

Real Estate Consumer Guide

Mold, Moisture, & Your Home



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Introduction

Mold: it's as old as the Earth and it's everywhere- inside homes and out. And under the right set of conditions, it can actually start to grow inside your house. Even though the issue of household mold is not new, you may have heard something about it recently in the media. EnviroVue Home Inspection has prepared consumer information to help you understand what mold is, how it can grow in your home, the routine maintenance procedures you can follow to prevent mold problems, and methods of removing mold already in your home.

The information contained in this article has been taken from a variety of sources that are considered public information. EnviroVue Home Inspection does not guarantee the authenticity of the information. We are only providing this information as a resource to our clients. We do believe that this information is currently the best available.

General Information About Mold

Mold is alive, but it is neither a plant nor an animal. Mold is a type of fungus. It is part of a group of living organisms that are very common and serve an important role in the environment. Penicillin, an antibiotic that has saved many lives, is a type of mold, as is yeast. However, mold can grow on bread and other types of food, making it unfit to eat. Mold can grow on the walls, floors and ceilings of your home as well as on your personal possessions. People often refer to some household molds as mildew, although the term also can apply to molds found outdoors.

Molds are simple, microscopic organisms, present virtually everywhere, indoors and outdoors. Molds, along with mushrooms and yeasts, are *fungi* and are needed to break down dead material and recycle nutrients in the environment. For molds to grow and reproduce, they need only a food source - any organic material, such as leaves, wood, paper, or dirt- and moisture. Because molds grow by digesting the organic material, they gradually destroy whatever they grow on. Sometimes, new molds grow on old mold colonies. Mold growth on surfaces can often be seen in the form of discoloration, frequently green,

gray, brown, or black but also white and other colors. Molds release countless tiny, lightweight spores, which travel through the air.

How does mold enter a home?

Mold spreads by creating reproductive cells called spores and sending them into the environment. Mold spores are too small to detect with the naked eye. They are everywhere around us and you cannot avoid being exposed to them.

Mold spores travel in the air and attach to people's skin, clothing, shoes, shopping bags and belongings. Other ways spores can enter your home invisibly are:

- ⇒ Through open doors and windows
- ⇒ Through your home's heating, ventilation and air conditioning system
- ⇒ On the fur of a pet

Once spores enter, they can settle onto carpeting or other surfaces inside your home. You cannot keep spores out of your home, but regular home cleaning and maintenance often can prevent mold problems before they arise.

How does mold grow?

Mold seeks MOISTURE, WARMTH, and FOOD, and all three conditions are necessary for it to grow. Mold is most likely to find a place to grow in a bathroom, basement or kitchen, but it can grow in other rooms if conditions are favorable. The climate where you live and the living habits in your household can affect the ability of mold to grow.

Mold spores can thrive and reproduce in wet or damp parts of your home: areas that have had flooding or where leakage has occurred in roofs, pipes, or walls, or areas around house plants, especially ones that sometimes are over-watered. In just 48 hours, a moist environment combined with room-temperature conditions and an organic food source can lead to mold growth.

Some places where mold can grow in your home are:

- carpet
- drapes
- upholstery
- leather
- wood products
- clothing
- paper
- cardboard
- books
- rags
- wallboard
- cloth
- ceiling tiles
- ductwork
- paint
- wallpaper
- household dust

After it gets the food it needs, mold can move to virtually any kind of surface. Mold prefers temperatures between 40 and 100 degrees Fahrenheit. If a warm enough area in your home is humid or damp and contains items that mold likes to eat, your home could develop a mold problem.

What are “Toxic” molds?

Journalists have used the term “toxic mold” when writing about molds that have been implicated in severe health reactions in humans. As used in the press, this term generally refers only to those molds capable of producing mycotoxins. However, all molds under proper conditions are capable of eliciting a negative health response in humans through other methods such as inflammation, allergy, or infection. Therefore, limiting the discussion to just those molds that potentially produce mycotoxins is inappropriate.

Can mold become a problem in my home?

Molds will grow and multiply whenever conditions are right—sufficient moisture is available and organic material is present. Be on the lookout in your home for common sources of indoor moisture that may lead to mold problems:

- ⇒ Flooding
- ⇒ Leaky roofs
- ⇒ Sprinkler spray hitting the house
- ⇒ Plumbing leaks
- ⇒ Overflow from sinks or sewers

- ⇒ Damp basement or crawl space
- ⇒ Steam from shower or cooking
- ⇒ Humidifiers
- ⇒ Wet clothes drying indoors or clothes dryers exhausting indoors

Warping floors and discoloration of walls and ceilings can be indications of moisture problems. Condensation on windows or walls is also an important indication, but it can sometimes be caused by an indoor combustion problem! Have fuel-burning appliances routinely inspected by your local utility or a professional heating contractor.

Health Effects of Mold

If mold is everywhere- Why should I be concerned about mold in my home?

If indoor mold contamination is extensive, it can cause very high and persistent airborne spore exposures. Persons exposed to high spore levels can become sensitized and develop allergies to the mold or other health problems. Mold growth can damage your furnishings, such as carpets, sofas and cabinets. Clothes and shoes in damp closets can become soiled. In time, unchecked mold growth can cause serious damage to the structural elements in your home.

What symptoms are commonly seen with mold exposure?

Molds produce health effects through inflammation, allergy, or infection. Allergic reactions (often referred to as hay fever) are most common following mold exposure. Typical symptoms that mold-exposed persons report (alone or in combination) include:

- ⇒ Respiratory problems, such as wheezing, difficulty breathing, and shortness of breath

- ⇒ Nasal and sinus congestion
- ⇒ Eye irritation (burning, watery, or reddened eyes)
- ⇒ Dry, hacking cough
- ⇒ Nose or throat irritation
- ⇒ Skin rashes or irritation
- ⇒ Headaches, memory problems, mood swings, nosebleeds, body aches and pains, and fevers are occasionally reported in mold cases, but their cause is not understood.

When is mold a problem?

The CDC (Center for Disease Control) makes it abundantly clear in their recent research project, "Damp Indoor Spaces and Health, 2004, that mold should not be allowed to colonize in buildings. This includes, attics, crawlspaces, basements, or other areas of the structure that share common airways. Therefore, whenever visible mold is confirmed or high levels of airborne mold spores are detected the structure is considered to have a mold problem that should be addressed with inspection, testing, and remediation.

Are some molds more hazardous?

Allergic persons vary in their sensitivities to mold, both as to the amount and the types to which they react. In addition to their allergic properties, certain types of molds, such as *Stachybotrys chartarum*, may produce compounds that have toxic properties, which are called mycotoxins. Mycotoxins are not always produced, and whether a mold produces mycotoxins while growing in a building depends on what the mold is growing on, conditions such as temperature, pH, humidity or other unknown factors. When mycotoxins are present, they occur in both living and dead mold spores and may be present in materials that have become contaminated with molds. While *Stachybotrys* is growing, a wet slime layer covers its spores, preventing them from becoming airborne. However, when the mold dies and dries up, air currents or physical handling can cause spores to become airborne.

At present there is no environmental test to determine whether *Stachybotrys* growth found in buildings is producing toxins. There is also no blood or urine test that can establish if an individual has been exposed to *Stachybotrys chartarum* spores or its toxins.

Who is at greater risk when exposed to mold?

Exposure to mold is not healthy for anyone inside buildings. Therefore, it is always best to identify and correct high moisture conditions quickly before mold grows and health problems develop.

- ⇒ Some people may have more severe symptoms or become ill more rapidly than others:
- ⇒ Individuals with existing respiratory conditions, such as allergies, chemical sensitivities, or asthma.
- ⇒ Persons with weakened immune systems (such as people with HIV infection, cancer chemotherapy patients, and so forth)
- ⇒ Infants and young children
- ⇒ The elderly

Mold Testing and Inspection

What should I do about mold found during a home inspection?

First off, don't panic. Mold problems can be addressed and fixed. Houses are not condemned over mold, despite what you may read in the newspaper. Most "authorities" on mold say that testing for mold is expensive and in the absence of litigation, useless, however, in certain circumstances we do recommend and even feel compelled to recommend testing for mold.

When is testing for mold appropriate for real estate transactions?

Whenever, an inspector visually identifies mold-like substances during a real estate inspection (i.e. the property is be evaluated for transfer of ownership).

Why is this testing necessary?

Mold can't be identified as allergenic or toxic by visual examination. There are certain types of "cosmetic" molds that are of no concern to the homeowner or future homeowner. Different people have different sensitivities to mold. What the current occupants may perceive as nothing, may, in fact, become an irritant to the new owners. Further, it is very difficult to negotiate a repair for a "mold-like" substance. It behooves everyone, when money is at stake, to specifically identify the substance and quantify the repairs necessary, if any. In the absence of real information the parties will be forced to make-up their own reality. If the problem is not confirmed to be mold, there will be doubt in the parties mind and may cause them to unnecessarily remove themselves from the agreement to purchase.

How long does it take to get the results from a test for mold?

Generally, it takes 48 hours (working days only) for lab results. However, express service is available in 24 hours. What kind of information will these lab results give us? They will tell us the type of mold and any known human health effects associated with that type of mold.

What should we do if the results confirm that mold is present? You should follow the guidelines set forth in the next section of this document.

Solving the water problem

In all situations, the underlying cause of water accumulation must be rectified or fungal growth will recur. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated hu-

midity, relative humidity should be maintained at levels below 60% to inhibit mold growth. Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.

“Cleaning” the mold - the right way

The best way to remediate problematic mold growth is to remove it from materials that can be effectively cleaned and discard those materials that cannot be effectively cleaned. Further, mold remediation should be conducted by professionals that are trained and certified. Embarking on remediation activities can aerosolize the mold spores and contaminate areas of the structure unnecessarily if proper containment is not constructed.

The tasks involved in remediation should include the following:

- ⇒ Take action to stop the source of water intrusion, if needed
- ⇒ Identify vulnerable populations, extent of contamination, and moisture dynamic
- ⇒ Decontaminate and remove damaged materials, as appropriate
- ⇒ Evaluate whether a space has been successfully remediated
- ⇒ Reassemble the space to prevent or limit the possibility of recurrence by controlling sources of moisture and nutrients

How is successful remediation defined?

“Clean” in the context of clearance inspection means that the area is free of residual microbial contamination. While there are no generally accepted guidelines for a “clean” building, there are some very practical assessments that can be made. For the purposes of clearance, the best available tools we have are inspection, remediation protocols, and “clearance testing”.

Inspection. Inspecting the affected areas of visible mold to ensure that all visible mold contamination has been cleaned is the first practical step. This obviously calls for a re-inspection after the remediation plan has been completed.

Remediation Plan. The remediation plan or protocol should be implemented according the best available information and the assessment of the experts implementing the plan. This makes sure that all practical and necessary precautions are taken to prevent a recurrence.

Clearance Testing. Clearance testing is called for to measure the level of indoor spore counts. Because the level of indoor spores are what cause the allergic reactions in sensitized individuals, these should be measured against a control sample from the exterior of the building to rule out any amplification of mold spores from an indoor source.

Can I clean and restore all the items in my home that have been affected by mold?

No. An important consideration is whether the moldy item is porous, which means that it can absorb the mold and allow it to penetrate and weaken the structure of the item.

- ⇒ Non-porous items (such as metals, glass, and hard plastics) that still are structurally sound but visibly moldy can be reused after a thorough cleaning with a solution of hot water with detergent or non-ammonia soap. Rinse the items after you wash them and then dry them completely.
- ⇒ Semi-porous items usually require the efforts of persons skilled in restoration. Mold can penetrate beyond the surface of semi-porous items and make them very difficult to restore. Sanding the material and treating with commercially available cleaning products will likely be necessary. Another important factor is containment. Whenever, mold is disturbed, it release spores which can contaminate other areas of the home. Professional restoration companies are skilled at prevent such cross contamination.

- ⇒ Items made of porous materials (carpeting, sheet rock and insulation) usually should be discarded if they have more than a small area of mold contamination. For instance, mold growing under carpeting typically requires replacement of the affected area. Once mold begins to grow in insulation, wallboard or ceiling tiles, the only effective way to deal with it is removal and replacement. Painted wallboard and prefinished ceiling tiles usually are cleanable if only the surface is affected.

Some porous materials can be cleaned and reused, but they should be discarded if possible. If you do not want to part with a contaminated item made of porous material, you may have to contact a professional skilled in such restoration work.

How can I prevent mold from growing in my home?

While mold spores are all around us, mold growth can be prevented. As mentioned earlier, mold growing in your home requires MOISTURE, WARMTH, and FOOD. Depriving mold of any of these three items will stop it from growing, but it will not kill the mold that is already there. Mold spores will remain dormant, and if the moisture, warmth and food all reappear, mold will begin to grow again.

The most important steps in controlling mold growth are to clean any existing mold and to eliminate excessive moisture. You can take numerous precautionary steps:

- ⇒ Vacuum and clean regularly to remove possible sources of mold growth. Pay special attention to bathrooms and other areas of your home that are likely to generate a lot of moisture.
- ⇒ In portions of your home that are susceptible to moisture, use area rugs or washable floor surfaces rather than wall-to-wall carpeting. If you use area rugs, launder them periodically.
- ⇒ Do not store materials such as paper, books, clothes, or other possible sources of food for mold in humid parts of your home.

- ⇒ Repair water leaks in your roof, windows, or any other part of the home as soon as possible.
- ⇒ Clean refrigerator drip pans regularly according to the manufacturer's instructions. If your refrigerator and freezer doors do not seal properly, moisture can build up and mold can grow there. Remove any mold on the door gaskets and replace faulty gaskets.
- ⇒ If you live in a house, make sure that your gutters and downspouts are clear of debris that may block the flow of water from your roof. Make sure the area under your downspouts is properly graded so that rainwater from the roof flows away from your foundation. Splash blocks can help rainwater to flow in the proper direction. If necessary, extend your downspouts.
- ⇒ Make sure other areas around your foundation are graded so that rainwater does not flow toward the house. Do not put gardens or plants too close to your foundation so that watering them could cause water to flow toward your house. If you water your lawn with a sprinkler, make sure the water does not hit your house or the area next to the foundation.
- ⇒ In the kitchen and bathroom, open windows or use exhaust fans when engaging in activities that produce moisture. Exhaust fans should be vented to the outdoors and not to an attic or crawl space.
- ⇒ If you have a clothes dryer, make sure it is vented to the outdoors.
- ⇒ If you use a humidifier, make sure it does not produce an excessive amount of humidity. During the summer, 60 percent relative humidity or lower probably will prevent condensation and mold growth in most parts of the country, but that is too moist for the middle of winter, when 40 percent relative humidity or lower will prevent condensation on windows.
- ⇒ If you live in a house with a basement, consider using a dehumidifier there. The cool basement floor and walls can be a source of moisture build-up.

- ⇒ If your home has an attic, make sure it is properly insulated and ventilated.
- ⇒ If you have a crawl space under your house, cover the soil in the crawl space with waterproof polyethylene plastic or complete encapsulation system.
- ⇒ If you have water problems in your basement or crawl space, clean up affected areas as quickly as possible and take immediate steps to resolve the source of the problem.

For Sellers of Residential Real Estate

As a seller you have many concerns regarding your transaction. You are concerned about price, how long to close, reliability of offers made, and the list goes on. The process can leave you stressed and feeling overwhelmed. Needless to say, you certainly don't want to add to your stress by finding unwanted organisms in your home that may complicate the sale. What can you do to ease your mind and increase your chances for an uncomplicated transaction?

The opportunity

The single biggest opportunity for you to reduce your stress and increase your confidence that your buyers are solid is to get them all the information regarding the condition of your home as soon as possible and if appropriate, make all expensive repairs prior to opening escrow.

What is the one inspection concern that scares buyers enough to walk away from a transaction?

Mold. You bet. Mold scares buyers. Mold could mean health problems for their family. Mold could mean expensive repairs that are not covered by insurance. Mold could mean a house that is stigmatized for life.

Why should I pay for a mold inspection - isn't that the buyer's problem?

A mold inspection will reveal potential costly repairs before the property is placed in escrow and before the proverbial contingency clock starts ticking. Further, as public awareness regarding mold is increasing, buyer's can rest assured when they receive a "clear" report shortly after they enter escrow, allowing the transaction to move forward smoothly. Here are a few more reasons to inspect:

- ⇒ Insulate yourself from legal action
- ⇒ Comply with Toxic Mold Protection Act of 2001
- ⇒ Make repairs before entering escrow
- ⇒ Same reasons you would get a Pest Inspection
- ⇒ Buyer's home inspector will find it during escrow
- ⇒ Repairs can take 5-21 days
- ⇒ Obtain clearance to present to buyers

What's included in a mold inspection?

A mold inspection is much like a pest inspection. There is a visual inspection of the exterior, attic spaces, crawl space, and interior sections of the home looking for mold, water damage, and water intrusion. If there are no section one mold items to report the property will receive a "clearance". All recommendations are presented in a ten page report, complete with digital photos and the mold education guide. After a thorough visual examination a report will be issued within 24 hours. The report will either "clear" the property or make recommendations for "clearance". Much like a structural pest report the conditions will fall into "section" items that are clearly defined.

Section 1 - active infestation or high likelihood (i.e. evidence of significant water intrusion) of active infestation

Section 2: conditions conducive to mold growth.

How is a mold inspection different than a pest inspection?

A structural pest control operator is hired to identify and report on any wood destroying organism. This includes, wood decaying fungus and pests. Mold is commonly referred to as a surface fungus because it does not destroy the wood that it grows on as rapidly as wood decaying fungus will in most cases. Most pest inspectors will not comment on mold but rather refer your client to a specialist because of the liability surrounding mold exposure. The remediation for mold is also significantly different than for wood destroying organisms because of the threat of airborne contamination and most pest companies are not set up for this type of work

What does the service cost?

The service is priced much like a pest inspection. Depending on the results of the visual inspection there may be other costs, which, of course are optional.

⇒ Mold Inspection Service: \$199.00

How is a home “cleared” for mold?

Following the inspection or any necessary remediation work the property will be "cleared". The clearance is issued as an amendment to the original report and indicates that the interior living space has a "normal fungal ecology". This is becoming the industry standard term that means any airborne mold in the home is normal and not representative of a defective or harmful condition.

For Buyers of Residential Real Estate

As a buyer, you are concerned about several aspects of the purchase including value, condition of the property, and usability for you and your family.

What you should know about mold inspections?

- ⇒ You have the right to have any property you make an offer on inspected for mold.
- ⇒ The best mold inspection is a visual mold inspection which includes an examination for moisture intrusion as well as visible signs of mold.
- ⇒ Mold can be found anywhere in a home. It can be found in the crawlspaces, attics, closets, and other areas not frequented.

What you should do when making an offer on residential real estate?

Get the property inspected. That is the only way you can be assured that you are not walking into a money pit or unsafe situation for your family. Here is a list of must have inspections:

- ⇒ Pest Inspection (can be provided by seller)
- ⇒ Home Inspection (can be coupled with a mold inspection)
- ⇒ Mold Inspection

Each of these inspections can and usually do uncover thousands of dollars in hidden costs that go unreported because most people don't inspect their own attics and crawlspaces

What should I do if a sellers disclosure says that they “cleaned” the mold or the home had a previous mold problem?

You should request copies of any inspections and receipts for work complete to make sure necessary precautions were taken during clean up procedure. You may, if you are concerned, have a clearance test and inspection done at your own expense.

Additional Resources

Centers for Disease Control: “Damp Indoor Spaces and Mold”,
<http://www.nap.edu/books/0309091934/html/>

Environmental Protection Agency, <http://www.epa.gov>

Fungal Library: Description of types of fungi: www.emlab.com

Condensation and Mold Growth from the Journal of Environmental Health: <http://www.jehr-online.org/volume1/issue1/4/1.asp>

California Department of Health Services: <http://www.cal-iaq.org/mold0107.htm>

EnviroVue Home Inspection is compiling a library of technical articles from reliable sources on such topics as:

- ⇒ Moisture management in buildings
- ⇒ Crawlspace and Mold
- ⇒ Wet crawlspace remediation
- ⇒ Inspecting wall cavities for mold
- ⇒ Introducing Fungal Ecology
- ⇒ Preventing Moisture Intrusion in Foundation Walls
- ⇒ Cladosporium Introduction
- ⇒ Toxic Mold and Infants





About the author Steve Ramos

Steve Ramos is a member of the National Association of Certified Home Inspectors (NACHI). He is also a Certified Level One Mold Assessor from ASPREI. NACHI is the only industry organization that requires its members to pass an entrance exam to become a member. Most other organizations have a candidate level designation that does not require experience, education, or examination to become a member. In fact, over 50% of the applicants fail this exam and are not granted membership.

About EnviroVue Home Inspection

EnviroVue Home Inspection was started in November of 2002 by Steven and Diana Ramos. Their vision was to create a home inspection company that offered clients a legitimate "VUE" into the home environment, ensuring that the place where they raise their family, have dinner with close friends, and spend most of their non-working hours would be a safe and wise investment. With increased buyer awareness, environmental inspections have become more of a standard rather than a luxury. As such, we appropriately named our company, EnviroVue - a "vue" into your home's environment.

EnviroVue Home Inspection

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