

# Mold

## *Guidelines for New Jersey Residents*



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### **Understanding Mold Investigations & Remediation**

- *What Services Should I Ask For?*
- *What Are Important Inspection Procedures?*
- *Is Mold Sampling Helpful?*
- *What Information Should Be Provided From a Mold Inspection and Remediation?*

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## Purpose

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The purpose of these guidelines is to help New Jersey residents understand mold basics, clean up mold in a safe manner, and if necessary, select a mold consultant or remediation contractor. These guidelines are intended for residential buildings. The US Environmental Protection Agency (US EPA) has guidance for commercial and school buildings available at

<http://www.epa.gov/mold/pdfs/moldremediation.pdf>.



## Definition of Mold

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Molds are fungi which occur naturally in the environment. Many different species of mold exist in New Jersey. Molds help break down dead materials and convert it back into organic matter which can be used by living organisms.

## How Molds Grows

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***Molds digest and destroy the building materials they grow on.***

Molds grow by digesting and destroying the material they grow on. They can be found almost anywhere and can grow on just about any material as long as conditions are favorable. For favorable growing conditions, mold needs nutrients (oxygen and moisture) and a material to grow on.

Molds reproduce by making spores. These spores become airborne, both outside and inside of buildings. If spores land on suitable material and conditions are favorable, the mold will begin to grow.

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## Appearance of Mold

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Molds grow in colonies and growth may take on different shapes and colors. Some molds may appear circular in growth while others may grow and spread to cover an area. Molds may appear brown, yellow, green or black in color. The appearance depends on the species of mold present.

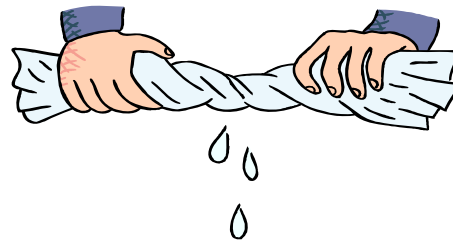


## Understanding Molds

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Even though molds are everywhere, they may become a problem when they begin to grow inside homes and buildings. Many building materials such as drywall, ceiling tiles and wood framing contain cellulose, which is a material on which molds can grow.

As molds grow on building materials they may become destructive. Molds may grow unnoticed, above ceilings, behind walls, in attics and basements or in crawl spaces. Molds can cause staining of walls and ceilings and can begin to break down the studs and joists of buildings causing extensive property damage.



**No Moisture = No Mold Growth**

Excessive moisture is a key ingredient which causes molds to grow. Sources of excess moisture may be plumbing leaks, leaking roofs or windows, high humidity, flooding, or condensation inside walls due to poor insulation.

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## Health Concerns



**It is important to remember, that individuals should consult their physician if they suspect they are experiencing health effects resulting from mold exposure.**

### Individuals at highest risk:

- Those who have a pre-existing health condition (allergies; lung Conditions such as asthma or emphysema)
- Infants
- The elderly

Molds emit spores and chemicals as part of their normal life cycle and some individuals may exhibit reactions when exposed to these materials.

Mold spores are microscopic and, once airborne, can easily be inhaled. Spores may contain allergens that can cause irritation to the nose, throat and respiratory tract.

In addition to allergens, molds may emit *microbiological volatile organic compounds (MVOC's)*. These chemicals usually have a strong and unpleasant odor and are associated with the musty smell that individuals equate to mold being present. These chemicals, when released into the air, can be inhaled, ingested or absorbed through the skin. When inhaled, they can cause allergic reactions. MVOC's have also been linked to headaches, nausea, dizziness and fatigue.

### Common Health Effects Include:

- Allergic Reactions—sneezing, nasal congestion
- Irritation to the Nose, Throat, and Respiratory Tract
- Asthma Attacks
- Hypersensitivity Pneumonitis



**Note: Some molds may cause more severe reactions than others. If you are experiencing severe reactions, that improve when you leave the affected building, you should to speak to your Physician and a consultant regarding the advisability of staying in the home, apartment or other type of building where the problem exists.**



## Assessing Risks

There are factors that can be used to assess whether an increased health risk may be present.

These factors include:

- Evaluating individuals for sensitivity to mold (children, elderly and those with previously compromised health, are potentially more sensitive)
- The extent of mold growth
- The condition of mold growth



## Identifying Mold

Identifying mold in your home should always begin with a thorough visual inspection. An inspection can be done by a homeowner or a qualified environmental consultant.

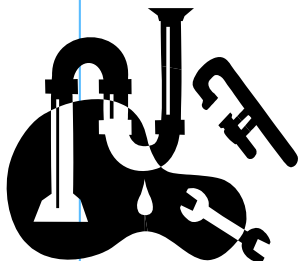
Excess moisture is always a key ingredient in mold growth. Examine the structure for water leaks and other sources of excess moisture. This is the first area to look for mold growth. Mold grows well on building materials that contain cellulose. Therefore, all building materials that contain cellulose (i.e., ceiling tiles, gypsum board, studs, wood products, etc.) should be inspected closely for signs of mold growth.

### Where to look for mold:

- Any area where moisture is present or flooding has occurred.
- Basements, crawl spaces, attics.

### What to look for:

- Discoloration on walls or ceiling that continues to grow or change color.
- A pungent, musty smell.





## Basic Tips for Hiring a Consultant or Remediation Contractor

- Ask the company representative if their inspectors have had any kind of specialized training for mold assessment work (see Consultant Licensing, page 7).

- Ask the contractor about their history doing this type of work and for references from similar projects.

- Obtain estimates from different companies, as they can vary significantly. Make sure that all contractors are bidding on the same work. The estimate should be detailed and include all of the services to be provided. Services that may be included are sampling, design, replacement, repair of any damages, etc. Make sure the contractor comes to the job site rather than giving an estimate over the phone. Be wary of an estimate that is much lower than other estimates. A low estimate doesn't mean that the contractor won't do a good job, but make sure you check references and get a written, detailed explanation of what will be done prior to the start of work.



- Talk to each contractor and learn exactly what they will be doing on the job. If something doesn't sound right, get more information concerning the advisability of what will be done before selecting that contractor. If you aren't sure that the work complies with local building code rules, contact the local building code office before allowing the contractor to proceed.

- Find out what type of liability insurance the contractor has. Ask what type of insurance it is, what it covers and the amount of coverage. If you aren't sure what the insurance covers, you need to make sure it covers mold or microbial work.





## Basic Tips for Hiring a Consultant or Remediation Contractor (cont'd)

- Take note of how the contractor responds to you during the inquiry and bidding process. Did the contractor return your call in a timely fashion? Did he or she show up on time? Did he or she make an effort to address all your questions or provide resources which might address them? Consider your answers to these types of questions before hiring a contractor.
- A building cannot be made mold free. Avoid a contractor who claims to make your home mold free.
- Contact the Federal Trade Commission, Bureau of Consumer Protection and the Better Business Bureau to find out if complaints were filed against the company. The contractor may also be licensed to perform lead or asbestos work in NJ. You can contact the licensing offices to find out if they have any workpractice violations in that industry. See References section (page 15) for information on how to contact these offices.
- Consider using a different company to perform testing as well as remediation. Using the same company may present a conflict of interest and should be avoided.
- The consultant should provide a written inspection report that includes a summary of all the areas inspected, the cause of the mold growth, how to take care of the problem and any sampling results.

## Services to Ask For

*Request a plan to stop a water intrusion problem -* Before mold can be completely remediated, the source of water should be fixed.



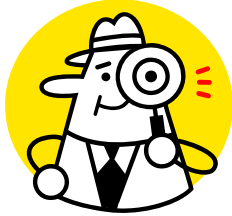
**Do not simply ask for mold testing !**

*Request a plan to remediate the mold -* Once the water intrusion problem is fixed, the mold can be remediated. This plan will be important when hiring a remediation contractor.

*If testing will be done -* Ask why it will be done, what type of testing will be done, and what the testing report will tell you.

## Why is a Thorough Visual Inspection and Assessment Necessary?

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A thorough visual inspection and assessment is the single most important procedure in obtaining information on the presence of a mold problem. A visual inspection and assessment will examine areas that may be impacted by water infiltration/leakage or excessive moisture and identify areas of mold growth.

## Correcting a Water Intrusion Problem and Developing a Mold Remediation Plan

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If a mold problem is identified during the visual inspection, a plan to correct the water/ moisture problem(s), along with a plan to clean up the mold, will need to be developed and implemented. Information obtained from a visual inspection can be used to help a professional consultant in the following ways:

- ☑ Identifies the source of moisture so that it can be fixed prior to attempting to eliminate the mold problem.
- ☑ Assists in the determining the extent of the mold growth.
- ☑ If necessary, helps to formulate a mold sampling strategy (see section entitled “When is Mold Sampling/Testing Necessary?” to determine if further tests are advisable and/or necessary).
- ☑ Helps in the development of an action plan to abate any mold contamination.
- ☑ If the water that caused the mold, contained sewage or other hazardous substances, additional steps would be required in order to assess, clean and decontaminate the area.





## When is Mold Sampling Necessary?

**Please note: If a visual inspection reveals the presence of mold, additional testing is not necessary.**

Once a mold problem is identified, resources would be better used to correct any moisture problems and clean up mold contamination, rather than for testing. However, if mold is not found during a visual inspection and is still suspected as being present, testing may be necessary. The cost of doing the sampling should be considered when deciding whether or not to conduct mold sampling. Testing should always be performed by a qualified person (see Consultant Licensing, page 7). Your Local Health Department may be able to assist you or you should contact an environmental consultant who specializes in, or has experience in, evaluating mold contamination.

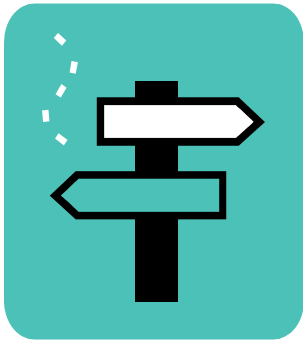


If mold sampling is necessary, samples may be collected from building materials, dust or from the air and will help determine the extent of the mold contamination. Collecting mold samples helps a consultant determine the mold species present, concentrations and if mold is actively growing.

***Sampling alone will not usually provide all of the information needed to evaluate the extent of a mold and moisture problem.***

## Sampling Plans

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When sampling is necessary, it needs to be conducted in conjunction with an investigation. This provides an accurate assessment of existing conditions in the building. To accomplish this, a specific plan for sampling should be developed.

The best sampling plans are those which are designed to sample in areas of suspected mold growth and should include information on why an area is sampled. Typical samples that may be collected by the consultant include: *Bulk, Surface, Dust, and Air Samples*.

Additional testing may include an evaluation of the relative humidity in the home and taking moisture readings of building materials in suspected areas. Testing of suspected surfaces and bulk samples of building materials may also be performed.





## Information Which Should Be Provided as a Result of a Mold Inspection and Assessment

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The results of the mold inspection and assessment should be clearly communicated in a final report. The final report should have three components: A summary of the inspection that was conducted; a summary of the mold conditions; and a summary of the moisture conditions identified.



Each report component is described below:

### *Inspection Summary*

- Summarizes the scope of the inspection performed and specifies the areas which were inspected.
- Details the techniques which were used to conduct the inspection and assessment.

### *Moisture Information Summary*

- Identifies the source(s) of water and/or moisture intrusion.
- Specifies actions that need to be taken to correct any water and/or moisture intrusion problems.

### *Mold Information Summary*

- Summation of the mold growth identified, including the specific locations, estimated size of the areas impacted and substrates affected by the growth.
  - The size of the areas affected by mold growth should be categorized into levels. This will help in developing a remediation work plan.
  - Information on other contaminants that could be present (especially from sewage leaks or floodwater)
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## Corrective Actions

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If a mold problem is found, steps need to be taken to address such conditions. Remediation is necessary to prevent further property damage and further exposures. Specific steps have been outlined by the United States Environmental Protection Agency (USEPA) to remediate mold contamination. These include:

- ☑ Identifying and correcting the source of moisture.
- ☑ Removing and/or cleaning mold contaminated materials.
- ☑ Removing the mold and ensuring the area is completely dry before performing any renovation or construction work.

The USEPA also notes that it is important not only to kill the mold but to also clean it up since even dead mold remains allergenic. See References section (page 16) for information on how to contact the USEPA.

## Who Should Clean up Mold?

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Deciding “who” should perform mold remediation work is not always easy. For small areas affected by mold growth (i.e., less than 10 square feet), a homeowner or building maintenance staff (for apartments and condominiums) may be capable of performing the work. For larger areas (i.e., greater than 100 square feet), a qualified contractor who has experience in mold or environmental contamination clean up should be hired. A professional opinion should be sought for affected areas that fall between 10 square feet and 100 square feet. See page 5 for information on how to choose a contractor.

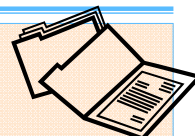




## Inspection Services Checklist

### The Inspection

- Get quotes from a few different consultants.
- Select a consultant (see page 5).
- Develop a contract for the work to be done.
- Areas to be inspected for the source of excess moisture.
- Areas to be assed for signs of mold, excess humidity or excess moisture.
- Will sampling be done? If so, an explanation of why sampling will be done and a sampling plan (showing, how many samples, where samples will be taken, etc.) should be developed by the consultants.
- If mold is found and finances allow, a remediation plan should be developed to repair damage that caused water intrusion, remove damaged items and building materials, remediate mold, and determine what pre-contamination levels the remediation contractor should meet for final testing after remediation is complete.
- Make sure a thorough visual inspection is conducted before any sampling or remediation is done.



### As a result of the visual inspection:

- Determine the sources of excess moisture and what needs to be done to repair the home and correct the problem.
- Determine if sampling/testing needs to be conducted, if it does, what type of sampling, how many samples, cost, etc.

### Once inspection, testing and sampling are complete:

- Ask for the consultant to explain the report and interpret the results.
- The consultant should develop a plan to remediate the mold.
- At this time, you should begin the process to hire a mold remediation firm.
- Once mold remediation is complete, further testing should be done to ensure that mold levels within the home are back down to normal (determined prior to remediation).



## Remediation

Working with mold can be hazardous, so regardless of who performs the work, work practices that protect the workers as well as the occupants need to be employed.

Workers need to be protected with gloves, a respirator, protective clothing and goggles or some type of eye protection. Also, the work area may need to be contained to prevent the spread of mold to other areas.

As a service to the public, the NJ DOH maintains lists of some of the companies that can assist in the evaluation of mold contamination and in mold remediation work. Consumers should educate themselves to make sure the contractor they hire is qualified to do the work. See page 5 for information on how to choose a contractor. See the link under “*Trade Firms, Consultants and Remediation Firms*” on page 16 to locate the NJ DOH lists.

## Mold Remediation Checklist

- Get quotes from a few different contractors.
- Select a consultant (see page 5).
- Develop a contract for the work to be done.
- Make sure you are aware of what will be done.
- Make sure all porous items (ie. carpeting, paper items, upholstered furniture, etc.) that have mold growth should be removed and disposed of.
- Remediation of contaminated structural components should be done (the items to be remediated should be specified in the remediation plan which was prepared by your consultant).
- Once mold remediation is complete, further testing should be done to ensure that mold levels within the home are within normal ranges. Speak to your consultant prior to abatement regarding what levels will be consider safe for re-occupancy.
- Construction can begin to replace removed building components.







## References

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### **Pictures:**

Some pictures are courtesy of Aerotech Laboratories and EMSL Laboratories

### **Information:**

- American Conference of Governmental Industrial Hygienists, “Bioaerosols: Assessment and Control” ACGIH, 1330 Kemper Meadow Drive, Cincinnati, OH, 45240, ISBN: 882417-29-1, 1999.
- New York City Department of Health, Bureau of Environmental and Occupational Disease Epidemiology, “Guidelines on Assessment and Remediation of Fungi in Indoor Environments”, November 2000.
- U.S. Environmental Protection Agency, Office of Air and Radiation, Indoor Environments Division, “Mold Remediation in Schools and Commercial Buildings” EPA 402-K-01-001, March 2001.

### **Contact Information:**

NJ DOH Consumer, Environmental & Occupational Health Service, Environ. & Occupational Health Assessment Program

609-826-4950

NJ Department of Community Affairs, Lead Licensing

609-633-6224

NJ Department of Labor & Workforce Development, Asbestos Licensing

609-633-2159

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## References

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### Helpful Information on the Web:

NJ DOH

Trade Firms, Consultants and Remediation Firms:

[http://www.nj.gov/health/iep/mold\\_ta.shtml](http://www.nj.gov/health/iep/mold_ta.shtml)

Additional Links:

[http://www.nj.gov/health/iep/mold\\_links.shtml](http://www.nj.gov/health/iep/mold_links.shtml)

FTC, Bureau of Consumer Protection

<https://www.ftccomplaintassistant.gov/>

Better Business Bureau

<http://www.bbb.org/us/Contact-BBB/>

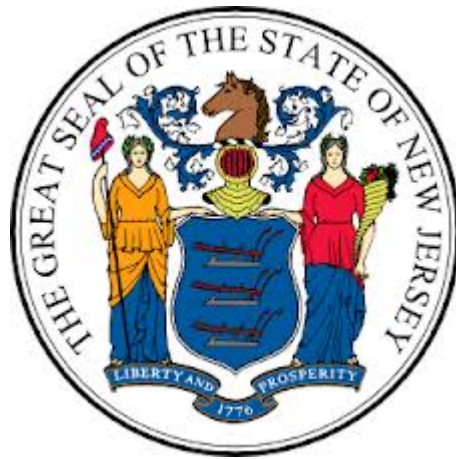
U.S. Environmental Protection Agency

<http://epa.gov/mold/>

NJ Department of Community Affairs, Local Building Code Offices

[http://www.state.nj.us/dca/divisions/codes/publications/pdf\\_oral\\_muniroster.pdf](http://www.state.nj.us/dca/divisions/codes/publications/pdf_oral_muniroster.pdf)





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