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Moisture & Bugs

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What Are Moisture & Bugs?

Your house is home to many organisms. Some are good, some are not so good. Moisture and bugs (also called biological contaminants) come from living or once-living organisms. They include mainly animal hair, dander, saliva, and feces; molds and other fungi; dust mites; cockroaches and insect residues; pollen; and microscopic organisms. These can cause odors, damage household materials, lead to allergic reactions, and cause infectious diseases and respiratory problems. Each person has a different sensitivity to these contaminants.

Health Effects of Moisture & Bugs

Allergic reactions are the most common health problem associated with biological pollutants. People differ in their sensitivity to biological allergens–some may have no symptoms, while sensitive persons may have severe health problems. Common symptoms include: watery eyes, runny nose and sneezing, nasal congestion, itching, coughing, wheezing, difficulty in breathing, headache, dizziness and fatigue.

The most severe reaction to allergens is an asthma attack, which can be life-threatening. The American Lung Association reports there are nearly 10 million people in the U.S. with asthma. Of these, over 2.5 million are children. There are over 4,000 deaths each year from asthma. The number of persons with asthma has been consistently increasing over the last 15 years. Airborne biological pollutants present a special risk to people with allergies and asthma. Note: these pollutants do not *cause* asthma. Rather, certain pollutants can trigger an attack in people who have asthma.

Infectious diseases caused by bacteria and viruses are generally passed from one person to another person through physical contact. Some bacteria and viruses circulate through indoor ventilation systems.

Sources of Moisture & Bugs

Biological pollutants are found in every home and cannot be eliminated completely. Their growth and quantities can be controlled by keeping surfaces clean and moisture levels low. Many biological contaminants will increase in damp or humid spaces. Good maintenance practices can control moisture and reduce the need for chemical products like pesticides and disinfectants–both of which could add other pollutants to the air.

Detection of Moisture & Bugs

It is not practical for a non-professional to test for the presence of biological contaminants. If contaminants are suspected in the home, an investigation should be conducted to remove and control them because of the health consequences.

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Left unchecked, mold can continue to grow and cause health problems for sensitive people. Because there are no standards for "normal" levels of mold, tests are not usually conducted. When tests are done, however, types and levels of molds in the house re compared with molds in the outside air.

Mold growing on surfaces can occasionally be seen (it is sometimes invisible) or smelled (it has a musty odor). Mold should be suspected wherever there are water stains, standing water, or moist surfaces. Conditions that indicate high humidity levels include: condensation on windows or walls, water pooled in the basement and crawlspace, rotting wood or other signs of water damage, use of humidifiers, or use of unvented kerosene and gas heaters. Damp carpet, walls feeling cold to the touch, and areas where there is poor ventilation (such as closets) may have mold growth. Cooking or bathing without using an exhaust fan and firewood stored in the home can also promote mold growth.

Refrigerator drip pans, humidifiers and dehumidifiers, and the condensate pans in air conditioning units should all be inspected to insure that they are not dirty and are not harboring biological pollutants. The Consumer Product Safety Commission (CPSC) recommends regular cleaning of humidifiers and refilling with clean water. Humidifiers should also be treated with a disinfectant (such as chlorine bleach) regularly–once a week for small humidifiers and every other week for larger ones. This means washing with chlorine bleach and rinsing.

Mold also grows in wall cavities, under carpets, behind wall coverings, above ceilings, and in other places where moisture can accumulate undetected. Before testing for mold, an investigation can be conducted to find building components that are damp or wet.

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Many of these same conditions for mold also promote the growth of dust mites. Dust mites have no smell and cannot be seen. Bedding and other soft textiles are where dust mites thrive. Whenever pets are in the house, there will be animal dander. Rodents and other insects (such as cockroaches) can also be the source of allergens for sensitive people.

Reducing Moisture & Bugs

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Tips for Controlling Moisture and Mold in the Home

- Clean, disinfect, and dry surfaces
- Prevent standing water, such as in basements or the drip pans of refrigerator and air conditioners.
- Fix leaks and seepage problems immediately.
- Make sure rainwater drains away from your house.
- Use a vapor-proof ground cover (such as 4- to 6-mil plastic) in enclosed crawl spaces.
- Dispose of wet carpeting and other damp fabric furnishings.
- Use fans that exhaust to the outside when bathing, showering, or cooking.

- Vent all combustion appliances to the outside.
- Use dehumidifiers and/or air conditioners to remove excess moisture in warm, humid weather.
- Increase air circulation by opening closet doors and moving furniture away from walls.
- Raise the temperature of cold surfaces with insulation or storm doors.
- Avoid oversized air conditioners.
- Limit the use of humidifiers.
- Limit houseplants (they release moisture into the air and can get mold growth on them).

Keeping surfaces clean and dry is the most effective method of preventing and removing mold. In particular, bathroom surfaces and fixtures should be cleaned to remove soap scum and body oils. Also, running an exhaust fan during and after showering and bathing helps reduce moisture levels.

Other areas of the house should also be kept clean and dry. If carpeting or other furnishings have become wet, they must be dried very quickly and thoroughly to prevent mold growth. Textiles that have been wet for several days often cannot be saved.

Hard surfaces with mold growing on them should be cleaned with a disinfectant, such as chlorine bleach. Use about 1 cup chlorine bleach per gallon of water and dry quickly after cleaning. Textiles should be cleaned in accordance with label directions; chlorine bleach used on textiles will most likely change the color and damage the fibers.

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Household dust includes some biological contaminants that are common allergens. Animal dander is shed from skin, hair, or feathers. Dust mites are microscopic insects, and their feces–the primary allergen–are easily airborne. Cockroaches and their feces are also allergens. Regular cleaning, including dusting with a treated cloth, damp cleaning, and laundering bedding with hot water, are needed to control these contaminants.

Regular vacuum cleaning may help control dust, but some particles are so small that they pass through cleaner filters and become airborne. Some vacuum cleaners have high-efficiency (HEPA) filters to trap smaller particles.

If dust-related allergies are a particular problem, limit the use of carpeting, upholstered furnishings, and "dust catchers." Follow recommended procedures for dust control, and keep sleeping areas as allergen-free as possible.

Sources: Healthy Indoor Air for America's Homes (3rd ed.), *Instructional Module: Bugs, Mold, and Rot (Biologicals)*; and *Home*A*Syst: An Environmental Risk-Assessment Guide for the Home*. Funding for this brochure from Healthy Indoor Air for America's Homes: CSREES, EPA, MSU.

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