Childrens Law Center
501 3rd Street, NW, 8th Floor
Washington, DC 20001

02/15/2019

Re: [redacted]

[redacted]

Arrowhead Consulting Inc. conducted a mold inspection on 02/07/2019 at the above referenced property. This inspection was conducted to gather data for the assessment of potential mold growth within the home, moisture level evaluation of building materials, as well as the formation of a Microbial Remediation Scope of Work. Non-viable air and surface samples were taken during the inspection to verify suspected visible mold growth. Laboratory analysis results can be found in Appendix A. Digital photos were taken and are included in this report.

Client Provided Information

The following information was reported by the client at the time of this assessment

- Suspected mold growth in the unit.
- Prior water intrusion events in the unit.
- Prior "cleaning attempts" performed in the unit by the property management company.

Inspectors Visual Inspection

- Visible mold growth and water damage on floor and wall surfaces of the bedroom.
- Visible mold growth and water damage noted to carpet and padding in the bedroom.
- Water source is condensation from the wall mounted A/C unit during warm weather operation.
- Water damaged wall and ceiling materials above and around bedroom window have been painted over.

Note: Any areas of concern discovered with a Fluke TiR3 Thermal Imaging Camera have moisture content verified utilizing a GE Protimeter.

Visible mold growth and water damaged flooring materials

Visible mold growth and water staining to the bottom surface of the bedroom carpeting

Water damage and mold growth under the bedroom in-wall Hvac system on hardwood flooring and wall materials

Water damaged materials painted over in the bedroom

Appendix A

Certificates of Laboratory Analysis

AIHA-LAP EMLAP# 102977

43760 Trade Center Place
Suite 100
Sterling, Virginia 20166

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

Certificate of Analysis
AIHA-LAP EMLAP# 102977

43760 Trade Center Place
Suite 100
Sterling, Virginia 20166
(877) 648-9150
www.aerobiology.net

Arrowhead Consulting, Inc.
5064 Country Creek Lane
Broad Run, Virginia 20137
Attn: William Spearman
Project: **Speight 4870-204**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 02/07/2019
Date Received: 02/11/2019
Date Analyzed: 02/13/2019
Date Reported: 02/13/2019
Project ID: 19005599

1054 Spore Trap Analysis: SOP 3.8

Client Sample Number	1				4			
Sample Location	**Bedroom**				**Control**			
Sample Volume (L)	**30**				**30**			
Lab Sample Number	**19005599-001**				**19005599-004**			
Spore Identification	Raw Ct	spr/m³	% Ttl	In/Out	Raw Ct	spr/m³	% Ttl	In/Out
ascospores	3	100	4	1/8	23	767	6	-
basidiospores	65	2167	88	1/5	88	11733	89	-
Cladosporium	2	67	3	1/3	6	200	2	-
hyphal elements	-	-	-	-	1	33	<1	-
Penicillium/Aspergillus group	4	133	5	1/1	3	100	1	-
Smuts,Periconia,Myxomycetes	-	-	-	-	11	367	3	-
	Debris Rating **3**				Debris Rating **2**			
Analytical Sensitivity	Analytical Sensitivity: **33** spr/m³				Analytical Sensitivity: **33** spr/m³			
Comments								
Total *See Footnotes	74	2467	~100%	1/5	132	13200	~100%	-

Client Sample Number	2				4			
Sample Location	**Living Room**				**Control**			
Sample Volume (L)	**30**				**30**			
Lab Sample Number	**19005599-002**				**19005599-004**			
Spore Identification	Raw Ct	spr/m³	% Ttl	In/Out	Raw Ct	spr/m³	% Ttl	In/Out
ascospores	1	33	1	1/23	23	767	6	-
basidiospores	84	2800	83	1/4	88	11733	89	-
Cladosporium	3	100	3	1/2	6	200	2	-
hyphal elements	4	133	4	4/1	1	33	<1	-
Penicillium/Aspergillus group	8	267	8	3/1	3	100	1	-
Smuts,Periconia,Myxomycetes	1	33	1	1/11	11	367	3	-
	Debris Rating **3**				Debris Rating **2**			
Analytical Sensitivity	Analytical Sensitivity: **33** spr/m³				Analytical Sensitivity: **33** spr/m³			
Comments								
Total *See Footnotes	101	3367	~100%	1/4	132	13200	~100%	-

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Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 02/07/2019
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Date Analyzed: 02/13/2019
Date Reported: 02/13/2019
Project ID: 19005599

Client Sample #: 3
Lab Sample #: 19005599-003
Sample Location: Bedroom Floor
Test: 1051, Surface - Qualitative Direct Microscopic Exam SOP 3.7: 48hr TAT

Results:	Observation
Few hyphal elements seen	5 per cover slip
Numerous Penicillium/Aspergillus group spores seen	3-4 per field (minimum)
Few Ulocladium spores seen	5 per cover slip

Debris Rating: 2

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Project ID: 19005599

Footnotes and Additional Report Information

Debris Rating Table

1	Minimal (<5%) particulate present	Reported values are minimally affected by particulate load.
2	5% to 25% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
3	26% to 75% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
4	75% to 90% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
5	Greater than 90% of the trace occluded with particulate	Quantification not possible due to large negative bias. A new sample should be collected at a shorter time interval or other measures taken to reduce particulate load.

1. Penicillium/Aspergillus group spores are characterized by their small size, round to ovoid shape, being unicellular, and usually colorless to lightly pigmented. There are numerous genera of fungi whose spore morphology is similar to that of the Penicillium/Aspergillus type. Two common examples would be Paecilomyces and Acremonium. Although the majority of spores placed in this group are Penicillium, Aspergillus, or a combination of both. Keep in mind that these are not the only two possibilities.

2. Ascospores are sexually produced fungal spores formed within an ascus. An ascus is a sac-like structure designed to discharge the ascospores into the environment, e.g. Ascobolus.

3. Basidiospores are typically blown indoors from outdoors and rarely have an indoor source. However, in certain situations a high basidiospore count indoors may be indicative of a wood decay problem or wet soil.

4. The colorless group contains colorless spores which were unidentifiable to a specific genus. Examples of this group include Acremonium, Aphanocladium, Beauveria, Chrysosporium, Engyodontium microconidia, yeast, some arthrospores, as well as many others.

5. Hyphae are the vegetative mode of fungi. Hyphal elements are fragments of individual Hyphae. They can break apart and become airborne much like spores and are potentially allergenic. A mass of hyphal elements is termed the mycelium. Hyphae in high concentration may be indicative of colonization.

6. Dash (-) in this report, under raw count column means 'not detected (ND)', otherwise 'not applicable' (NA).

7. The positive-hole correction factor is a statistical tool which calculates a probable count from the raw count, taking into consideration that multiple particles can impact on the same hole; for this reason the sum of the calculated counts may be less than the positive hole corrected total.

8. Due to rounding totals may not equal 100%.

9. Analytical Sensitivity for each spores is different for Non-viable sample when the spores are read at different percentage. Analytical Sensitivity is calculated as spr/m^3 divided by raw count. spr/m^3 = raw counts x (100/ % read) x (1000/Sample volume). If Analytical Sensitivity is 13 spr/m^3 at 100% read, Analytical Sensitivity at 50% read would be 27 spr/m^3, which is 2 times higher. Analytical Sensitivity provided on the report is based on an assumed 100% of the trace being analyzed.

10. Minimum Reporting Limits (MRL) for BULKS, DUSTS, SWABS, and WATER samples are a calculation based on the sample size and the dilution plate on which the organism was counted. Results are a compilation of counts taken from multiple dilutions and multiple medias. This means that every genus of fungi or bacteria recovered can be counted on the plate on which it is best represented.

11. If the final quantitative result is corrected for contamination based on the blank, the blank correction is stated in the sample comments section of the report.

12. The results in this report are related to this project and these samples only.

13. For samples with an air volume of < 100L, the number of significant figures in the result should be considered (2) two. For samples with air volumes between 100-999L, the number of significant figures in the result should considered (3) three. For example, a sample with a result of 55,443 spr/m^3 from a 75L sample using significant figures should be considered 55,000. The same result of 55,443 from a 150L sample using significant figures should be considered 55,400 spr/m^3.

14. If the In/Out ratio is greater than 100 times it is indicated >100/1, rather than showing the real value.

Terminology Used in Direct Exam Reporting

Conidiophores are a type of modified hyphae from which spores are born. When seen on a surface sample in moderate to numerous concentrations they may be indicative of fungal growth.

Suzanne S. Blevins, B.S., SM (ASCP)
Laboratory Director

Non-Viable Microbial Sampling

Non-viable air and surface samples were collected in order to verify the visual evidence of mold growth noted during the inspection. Samples were delivered to Aerobiology Laboratory Associates, Inc. of Dulles, Virginia for analysis. Fungal analysis was performed by a certified Microbiologist using direct microscopic examination to identify fungal groups and concentration.

Conclusion

Fungal growth is evident (visually) on the bedroom wall and flooring materials. Testing and analysis results of the surface sample taken from the bedroom floor verify the elevated presence of Penicillium/Aspergillus growth in the areas mold was visually identified. Testing and analysis results of the air samples taken in the apartment show normal levels of spores. The water source is determined to be the in-wall Hvac system leaking condensation that forms during the warm weather seasons when the air conditioning is run. During the colder months, condensation is not produced when the heat is run, therefore the impacted materials were dry at the time of inspection and airborne spore counts are lower. Spore counts and surface growth will increase when the A/C is running and forming condensation. It's been determined that the water damage to the upper wall and ceiling materials is due to the in-wall Hvac system in the unit above having the same issues. "The spores of molds can be a source of exposure to toxins via inhalation" (American Industrial Hygiene Association AIHA, Recognition, Evaluation, and Control of Indoor Mold 1.3.3).

Recommendations

Proper remedial actions should strictly follow industry accepted practices and procedures for fungal abatement.

At present there are government regulations in the District of Columbia addressing the assessment and/or the removal of mold. Mold is commonly found outside but can also become a contaminant once inside a building environment. Molds can potentially produce allergenic reactions to certain people when exposed to them.

Every remediation site is different and different protocol and methods may need to apply, you the home or building owner should be informed of progress as an ongoing dialog. The purpose of mold remediation is to remove contaminated materials thus allowing the home/building owner the opportunity to fix the source(s) of moisture.

The procedures in this document are ones that are found in industry recognized documents and/or the best practices deemed by Arrowhead Consulting Inc. Since mold requires water and/or high humidity to grow, Arrowhead Consulting Inc. cannot be responsible for future changes in the environment. It is important to fix the moisture problem that caused the microbial growth so that it does not re-occur. Arrowhead Consulting Inc. does not guarantee or warranty against any future re-occurrence. We guarantee that the procedures outlined in this document are the industry standards (or better) at the time of the issuance of this document.

MSDS sheets should be made available for all products used and OSHA mandated work practices need to be followed. Insurances, Certifications, Licenses, and References should be made available for your inspection at any time.

Affected Area(s)

- Bedroom

Remediation Specifications

- Personnel performing remediation or cleaning of fungal contamination may be at risk for developing Organic Toxic Dust Syndrome (OTDS) or Hypersensitivity Pneumonitis. OTDS may occur after a single heavy exposure to fungi-contaminated dust. All personnel must utilize appropriate personal protection (PPE) in the form of approved respirators, eye protection and protective clothing and gloves. Use of these measures should be restricted to those trained in their proper use.
- Use of Anti-Microbial solutions must be limited to properly ventilated areas. Do not combine chemicals as improper mixing may produce poisonous gasses.
- Remediation efforts should carefully follow the following documents: IICRC S520, EPA Mold Remediation in Commercial Buildings and Schools and New York City Standards for Mold Remediation.
- These Microbial Remediation Specifications do not address any other potential environmental hazards other than mold that might be present in the referenced property and only pertains to those areas included in the assessment and the data provide regarding those areas. Consideration for potential exposure to environmental hazards whether through implementation of these guidelines or any other activity taking place in the property must be evaluated.
- "Affected" is defined as "in close proximity, likely impacted from the same source of water intrusion or moisture accumulation"

"Hidden mold growth is of significance because mold particulate (spores, mycelia, etc.) has the potential to migrate into occupied areas and results in fungal particulate exposures to occupants".

Recognition, Evaluation, and Control of Indoor Mold (American Industrial Hygiene Association) Building Evaluation 2.6.6.

"Microenvironments: The indoor ecosystem comprises and interrelated complex of microenvironments, each of which has its own mix of physical and biological factors and can serve as a reservoir for a variety of pollutants that can potentially affect the quality of the air in occupied spaces. Some microenvironments are structural components such as interior and exterior wall cavities, ceiling spaces, air-handling systems and crawlspaces."

IICRC R520-2015 Reference Guide for Professional Mold Remediation (Third Edition) Microenvironments, Chapter 2, Page 14.

"Similarly, colorless hyphal growth usually extends beyond the limits of visible mold growth but is normally remediated by removing or cleaning a margin beyond the visible edges of growth, regardless of whether that growth is hidden."

"When the investigation identified hidden mold, it is advised that remediation plans include its removal or cleaning."

AIHA "Recognition, Evaluation, and Control of Indoor Mold". Chapter 17.5.2, pg. 211.

Scope of Remediation

1. Studs, floor plates joists and sheathing (structural materials etc.) should be sanded and/or brushed (as required) to remove any fungi. Once the cleaning process is complete, the surfaces may be treated with an anti-microbial biocide compound to prevent further growth and kill any remaining spores. If the use of anti-microbial biocide is required, prior approval for application should be documented in writing and signed by a remediation company representative and all home/building owner(s). Material Safety Data Sheets (MSDS) describing the compound and its risks should be provided to all occupants.

2. The remediation process should end when the project has been successful in returning the contaminated areas back to normal fungal ecology.

Demolition

Bedroom

- Bedroom wall and ceiling materials over and around the window (approx. 74 sf.).
- Bedroom carpet and padding (100% approx. 140 sf.).
- Bedroom hard wood flooring (approx. 30 sf.).

Remediation/Cleaning:

1. Sanding and/or wipe down of all exposed structural items (framing, floor plates etc.) as needed.
2. Application of Anti-Microbial Solution to exposed surfaces and full unit wipe down.

Post-abatement Sampling:

1. If required, non-viable spore trap and swab/tape sampling mirroring the initial series of tests should generally take place for clearance. Arrowhead Consulting Inc. is able to provide this post remediation clearance testing. Once the labs are analyzed, and the project passes clearance, Arrowhead Consulting Inc. will provide you the client with a Certified Clearance Letter and Laboratory Analysis confirmation.

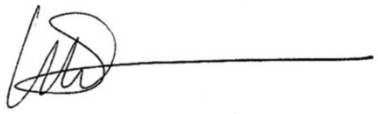
   Note: Clearance testing should be performed prior to encapsulation or the replacement of any removed building materials.

Remediation guidelines are generated by Arrowhead Consulting Inc. at the request of and for the exclusive use of Children's Law Center and Tangela Speight. Copies of same will not be released by Arrowhead Consulting Inc. to any third party without the prior express written consent from the client named in this report. This report applies to those conditions at the time, place and location referenced in this report. This report makes no express or implied warranty or guarantee as to the implementation methodology used by the client. Arrowhead Consulting Inc. is not able to assess the degree of hazard resulting from implementation of these guidelines, or from personal exposure to mold.

DISCLAIMER: The information regarding the health significance of mold types contained in this report is for informational purposes only and should not be used to replace professional medical advice. Content in this report does not contain information on all diseases, ailments, physical conditions or their treatment. It is best to seek advice and attention from your physician or qualified healthcare professional

If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,



William R. Spearman CIE, CMRS
Arrowhead Consulting Inc.
DC Mold Assessor License # MA-2016-I-01
Certified Remediation Reports
Post Remediation Inspection Services
Direct 240-832-5900
Email rustyahc@aol.com

If You Have to Remove Mold

INVESTIGATE AND EVALUATE MOISTURE AND MOLD PROBLEMS

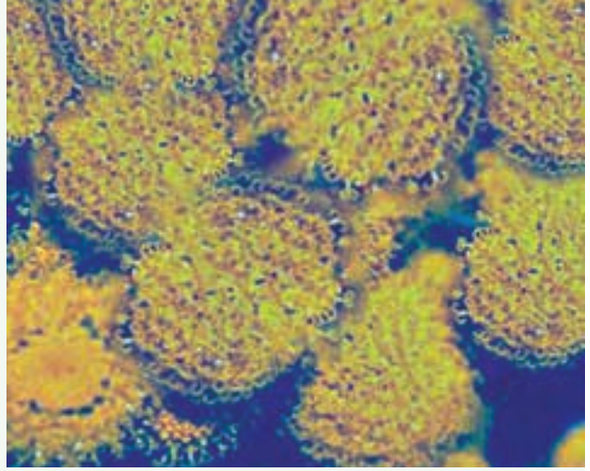
- Assess the size of the moldy area (square feet).
- Consider the possibility of hidden mold.
- Clean up small mold problems and fix moisture problems before they become large problems.
- Select a remediation manager for medium- or large-sized mold problems.
- Investigate areas associated with occupant complaints.
- Identify sources or causes of water or moisture problems.
- Note the type of water-damaged materials (wallboard, carpet).
- Check inside air ducts and the air-handling unit.
- Throughout the process, consult qualified professionals if necessary or desired.

COMMUNICATE WITH BUILDING OCCUPANTS AT ALL STAGES OF THE PROCESS, AS APPROPRIATE

- Designate a contact person for questions and comments about medium- or large-scale remediation as needed.

DEVELOP A REMEDIATION PLAN

- Adapt or modify remediation guidelines to fit your situation; use professional judgment.
- Select cleanup methods for moldy items.
- Select personal protection equipment to protect remediators.
- Select containment equipment to protect building occupants.
- Select experienced remediation personnel.
- Address the moisture problem at its source. Implement a repair and/or maintenance plan.
- Dry out wet, non-moldy materials within 48 hours to prevent mold growth.
- Clean and dry moldy materials.
- Discard moldy porous items that cannot be cleaned.



During Cleanup Efforts

REDUCE YOUR EXPOSURE TO MOLD

During any mold cleanup process, mold spores will be released into the air. For protection during the cleanup operation:

- Use a HEPA filter respirator to reduce the number of mold spores you breathe in.
- Wear protective clothing that can be discarded.
- Wear rubber gloves.
- Work for a short while and then take breaks in the fresh air.
- Work with windows open and keep them open after cleanup.
- Turn off heat and air conditioning to prevent spores from being spread to other areas of the house.
- If there is an air return vent in the room, cover it tightly.
- Place a fan in a window to blow air out of the affected room.
- Double-bag all cleanup materials before removal from contaminated area.

If you use outside contractors or professionals, make sure they have experience cleaning up mold, check their references, and have them follow the recommendations presented in this brochure.

Support Building Safety!

For more information about building safety codes and local requirements, contact your local building department.

Connect with us

Developed and provided by

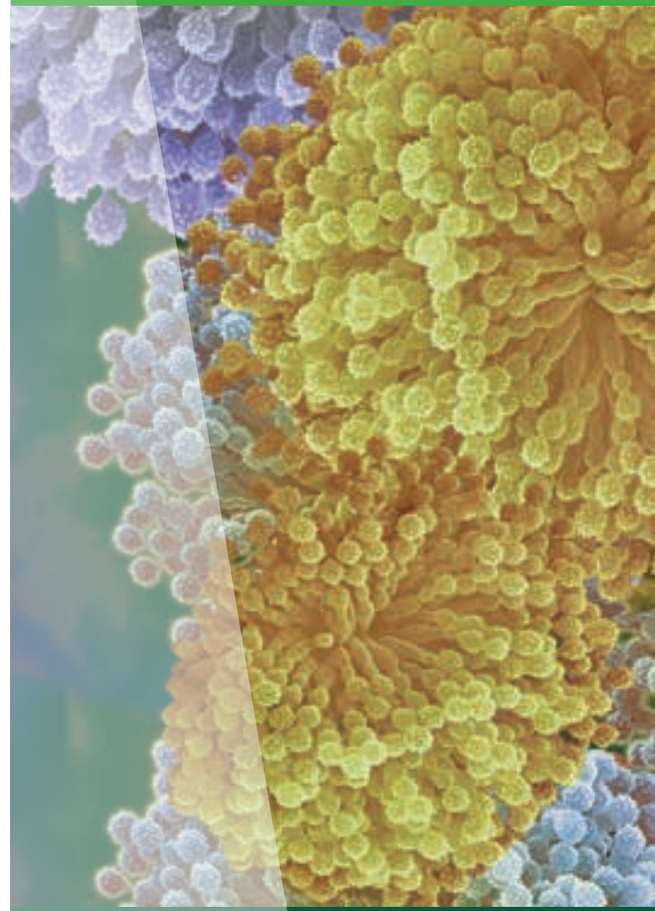
ICC INTERNATIONAL CODE COUNCIL®

1-888-ICC-SAFE (422-7233)
www.buildingsafetymonth.org

19-18216

BUILDING SAFETY MONTH

Mold Tips on Prevention and Control



www.buildingsafetymonth.org
#BuildingSafety365

Mold: Tips on Prevention and Control

Mold is caused when microscopic, airborne spores land on moist surfaces and spread rapidly. Molds can have useful purposes. Life-saving penicillin is derived from mold. Many foods, such as blue cheese, require mold as part of their manufacturing process. And as owners of compost piles know, mold plays an important role in the cycle of nature, helping to break down organic materials.

MOLD PREVENTION

Although some mold can have useful purposes, the mold that a growing number of builders and homeowners are encountering poses significant problems.

Unchecked mold growth on interior wood, wallboard, paper and carpet has been blamed for serious illnesses. It can be exceedingly difficult to eradicate and has even rendered some buildings uninhabitable.

This mold has the same root causes as food mold. Tiny spores—less than 4 microns in size—land on damp spots when excessive moisture or water accumulates indoors. These spores then begin digesting whatever they are growing on in order to survive and spread.

According to the U.S. Environmental Protection Agency, there is no practical way to eliminate all mold and mold spores in the indoor environment. But mold can be controlled by controlling moisture.

It takes a concerted and concentrated effort to maintain a mold-resistant building. Builders and contractors must carefully construct buildings in accordance with approved plans and follow good construction practices in assembling the building components. Building owners and tenants must be observant and take immediate steps to maintain existing buildings and their systems to prevent moisture from accumulating.

GENERAL TIPS FOR PREVENTING MOLD

Here are some common-sense precautions that builders, homeowners and building owners can follow to avoid mold and ensure health and safety when building or maintaining a structure.

- Fix leaky plumbing and leaks in the building envelope as soon as possible.
- Watch for condensation and wet spots.
- Fix sources of moisture problems as soon as possible.
- Prevent moisture caused by condensation by increasing surface temperature or reducing the moisture level in the air (humidity).
- Insulate or increase air circulation to increase surface temperature.
- Increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid) to reduce the moisture level in the air, and repair ventilation leaks.
- Keep heating, ventilation and air-conditioning drip pans clean, flowing properly, and unobstructed.
- Vent moisture-generating appliances, such as dryers, to the outside where possible.
- Maintain low indoor humidity, below 60 percent relative humidity (RH), ideally 30 to 50 percent, if possible.
- Adhere to a regular schedule of building/HVAC inspections and maintenance.
- Provide drainage outside foundation walls, and slope the ground away from the foundation to speed drying after rainfalls.

What the Codes Say

The International Codes are the minimum requirements necessary to ensure safety. According to these codes, builders and owners must fight the problem of mold in a three-fold approach.

1. There must be proper ventilation of all interior habitable and occupiable areas along with specific concealed spaces.
   - See Section 1202 of the *International Building Code*, Section R303 of the *International Residential Code for One- and Two-Family Dwellings*, and Chapter 4 of the *International Mechanical Code*.
2. The exterior envelope of all buildings must be provided with vapor retarders, water-resistive barriers, and the necessary flashing.
   - See Chapter 14 of the *International Building Code* and Sections R701 and R703 of the *International Residential Code for One- and Two-Family Dwellings*.
3. The maintenance of existing buildings and structures is of the utmost importance. This includes not only the exterior of the structure but also its plumbing and mechanical systems.
   - See Sections 304, 403, and 504 of the *International Property Maintenance Code*.

Removing Mold

GUIDELINES FOR REMEDIATION

Mold can generally be removed from nonporous (hard) surfaces by wiping or scrubbing with water or with a combination of water and detergent. The use of a biocide, such as chlorine bleach, is not recommended as a routine practice during mold cleanup. Remember, biocides are toxic to humans as well as to mold, and you should read and follow label precautions. Never mix chlorine bleach solution with cleaning solutions or detergents that contain ammonia because toxic fumes could be produced.

When a mold problem is discovered, it is important to protect the health of everyone involved—tenants, contractors and work crews. These guidelines will help, even if you have little or no experience with mold remediation.

Refer to these guidelines when evaluating an in-house remediation plan or a remediation plan submitted by an outside contractor. Contractors and other professionals who respond to mold and moisture situations in commercial buildings and schools will also find these guidelines essential.

ABOUT MOLD AND MOISTURE

Molds are living organisms that grow in damp places in your home. They stain or discolor surfaces and smell musty. There are hundreds of thousands of different types of mold.

Mold can grow almost anywhere: on walls, ceilings, carpets, or furniture. Humidity or wetness, caused by water leaks, spills from bathtubs or showers, or condensation, can cause mold to grow in your home.

Mold spores are tiny particles that float through the air. These can sometimes cause health problems. Mold does not affect everyone, and different people are affected differently when mold is breathed or inhaled.

People with allergies (/program_offices/healthy_homes/healthyhomes/allergies) to mold may get:

- Watery eyes
- Runny or stuffed noses

- Itching
- Headaches
- Difficulty breathing

Mold can also trigger asthma (/program_offices/healthy_homes/healthyhomes/asthma) attacks. Some molds produce toxins (poisons) that may be hazardous if people are exposed to large amounts of these molds. Mold spores and related *mycotoxins* can also pose a serious health threat to individuals who have compromised immune systems.

What can you do?

To prevent and get rid of mold:

- Keep your house clean and dry.
- Fix water problems such as roof leaks, wet basements, and leaking pipes or faucets.
- Make sure your home is well ventilated and always use ventilation fans in bathrooms and kitchens.
- If possible, keep humidity in your house below 50% by using an air conditioner or dehumidifier.
- Avoid using carpeting in areas of the home that may become wet, such as kitchens, bathrooms and basements.
- Dry floor mats regularly.

To find mold that might be growing in your home:

- Search for moisture in areas that have a damp or moldy smell, especially in basements, kitchens and bathrooms.
- Look for water stains or colored, fuzzy growth on and around

ceilings, walls, floors, windowsills and pipes.

- If you smell a musty odor, search behind and underneath materials such as carpeting, furniture or stored items.
- Inspect kitchens, bathrooms and basements for standing water, water stains and patches of out-of-place color.

To control moisture problems and mold:

- Fix any water problems immediately and clean or remove wet materials, furnishings or mold.
- Clean up spills or floods within one day. If practical, take furniture that has been wet outside to dry and clean. Direct sunlight prevents mold growth.
- Dry all surfaces and fix the problem or leak to prevent further damage.
- Install a dehumidifier when a moisture problem is evident or when the humidity is high.

Want More Information?

Get the Mold Brochure (/sites/documents/DOC_12335.pdf)

Help Yourself to a Healthy Home Booklet (/sites/documents/DOC_11880.pdf)

Healthy Homes Program Brochure (/sites/documents/DOC_11881.pdf)

7 Steps to a Healthy Home (/sites/documents/DOC_11882.pdf)

About Allergies
(/program_offices/healthy_homes/healthyhomes/allergies)

About Asthma
(/program_offices/healthy_homes/healthyhomes/asthma)

About Carbon Monoxide
(/program_offices/healthy_homes/healthyhomes/carbonmonoxide)

About Home Safety
(/program_offices/healthy_homes/healthyhomes/homesafety)

About Integrated Pest Management
(/program_offices/healthy_homes/healthyhomes/ipm)

About Lead
(/program_offices/healthy_homes/healthyhomes/lead)

About Radon
(/program_offices/healthy_homes/healthyhomes/radon)

Related Information

Centers for Disease Control and Prevention
(https://www.cdc.gov/mold/)

Environmental Protection Agency
(https://www.epa.gov/mold)

Ready.gov
(https://www.ready.gov/floods)
(Flood information)

American Academy of Allergy, Asthma and Immunology
(https://www.aaaai.org/)

American Industrial Hygiene Association (https://www.aiha.org/)

Minnesota Department of Health
(https://www.health.state.mn.us/communities/environment/air/mold/inde

California Department of Health
(https://www.cdph.ca.gov/)

Agency

Resources

U.S. Department of
Housing and Urban Development

451 7th Street, S.W., Washington, DC 20410
T: 202-708-1112
TTY: 202-708-1455

Find a HUD office near you (/localoffices)

Centers for Disease Control and Prevention

Common Asthma Triggers

If you have asthma, an asthma attack can happen when you are exposed to “asthma triggers.” Your triggers can be very different from those of someone else with asthma. Know your triggers and learn how to avoid them. Watch out for an attack when you can’t avoid the triggers. Some of the most common triggers are:

Tobacco Smoke

Tobacco smoke is unhealthy for everyone, especially people with asthma. If you have asthma and you smoke, quit smoking.

“Secondhand smoke” is smoke created by a smoker and breathed in by a second person. Secondhand smoke can trigger an asthma attack. Make your home a smoke-free zone. Encourage household members who smoke to quit. If you have asthma, people should never smoke near you, in your home, in your car, or wherever you may spend a lot of time.

Dust Mites

Dust mites are microscopic bugs that are in many homes. If you have asthma and are allergic to dust mites, they can trigger an asthma attack. To prevent attacks:

- Use allergen-proof mattress and pillowcase covers to make a barrier between dust mites and yourself.
- Don’t use down-filled pillows, quilts, or comforters.
- Wash your bedding weekly and dry it completely.
- Vacuum carpets, area rugs, and floors regularly using a vacuum equipped with a HEPA filter.
- Keep relative humidity levels in the home low, around 30- 50%.

Outdoor Air Pollution

Outdoor air pollution can trigger an asthma attack. This pollution can come from many sources, including factories, cars, or wildfire smoke. Wildfire smoke from burning wood or other plants is made up of a mix of harmful gases and small particles. Breathing in too much of this smoke can cause an asthma attack.

Pay attention to air quality forecasts on radio, television, and the internet and check your newspaper to plan your activities for when air pollution levels will be low.

Pests (e.g., cockroaches, mice)

Cockroaches and other pests are often found where food is eaten and crumbs are left behind. To control pests in your home:

- Remove as many water and food sources as you can.
- Clean dishes, crumbs, and spills right away.
- Store food in airtight containers.
- Keep trash in a closed container.
- At least every 2 to 3 days, vacuum or sweep areas that might attract cockroaches or mice.
- Keep counters, sinks, tables, and floors clean and free of clutter.
- Seal cracks or openings in cabinets, walls, baseboards, and around plumbing.
- Use pesticide baits and traps in areas away from children and pets, following manufacturers’ instructions.
- Avoid using sprays and foggers as these can cause asthma attacks.

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Pets

Furry pets can trigger an asthma attack if you are allergic to them. If you think a furry pet may be causing attacks, you may want to find the pet another home. If you can't or don't want to find a new home for the pet, decrease your exposure by:

- Keeping pets out of bedrooms,
- Washing furry pets,
- Using an air cleaner with HEPA filter, and
- Using allergen-proof mattress and pillow covers.

People with asthma are not allergic to their pet's fur, so trimming a pet's fur will not help your asthma.

Mold

Breathing in mold can trigger an asthma attack whether or not you are allergic to mold. Indoor mold growth is often found in damp areas such as kitchens, bathrooms, and basements, or in areas where water damage has occurred. There are many types of mold which can be found in any climate. Get rid of mold in your home to help control your attacks.

To reduce mold exposure in your home:

- Dry damp or wet items within 24 to 48 hours to prevent mold growth.
- Fix water leaks, such as leaky plumbing, which let mold grow behind walls and under floors as soon as you can.
- Replace absorbent materials, such as ceiling tiles and carpet, if mold is present.
- Use an air conditioner or dehumidifier to maintain low indoor humidity.
- Get a small tool called a hygrometer to check humidity levels and keep them as low as you can—no higher than 50%. Humidity levels change over the course of a day, so check the humidity levels more than once a day.
- Scrub mold off hard surfaces with detergent and water. Dry completely.
- Empty and clean refrigerator and air conditioner drip pans regularly.
- Run the bathroom exhaust fan or open the window when showering.

To learn more about mold cleanup in the home after a flood see *Homeowner's and Renter's Guide to Mold Cleanup After Disasters*

Cleaning and Disinfection

Disinfectants can trigger an asthma attack. People with asthma should try to stay away when cleaners or disinfectants are being used and right after their use. Follow these precautions when cleaning or disinfecting places where people with asthma may spend time, such as homes, schools, or workplaces:

- Avoid overuse of products. To help limit your exposure to asthma triggers, follow a schedule for cleaning and disinfecting to prevent overuse of products.
- Use safer products. Any disinfectant can trigger an asthma attack, but you can take steps to reduce the chances of that happening:
  - Use soap and water or cleaners certified by the EPA Safer Choice program to clean surfaces.
  - Clean visibly dirty surfaces before disinfecting.
  - Never mix disinfectant products.
  - Choose products for disinfecting that are less likely to cause an asthma attack, such as products with hydrogen peroxide (no stronger than 3%) or ethanol (ethyl alcohol). Ensure that products with hydrogen peroxide or ethanol do not contain other chemicals that can cause an asthma attack such as peroxyacetic acid or peracetic acid.
  - Avoid using bleach (sodium hypochlorite) or quaternary ammonium compounds in enclosed spaces and limit their use.
  - Avoid products with fragrances. The fragrances can trigger asthma attacks.
- Make sure there is enough air flow (ventilation).

    - Open doors and windows to bring in fresh air, if it's safe to do so.
    - Improve ventilation by turning on exhaust fans. Exhausting the air (blowing it outside) is the most effective way to remove disinfectant vapors.
    - For buildings with heating or cooling systems that have fresh (outdoor) air intakes, turn on the fresh air intake to bring in fresh air.
        - Using a high efficiency filter (MERV 13 or higher) with your heating and cooling system can help keep air clean by removing particles such as smoke, pollen, and traffic pollution from the air. Most air filters will not remove disinfectant vapors, though.
        - Make sure to follow the manufacturer's instructions and to replace the filter as needed. Some systems cannot accept high efficiency filters. In this case, using the highest MERV rating possible will provide the most effective air cleaning.
- Use products safely and correctly.
    - Always follow the instructions on the product label. Do not mix chemical products together.
    - Wear protective gear such as gloves and goggles.
    - Spray or pour spray products onto a cleaning cloth or paper towel instead of spraying the product directly onto the cleaning surface (if the product label allows) to help limit exposure.
    - Follow EPA's 6 steps for Safe and Effective Disinfectant Use .
- Avoid disturbing dust because it can be an asthma trigger.
- Move away from the trigger (such as the area that was cleaned) if you experience an asthma attack, and follow your Asthma Action Plan. Call 911 for medical emergencies.

To learn more about cleaning to prevent illness in your home, including which products are effective, see *Cleaning and Disinfecting your Home*.

Other Triggers

Infections linked to influenza (flu), colds, and respiratory syncytial virus (RSV) can trigger an asthma attack. Sinus infections, allergies, pollen, breathing in some chemicals, and acid reflux can also trigger attacks.

Physical exercise; some medicines; bad weather, such as thunderstorms or high humidity; breathing in cold, dry air; and some foods, food additives, and fragrances can also trigger an asthma attack.

Strong emotions can lead to very fast breathing, called hyperventilation, that can also cause an asthma attack.

Page last reviewed: August 21, 2020

THE NEED FOR HEALTHY HOUSING

Every year in the District of Columbia, thousands of children and adults suffer from serious health problems caused or worsened by environmental health hazards. Illnesses and injuries impacted or caused by an environmental hazard are one of the main reasons why children are hospitalized in the District of Columbia. But what many parents and caregivers do not know is that the number one place a child is likely to be harmed by an environmental health hazard is in his or her own home.

Asthma, lead poisoning, unintentional injuries, and other harmful health effects can all be linked to problems within the home. The most common culprits include deteriorating or non-intact paint, excess moisture and mold, insect and rodent infestation, overuse of pesticides and other chemicals, poor ventilation, water leaks, asbestos, carbon monoxide, trip and fall hazards, and malfunctioning cooling, heating, and cooking systems.

In response to these threats, the District's Department of Energy and Environment (DOEE) launched the **DC Partnership for Healthy Homes**, an award-winning citywide project aimed at identifying and ending environmental health and safety threats in the homes of families in all eight wards. Spearheaded by DOEE's Lead and Healthy Housing Division, the Partnership is comprised of a broad coalition of District Government agencies and some of the District's most prominent medical providers, managed care organizations, nonprofits and environmental health professionals.

HEALTHY HOMES

DC PARTNERSHIP FOR HEALTHY HOMES

CONTACT US

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Washington, DC 20002

(202) 535-2600

doee.dc.gov

dchealthyhomes.com

DEPARTMENT OF ENERGY & ENVIRONMENT

WE ARE WASHINGTON DC

DEPARTMENT OF ENERGY & ENVIRONMENT

WHO WE ARE

Case managers at DOEE are public health analysts with backgrounds in nursing, social work, communications, and clinical care. Most are credentialed by the National Environmental Health Association as Healthy Homes Specialists, and most have received intensive training as professional Asthma Educators. Case managers develop customized strategies for minimizing risk and eliminating hazards for each client, by conducting home visits and coordinating efforts with medical providers and other agencies involved with the families.

Sister agency partners with key roles include code enforcement staff from the Department of Consumer and Regulatory Affairs (DCRA), hazard elimination grant staff at the Department of Housing and Community Development (DHCD), and public and subsidized housing staff from the DC Housing Authority (DCHA).

WHO OUR DISTRICT-RESIDENT CLIENTS ARE

- Households with a child less than 18 years old who has severe and poorly controlled asthma

- Households with a child less than 6 years old, or a pregnant woman

Typically, these families live in homes where maintenance has been deferred, and that may contain:

- Chipping and/or peeling paint
- Mold, water damage or leaks
- Indoor climate control or ventilation issues
- Pests (insects and/or rodents)
- Excessive household clutter
- Structural safety concerns
- Trip and fall hazards
- Tobacco use or environmental tobacco smoke

HOW THE PROGRAM WORKS

Participating health providers and social service agencies serve as frontline responders, identifying children in distress due to severe and poorly controlled asthma, lead poisoning and/or situations in which a pregnant woman is living in a hazardous home. The frontline responders refer these families to DOEE's Lead and Healthy Housing Division.

After the intake process, DOEE case managers provide participants with a comprehensive home environmental assessment, education on maintaining a Healthy Home, an asthma management diagnostic, and case management coordination. Once hazards have been identified and documented, DOEE case managers create two documents: a **Technical Assistance Report** that serves as a time-sensitive roadmap for the mitigation of identified hazards and that details the potential health issues related to those hazards, and a **Care Plan** that provides recommendations for immediately minimizing exposure to the identified health and safety threats, pending their elimination.

The Technical Assistance Report is issued to property owners and tenants and details the work that needs to be completed and the general, outcome-focused methodology that should be employed in making necessary repairs. Governed by an in-house tool called the Healthy Homes Case Management Timeline, case managers then guide clients and landlords through the hazard mitigation process and, where applicable, encourage desirable behavioral changes. The Care Plan is sent only to the client home occupant.

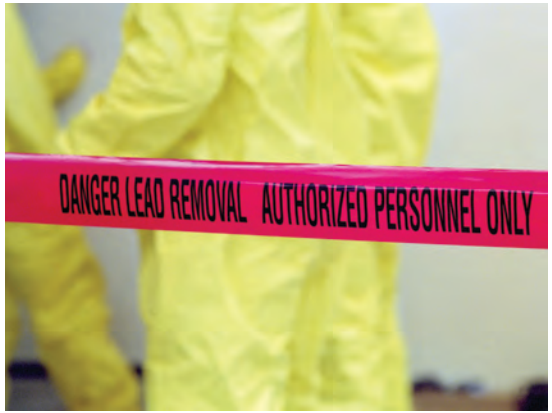
For clients who own their own home, case managers connect families to DHCD, where they may qualify for grants to eliminate hazards. For clients in public or subsidized housing, DOEE works closely with DCHA, the District's public and subsidized housing agency. DOEE may also call on enforcement assistance from DCRA when potential housing code violations are identified. Combined, the efforts these agencies make result in hazard elimination and ultimately in Healthy Homes.

SHARING INFORMATION & TRACKING OUTCOMES

DOEE uses a sophisticated database that tracks case-related information and records progress in case-related environmental interventions and in the asthma control status of its clients. Partnership members provide timely database updates on cases in which they are involved. The database features a password-protected, secure portal that allows system-approved medical providers to benefit from direct access to relevant data about their patients.

For the public, DOEE created an interactive webpage on home hazards, allowing District residents to obtain information about a variety of health risks that can exist within homes, accessible on the web at: **dchealthyhomes.com**.

DOEE's Healthy Homes program and the Partnership serve not only those District residents whose homes contain hazards, but also help educate the referring agencies about the hazards found, resulting in a broader, District-wide understanding of the environmental health threats found in the nation's capital, how best to eliminate them, and how better to communicate about health risks with District residents.



DEPARTMENT OF ENERGY & ENVIRONMENT

GOVERNMENT OF THE DISTRICT OF COLUMBIA

HEALTHY HOUSING PROGRAM
REFERRAL FORM

Program Eligibility:

- District of Columbia Resident
- Pregnant Woman and/or a Child ≤ 18 Years of Age in Home
- ≥ 1 Housing-Related Concerns

Referral Date:

Referred By:
Name: _____
Agency: _____
Phone: _____
Email: _____

BASIC DEMOGRAPHIC & CONTACT INFORMATION

Child Name: _____

O Mark circle if client is a Pregnant Woman without children currently in the household (*Specify her name as Parent/Guardian*)

Child Date of Birth: _____ **Child Gender**: M / F

Parent/Guardian Name: _____ **Email**: _____

Home Phone Number: _____ **Alternate Phone Number**: _____

Home Address: Street: _____ Zip Code: _____

HOUSING CONCERN(S): (*Check all that apply and specify severity*)

	Minor Issue		Moderate Issue		Severe Issue
O Chipping/Peeling Paint	1	2	3	4	5
O Mold	1	2	3	4	5
O Water Damage/Leaks	1	2	3	4	5
O Pests (Insects/Rodents)	1	2	3	4	5
O Excessive Household Dust	1	2	3	4	5
O Renovation/Structural Concerns	1	2	3	4	5

List the names and ages of additional children in the household if applicable: _____

_____

Other information you believe is important for us to know about this household:

Please fax this form through our secure fax line at (202) 535-2607

PREVENTING MOLD IN THE HOME

Mold spores are everywhere and can thrive in damp and humid environments.

To prevent mold from growing or returning, you must:

- Keep indoor spaces dry, clean, and at a low relative humidity, ideally 30%-50%
- Fix plumbing leaks as soon as possible
- Clean and repair roof gutters regularly
- Keep air conditioning drip pans clean and the drain lines unobstructed and flowing properly
- Protect vulnerable areas from flooding
- Keep areas prone to humidity, like kitchens and bathrooms, well ventilated with fans and windows
- Ensure appliances that produce moisture, such as clothing dryers, stoves, and kerosene heaters, vent water vapor to the outside
- Insulate cold water pipes and other areas that may collect condensation

See EPA guidance document "A Brief Guide to Mold, Moisture, and Your Home" for more information about mold prevention and control, as well as EPA guidance document "Mold Remediation in Schools and Commercial Buildings."

ASSESSING MOLD IN THE HOME

So, you think you've got mold? Before taking any step to remediate indoor mold growth, always:

- Conduct a visual inspection to determine the extent of water damage and growth.
- Use gloves and respiratory protection in the event you disturb mold growth.
  - √ A properly-fitted N-95 respirator is recommended. Visit the Occupational Safety and Health Administration's Respiratory Protection webpage for information on respirators.
  - √ Long gloves that extend to the middle of the forearm and natural rubber, neoprene, nitrile, polyurethane, or PVC are recommended.
  - √ Goggles without ventilation holes are recommended.

- Pay careful attention to the following areas:
  - √ Crawl spaces, attics, wallboards, carpets, wallpaper, behind dry wall, baseboards, insulation, paneling, ceiling tiles, or carpets and pads;
  - √ Ventilation systems like filters, insulations, coils, fins, or other places that may harbor moisture and create damp conditions;
  - √ Ceiling tiles, drywall (paper-covered gypsum wallboard), structural wood, and other cellulose containing surfaces those are susceptible to indoor mold growth when damp.

REMEMBER! If your home smells musty or those living in the area are experiencing respiratory health problems, you may have mold. Removing materials harboring hidden mold can lead to a massive release of spores. This can be very hazardous to health. Hire a licensed professional.

Also, if you believe the mold in your home is caused by contaminated water, immediately hire a professional!

See EPA guidance document "A Brief Guide to Mold, Moisture, and Your Home" for more information about mold prevention and control, as well as EPA guidance document "Mold Remediation in Schools and Commercial Buildings."

FOR MORE INFORMATION VISIT:

Department of Energy & Environment:
doee.dc.gov/service/mold

Environmental Protection Agency:
epa.gov/mold

Center For Disease Control:
cdc.gov/mold

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GOVERNMENT OF THE DISTRICT OF COLUMBIA

REMEDIATING MOLD IN MULTI FAMILY BUILDINGS

When there is more than 10 square feet of visible mold in a residential building, a DOEE-licensed professional is required to assess and remediate the situation, especially when the residence is tenant-occupied.
Visit doee.dc.gov/service/mold for a list of DOEE mold professionals.

When remediating mold less than 10 square feet, always remove mold completely in order to avoid regrowth. Always,

- Wipe or scrub mold off hard surface with water or detergent and water before drying it quickly and completely. When using any cleaning products, follow all label instructions.
- Throw away ceiling tiles, carpet, books and paper, and other absorbent or porous materials that often harbor mold.
- Do not apply paint to a moldy surface.
- Consult a specialist should mold taints your invaluable items.

Note: Biocides are substances like chlorine bleach that kills living organisms. Because dead mold can still be hazardous to health, biocides will not eliminate mold completely and therefore, they are not recommended for most mold cleanup.

If you do choose to use disinfectants or biocides, always:

- Ventilate the area, and
- Never mix chlorine bleach with other cleaning solutions or detergents that contain ammonia because it can produce toxic fumes.

A list of biocides approved by the District and EPA can be found at the National Pesticide Information Retrieval System.

See EPA guidance document "A Brief Guide to Mold, Moisture, and Your Home" for more information about mold prevention and control, as well as EPA guidance document "Mold Remediation in Schools & Commercial Buildings."

Both EPA documents correspond with the District's Mold Guidelines, which must be followed to remain in compliance with District mold regulations.

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water

Material or Furnishing Affected	Cleanup Methods†	Personal Protective Equipment	Containment
SMALL – Total Surface Area Affected Less Than 10 square feet (ft²)			
Books and papers	3	Minimum N-95 respirator, gloves, and goggles	None required
Carpet and backing	1, 3		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (Linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (Plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3		
Wallboard (Drywall and gypsum board)	3		
Wood surfaces	1, 2, 3		
MEDIUM – Total Surface Area Affected Between 10 and 100 (ft²)			
Books and papers	3	Limited or Full Use professional judgment, consider potential for remediator exposure and size of contaminated area	Limited Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area
Carpet and backing	1, 3, 4		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (Linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (Plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3, 4		
Wallboard (Drywall and gypsum board)	3, 4		
Wood surfaces	1, 2, 3		
LARGE – Total Surface Area Affected Greater Than 100 (ft²) or Potential for Increased Occupant or Remediator Exposure During Remediation Estimated to be Significant			
Books and papers	3	Full Use professional judgment, consider potential for remediator exposure and size of contaminated area	Full Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area
Carpet and backing	1, 3, 4		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (Linoleum, ceramic tile, vinyl)	1, 2, 3, 4		
Non-porous, hard surfaces (Plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3, 4		
Wallboard (Drywall and gypsum board)	3, 4		
Wood surfaces	1, 2, 3, 4		

METHODS KEY

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried). Steam cleaning may be an alternative for carpets and some upholstered furniture.

Method 2: Damp-wipe surfaces with plain water or with water and detergent solution (except wood—use wood floor cleaner); scrub as needed.

Method 3: High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

Method 4: Discard – remove water-damaged materials and seal in plastic bags while inside of containment, if present. Dispose of as normal waste. HEPA vacuum area after it is dried.

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