

Molds (at times interchangeable with “mildew”) are found virtually everywhere in our environment and are a subgroup of the fungi family. Molds are simple microscopic organisms containing enzymes (responsible for digesting and decomposing) and spores (in charge of reproduction). Their mission is to digest the organic world around them.

Molds have been a part of our environment for thousands of years and normally do not have adverse effects unless they are growing in a concentrated form in a confined space that is being occupied by humans or are of a toxic species type. *A 1994 Harvard University School of Public Health study of 10,00 homes in the United States and Canada found that half had conditions of water damage and mold associated with 50 to 100% increase in respiratory symptoms.* Concentrated and toxic molds are showing up in buildings as a result of changes in construction practices over the past thirty years. This practice of eliminating infiltration/exfiltration of air leads to higher humidity levels in the home:

- **WALL CAVITIES CONTAINING CELLULOSE MATERIALS AND INSULATION THAT ARE DESIGNED TO LIMIT THE INDOOR AND OUTDOOR AIR EXCHANGE**
- **WALL CAVITIES THAT HAVE BEEN WRAPPED IN PLASTIC THUS ALLOWING CONDENSATION AND MOISTURE TO BE CREATED AND TRAPPED**
- **INCORRECTLY DESIGNED EXTERIOR WALL SYSTEMS ALLOWING WATER TO PENETRATE THE ASSEMBLY AND TO BE ABSORBED BY THE WALL SHEATHING (SUCH AS SYNTHETIC STUCCO)**
- **WATER PENETRATION AS A RESULT OF ROOFING, WINDOW AND FOUNDATION LEAKING**

For mold to grow it needs:

- **MOISTURE OR ANY TYPE OF WATER INTRUSION (STANDING WATER, DAMPNESS, CONDENSATION, HIGH HUMIDITY)**
- **BUILDING MATERIALS CONTAINING CELLULOSE (WOOD, DRYWALL, INSULATION, CARPETS, ETC.)**
- **LIMITED VENTILATION OR SUNLIGHT**
- **SUITABLE TEMPERATURE (MOLD GROWS AT TEMPERATURES ABOVE 0°F [-18°C])**

Given optimal conditions, mold spores will germinate within 24 to 48 hours. Optimal conditions for spore germination includes saturated building materials, humidity above 40%, temperatures between 68° F to 90° F (20° C to 32° C) and little or lack of light or air circulation. One square foot of moldy drywall can harbor more than 300 million mold spores. Mold growths can be detected by a musty smell and be seen in the form of discoloration ranging from white to orange and from green to black.

TYPES OF MOLD:

Allergenic molds – are common molds that we normally find in the air we breathe. They become a problem when the concentration of mold spores in a home becomes significantly greater than the mold spores we would commonly find outdoors. Approximately sixty million Americans are affected with allergies or asthma. When these individuals are exposed to indoor air that has a high level of allergenic mold spores they become ill and start exhibiting symptoms such as fatigue, nasal and sinus congestion, skin and eye irritation, and headaches.

Toxic molds – such as the black mold **stachybotrys** (stack-ee-bot-ris) produce toxins called **mycotoxins** used to inhibit or prevent the growth of other organisms. Over 27% of homes tested nationally, where mold was present, revealed the presence of stachybotrys. Toxic gas from these molds can cause many of the same health issues as allergenic molds but, in addition, the exposure to toxic molds cause neurological damage and affects the central nervous system causing constant headaches, memory loss problems and mood changes. *There have been several situations where children and adults with suppressed immune systems have died.* In each of the children’s homes, stachybotrys was present. Mold growths may be detected by a musty smell or may be seen actively growing.

A trained professional can only positively identify stachybotrys through a laboratory analysis.

For more information, contact your local health department, regional EPA office or Consumer Products Safety Commission (CPSC), in the U.S. In Canada contact National Research Council of Canada, Occupational Health and Safety or Canadian Mortgage and Housing Corporation (CMHC).

HOW TO TELL YOU HAVE A MOLD PROBLEM:

- LOOK FOR VISIBLE MOLD GROWTH – MOLD OFTEN APPEARS AS DISCOLORATION, SPOTTED STAINING OR FUZZY GROWTH
- SEARCH AREAS WITH AN EARTHY OR MUSTY ODOR
- LOOK FOR SIGNS OF EXCESSIVE MOISTURE OR WATER DAMAGE
- LOOK FOR SIGNS OF DISCOLORATION ON CEILINGS AND WALLS
- SEARCH BEHIND AND BENEATH MATERIALS (REFRIGERATORS, SINK CABINETS, CARPET, VINYL FLOORING)
- BE FAMILIAR WITH THE SYMPTOMS OF MOLD-RELATED ILLNESSES

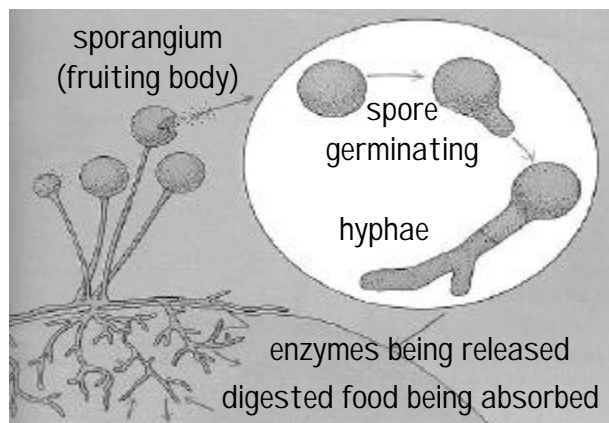
Sometimes, mold growth is hidden behind walls and difficult to locate. In such cases, a combination of air (outdoor and indoor) and bulk (material) samples may help determine the extent of contamination and type of treatment is needed.

MINIMIZING MOLD GROWTH:

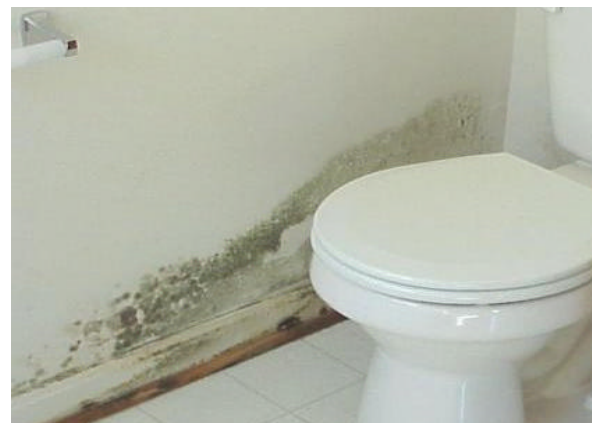
Once a mold problem has been detected, the two main courses of action are to eliminate the moist conditions that allow the mold to grow and to remove any mold that has grown. A number of allergenic molds can be removed by utilizing an anti-fungal solution or chlorine on hard surfaces and by removing the insulation if it has been contaminated. If the property is contaminated with a toxic mold it is necessary to remove all porous materials such as drywall, insulation, some types of sheathing, floor goods, etc. Depending on the amount of penetration and contamination to the structural system it may be necessary to also remove the framing of the house as well.

- DRAIN AND VENTILATE AREAS UNDER AND AROUND THE HOUSE, ESPECIALLY EARTH CRAWLSPACES
- DECREASE MOISTURE – REPAIR ALL WATER-DAMAGED AREAS AND KEEP HUMIDITY LEVELS BELOW 40%
- REMOVE OR REPLACE PREVIOUSLY SOAKED CARPETS AND FURNITURE
- USE AN AIR CONDITIONER OR DEHUMIDIFIER DURING HUMID MONTHS
- SEAL LEAKY AIR CONDITIONING DUCTS, ESPECIALLY THOSE RUNNING THROUGH HOT ATTICS
- PROVIDE ADEQUATE VENTILATION – INCLUDING EXHAUST FANS IN THE KITCHEN AND BATHROOMS
- INSTALL AN AIR-TO-AIR EXCHANGER OR A HRV (HEAT RECOVERY VENTILATOR)
- USE A HIGH PERFORMANCE ELECTROSTATIC AIR FILTER IN THE CENTRAL AIR SYSTEM
- DO NOT CARPET BATHROOMS OR BASEMENTS
- USE A HEPA VACUUM CLEANER FREQUENTLY ON CARPETS AND FURNITURE
- ADD MOLD INHIBITORS TO PAINT BEFORE APPLICATION
- REMOVE ALLERGENIC MOLD WITH A COMMERCIAL CLEANER OR A WEAK BLEACH SOLUTION (1 CUP BLEACH IN 1 GALLON OF WATER)

Note: If you think you may have stachybotrys and/or extensive mold growth (over 2 square feet) seek professional advice before proceeding with removal. Persons with any respiratory health problem should NOT perform any clean up.



THE MOLD CYCLE



MOLD GROWTH IN A BATHROOM