gloves.
3. Try cleaning a small test patch of mold first. If you feel that this adversely affected your health, you should consider hiring a professional contractor.
4. Ask family members and/or bystanders to leave areas when being cleaned.
5. Work over short time spans and rest in a fresh air location.
6. Air your house out well during and after the work.

***CAUTION:*** *Never use a gasoline engine indoors (e.g., pressure washer, generator)-you could expose yourself and family to carbon monoxide.*

#### **Can Air Duct Systems become Contaminated with Mold?**

Yes. Air duct systems can become contaminated with mold. Duct systems can be constructed of bare metal, sheet metal with an exterior fibrous glass insulation, sheet metal with an internal fibrous glass liner, or be made entirely of fibrous glass. If your home's air duct system has had water damage, first identify the type of air duct construction that you have. Bare sheet metal systems, or sheet metal with exterior fibrous glass insulation, can be cleaned and disinfected.

If your system has sheet metal with an internal fibrous glass liner, or are made entirely of fibrous glass, the ductwork normally will need to be removed and discarded. Ductwork in difficult locations may have to be abandoned. If you have other questions, contact an air duct cleaning professional or licensed contractor.

#### **After I have cleaned everything as thoroughly as possible, can I still have mold odors?**

Yes. It is possible that odors may persist. Continue to dry out the area and search for any hidden areas of mold. If the area continues to smell musty, you may have to re-clean the area again (follow the cleaning steps given in this sheet). Continue to dry and ventilate the area. Don't replace flooring or begin rebuilding until the area has dried completely.

#### **How can further damage to my home be prevented?**

Check regularly for the following:

1. Moisture condensation on windows
2. Cracking of plasterboard
3. Drywall tape loosening
4. Wood warping
5. Musty smell

If you see any of the above, seek out and take steps to eliminate the source of water penetration as quickly as possible.

### **Can Ozone air cleaners help remove indoor mold or reduce odor or pollution levels?**

Some air cleaners are designed to produce ozone. Ozone is a strong oxidizing agent used as a disinfectant in water and sometimes to eliminate odors. However, ozone is a known lung irritant. Symptoms associated with exposure include cough, chest pain and eye, nose and throat irritation. Ozone generators have been shown to generate indoor levels above the safe limit. Furthermore, it has been demonstrated that **ozone is not effective in controlling molds and fungi**, even at high concentrations far above safe health levels. Also, ozone may damage materials in the home. For these reasons, the **West Virginia Bureau for Public Health does not recommend the use of an ozone air cleaner in any occupied residential space.** Refer to the *U.S. EPA Fact Sheet: Indoor Air Facts No. 7 Residential Air Cleaners (Air and Radiation ANR-445)- 20A-4001 February 1990*

*Ozone Generators that are Sold as Air Cleaners. An Assessment of Effectiveness and Health Consequences. U.S. EPA Report,*

Copies of EPA's publications are available from the National Service Center for Environmental Publications (NSCEP) <http://www.epa.gov/ncepihom/> (to order EPA documents online). Use the EPA Document Number when ordering. Or call 1-800-490-9198/(5 13) 489-8695 (fax), or write to: U.S. Environmental Protection Agency National Center for Environmental Publications (NSCEP)

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The United States Environmental Protection Agency IAQ Information Clearinghouse (IAQ INFO)  
Tel.: 1-800-438-4318 or 202-484-1307  
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***For additional information please contact:  
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