

# Mold Remediation

**Containment guidelines: based on the size of the infected area.**

## **Level 1 (10 sq. ft. or less): e.g. ceiling tiles, small areas on walls**

Moldy materials that can be cleaned should be cleaned using soap or detergent solution or a HEPA-vacuumed (a vacuum equipped with a High-Efficiency Particulate Air filter). Materials that cannot be cleaned should be removed from the building in a sealed plastic bag(s).



## **Level 2 (10–30 sq. ft.):**

Moldy materials that can be cleaned should be cleaned using soap or detergent solution or a HEPA-vacuumed (a vacuum equipped with a High-Efficiency Particulate Air filter). Materials that cannot be cleaned should be removed from the building in a sealed plastic bag(s).



Same steps as Level 1, plus covering working areas in plastic and tape before remediation and using a High-Efficiency Particulate Air (HEPA) filter before restoration begins.

## **Level 3 (30–100 sq. ft.) and Level 4 (over 100 sq. ft.): e.g. on separate walls in a single room**

Cover the floor, pathways, and items left in the work area with plastic sheeting and seal with tape before remediation. Seal ventilation ducts/grills and other openings in the work area with plastic sheeting. The HVAC system servicing this area may need to be shut down to properly seal vents. Moldy materials that can be cleaned should be cleaned using soap or detergent solution or a HEPA-vacuumed (a vacuum equipped with a High-Efficiency Particulate Air filter). Materials that cannot be cleaned should be removed from the building in a sealed plastic bag(s). The outside of the bags should be cleaned with a damp cloth and a soap or detergent solution or HEPA-vacuumed in the work area (or clean changing room) prior to their transport to unaffected areas of the building.



## Level 5: HVAC System(s): e.g air ducts, filters, handler, etc.

Mold growth in heating, ventilation, and air-conditioning (HVAC) systems can pose building-wide problems. Obtaining professional help should always be considered in addressing even small amounts of mold growth or moisture problems within an HVAC system. Recurring problems, regardless of size, may indicate a systemic problem and appropriate professional help should be sought.



The most common way mold treatment and remediation is conducted by specialists is through the use HEPA filters, cleaners, wet vacuums, HEPA vacuums, biocides (disinfectants), and Personal Protective Equipment (PPE). **Safety precautions are paramount in mold remediation to prevent both exposure to and spread of hazards.** Gloves, fitted goggles, disposable protective clothing, and a professionally fitted respirator typically are needed to protect individuals involved in treatment and remediation. Techniques used by some professionals to remove mold include, but are not limited to, gamma ray irradiation, steam cleaning, and washing with a detergent and bleach solution.

### Recommended Steps for Mold Cleanup

- *Wear protective gear:*
  - a) Use gloves, goggles, and a respirator rated N-95 or higher.
  
- *Isolate work area and ventilate to outdoors:*
  - a) Seal off moldy areas from the rest of the building to prevent contamination from spore releases.
  - b) Open windows:
  - c) Turn off central air systems.
  - d) Tape plastic over air grilles.
  - e) Drape plastic in stairwells if other floors are dry and clean.
  
- *Remove and dispose of moldy, porous materials in plastic bags if possible:*
  - a) Remove and discard flooded carpeting, upholstery, fabrics, and mattresses.
  - b) Clean, disinfect, and dry valuable items outside the home to attempt to salvage them.
  - c) Never reuse flooded padding.
  - d) Remove all wet, fibrous insulation.
  - e) Remove and discard heavily moldy paper-faced drywall and other paper or particle board products.
  - f) Remove all vinyl wallpaper, flooring, and other materials that may inhibit drying of interior framing.

- *Clean and sanitize:*
  - a) Remove molds; don't just kill them, because dead mold spores can have the same health effects as live spores.
  - b) Mold can be effectively removed from non-porous materials such as hard plastic, concrete, glass, metal, and solid wood. Real plaster and some paneling on walls with no insulation may be cleanable.
  - c) Follow directions carefully when using disinfectants; avoid mixing bleach with ammonia and acids.
  - d) Remove any sediment, hosing opened cavities if necessary.
  - e) Wash dirty or moldy materials with non-phosphate all-purpose cleaners. Rough surfaces may need to be scrubbed. Avoid using pressure washers, which may force water into materials.
  - f) If possible, use a HEPA-filtered vacuum to remove mold residue.
  - g) Disinfect wall cavities and other materials with ½–1 cup bleach to 1 gallon of water solution after cleaning. Use less corrosive solutions on materials that may be damaged by bleach, including air-conditioning systems. Other disinfectants include alcohols, phenolics, and hydrogen peroxide.
  
- *Use borate treatment:*
  - a) Apply to wood to resist mold, termites, and decay.
  - b) The penetrating type is more expensive, but it offers better protection.
  
- *Flush air:*
  - a) Open windows and use fans to remove lingering spores.
  
- *Speed dry:*
  - a) Close windows and use fans, air conditioners or heaters, and dehumidifiers to dry wet materials as quickly as possible.
  - b) Keep windows open if electricity is off.
  
- *Be alert for mold:*
  - a) Mold can reappear in two to three days. If it does, repeat cleaning process and use speed drying equipment and moisture meters if available.

**\*\*Do not attempt restoration until all materials have dried completely.\*\***

- *Restore using flood-resistant materials:*
  - a) If possible, use closed-cell spray foam insulation in walls, or rigid foam insulating sheathing that does not absorb water.
  - b) Choose solid wood or water-resistant composite materials.
  - c) Elevate wiring and equipment.
  - d) Consider removable, cleanable wainscoting or paneling.
  - e) Use paperless drywall.
  - f) Use restorable flooring such as ceramic tile, solid wood, or stained concrete.

## Vendor Responsibility

Reporting the presence of mold and active leaks which may lead to mold is a critical responsibility of vendors. Vendors must upload a damage report whenever mold or an active leak is present, and then bid to address the mold issue on a separate line. Failure to properly and promptly determine, report, and bid mold or active leaks will likely expose a vendor to significant financial liability.

When uploading a damage report for mold, depending on the situation, add comments warning that mold is either “present” or “could be present if not addressed”. When reporting mold damage, detail the location, cause of mold, and severity of mold.

***Large areas (greater than 10 sq ft): When bidding to address mold in a large area (greater than 10 sq ft), vendors are required to supply both types of bids listed below:***

- ◆ Mold treatment bid
- ◆ Mold remediation bid

***If the area is small (less than 10 sq ft) the bid listed below is acceptable:***

- ◆ Mold treatment bid

***Mold treatment bids should consist of the following:***

The specific amount of time it will take to complete the remediation work and a detailed warranty of the work and guarantees must be provided.

1) **Mold Source:** This line item of the bid provides information on the cause of the mold issue and how it will be fixed. Bids that do not provide a solution to the issue will not be accepted.

- ◆ Locate and list all sources of mold-causing water intrusion such as recurring flooding, plumbing leaks, leaky roofs or siding, blocked air-conditioning condensation drain lines, and high indoor humidity. List what item(s) are causing moisture; provide detailed steps and pricing for how the items will be repaired, and advise how the affected material will be removed and disposed of. i.e.: Materials used, dimensions of area and/or item, explain how the repair will be made and why it is necessary.

2) **Treatment:** This line item of the bid provides information on the steps taken to treat the affected area(s).

- ◆ If mold affected area is Level 1 - (under 10 sq ft), scrub mold off hard surfaces with an EPA registered premixed disinfectant, and dry completely. List the exact square feet of area covered and material used.
- ◆ Cost to apply an antimicrobial or mold resistant coating to the treated surfaces (KILZ). List the exact square feet of area covered and the material used.
- ◆ Bid for the installation and weekly maintenance of a Dehumidifier if needed. Bid to turn on electricity if dehumidifiers must be installed. The bid must provide the phone number and billing address for the utilities company and list meter’s serial number.
- ◆ If absorbent or porous materials such as ceiling tiles and carpet are moldy, bid to throw away and dispose of them properly. List the exact square foot of affected area, material type, and means of removal and disposal.

***Mold Remediation bids should consist of the following:***

The specific amount of time it will take to complete the remediation work must be provided. The bid needs to be broken into ***four*** separate line item parts: ***Mold Source, Demo, Treatment, and Rehab***. Bids not broken into these sections will not be accepted.

- 1) **Mold Source Line:** This line item of the bid provides information on the cause of the mold issue and how it will be fixed. *Open only the walls, ceilings, and floors absolutely necessary to aerate and treat the affected area(s).*
  - ◆ Locate and list all sources of mold-causing water intrusion such as recurring flooding, plumbing leaks, leaky roofs or siding, blocked air-conditioning condensation drain lines, and high indoor humidity. List what item(s) are causing moisture; provide detailed steps and pricing for how the items will be repaired, and advise how the affected material will be removed and disposed of. i.e.: Materials used, dimensions of area and/or item, explain how the repair will be made and why it is necessary.
  
- 2) **Demo Line:** This line item of the bid provides information on how the mold in the affected area will be removed.
  - ◆ Advise in detail the dimensions of the affected area. i.e.: square feet of room(s) affected, exact section(s) of the affected area(s), or any other pertinent information should be listed.
  - ◆ Provide a cost to remove all wet carpeting, wet ceiling tiles, damaged wood, damaged articles, wet materials, and correctly dispose of them to local compliance standards. List the exact square foot of affected area, material type, and how the contaminated materials will be handled and removed from the property.
  - ◆ List products to be during the demo as well as a cost breakdown and total price cap. Itemized list of materials (e.g., lumber, wallboard, carpet and padding, paint) required to complete the demolition.
  
- 3) **Treatment Line:** This section of the bid will provide detailed steps for how the affected areas will be treated once the source of the moisture or leaking has been repaired. List the exact square foot of affected area, material type, and how the contaminated materials will be handled and removed from the property.
  - ◆ Open walls, ceilings, and floors only if absolutely necessary to aerate and treat. List the dimensions of the area opened with detailed reasons why it was necessary.
  - ◆ Advise if the use of dehumidifiers in the wet areas is necessary and advise if electricity is off at the property. List the utility companies name and phone number as well as the meter serial number installed at the property. Provide man hours and the cost per hour for the operation of the dehumidifier(s).
  - ◆ Advise the products to be used as well as a cost breakdown and total price cap. Itemized list of materials (e.g., lumber, wallboard, carpet and padding, paint) required to complete the treatment.
  - ◆ Cleanup procedures and products to be used as well as a cost breakdown and total price cap. Itemized list of materials (e.g., lumber, wallboard, carpet and padding, paint) required to complete the remediation.

4) **Rehab Line:** This section of the bid will provide detailed steps for how the affected areas will be rehabbed once the demo and rehab stages have been completed.

- ◆ Provide the specific amount of time it will take to complete the rehab work and give a detailed warranty of the work and guarantees.
- ◆ Detailed steps and pricing for how the affected areas will be repaired once the mold has been remediated. Dimensions of the area along with model and manufacture numbers must be included. You must also include the steps needed to be taken to limit the event of the mold returning.
- ◆ List the exact square foot of the rehab area and materials used to complete. Provide a cost breakdown and total price cap. Itemized list of materials (e.g., lumber, wallboard, carpet and padding, paint) required to complete the treatment.
- ◆ Cleanup procedures and products to be used as well as a cost breakdown and total price cap. Itemized list of materials (e.g., lumber, wallboard, carpet and padding, paint) required to complete the rehab.

### **Helpful Link:**

- 1) **Guidelines on Assessment and Remediation of Fungi in Indoor Environments.**  
<http://home2.nyc.gov/html/doh/html/epi/moldrpt1.shtml>
- 2) **U.S. Environmental Protection Agency – Mold**  
<http://www.epa.gov/mold/>