Mold

Hiring a Mold Remediation Contractor

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This publication was funded by a generous donation from Curtis T. Bell, in memory of his parents, Ben and Jo.

Hurricanes Katrina and Rita and the resulting floods and extended evacuations caused unprecedented mold damage to homes in 2005—and created a cleanup crisis. Yet, anyone with a flood-damaged home faces similar challenges because mold infestation must be remediated (or removed) before repairs can begin. This process can be hazardous because of potential health threats posed by mold, bacteria, other contaminants, and structural damage.

Although there is no such thing as "toxic mold," some molds are toxigenic, that is, they can produce and contain toxins. People react differently to the presence of mold—some may have no adverse health reaction to airborne mold spores, while others may experience severe illness from low-level exposure.

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Contractors

Hiring a qualified contractor for mold remediation is not required but is generally safer and more effective than a "do-it-yourself" approach because of the use of specialized equipment. In either case, you should carefully follow safety precautions to reduce exposure to mold. These include the use of protective clothing, a respirator, and eye protection.

A list of licensed mold remediation contractors from the Louisiana State Licensing Board for Contractors' web site is available at www.lslbc.state.la.us. Since July 1, 2004, any person who makes an offer to bid on or contract projects requiring mold remediation services valued at $1 and up in Louisiana must hold a Mold Remediation Contractor's License with the State of Louisiana Licensing Board for Contractors. To obtain a license for this type of work, a contractor must meet certain educational requirements. In addition, Louisiana requires that professionals who apply any biocide also need a pesticide applicator's license from the Louisiana Department of Agriculture.

A professional contractor should follow specific procedures and use equipment recommended by the National Center for Healthy Housing. "Recommended Steps for Mold Cleanup in Flooded Homes" (next page) is included so that you can evaluate proposed procedures and make the best decision when hiring a contractor for mold remediation.

The Contract

The following points should be included in a contract with a mold remediator:[1]

- Diagram or survey that details square feet, rooms, or sections of the area in which remediation will be done.
- Specific amount of time it will take to complete the remediation work.
- Itemized list of materials (e.g., lumber, wallboard, carpet and padding, paint) required to complete the remediation.
- Who (homeowner or contractor) will provide the renovation materials.
- How the contaminated materials will be handled and whether the homeowner or contractor will remove debris from the site.
- Detailed warranties of work and guarantees on remediation.
- Cleanup procedures and products to be used as well as a cost breakdown and total price cap.

Obtain at least three estimates before signing a contract. Ask for proof of education or training sessions on mold remediation and check with the education or training firms specified to determine that the contractor has actually completed the program or certification. Ask for references from clients for whom the contractors have performed mold remediation work.

Removing Mold

Remediation professionals remove mold using a variety of methods depending on the size and complexity of the contamination as well as the technology available to the contractor. A widely followed remediation protocol is the Environmental Protection Agency's *Mold Remediation in Schools and Commercial Buildings*, available online at www.epa.gov/mold. The basic methods and principles are a good guide for professional remediation of any building, including homes, so it's a good idea to review this document.

Another commonly relied-upon set of containment guidelines are those developed by the New York City Department of Health.[2] The guidelines outline four levels of contamination based on the size of the infected area and a fifth for contaminated HVAC systems.[3]

- **Level 1 (10 sq. ft. or less):** remediation usually involves cleaning and salvaging non-porous materials with a detergent solution and removing non-salvageable contaminated porous materials.
- **Level 2 (10–30 sq. ft.):** 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.
- **Levels 3 (30–100 sq. ft.) and 4 (over 100 sq. ft.):** involve specialized techniques for removing hazardous materials.
- **Level 5:** used for contaminated HVAC systems.

Mold remediation specialists typically use HEPA filters, cleaners, wet vacuums, HEPA vacuums, biocides (disinfectants), and Personal Protective Equipment (PPE).[4] 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 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. A study of these techniques found the detergent and bleach solution to be the most effective, followed by gamma ray irradiation.[5] Some firms use other techniques and products such as blasting with sodium bicarbonate (baking soda) to remove mold and inhibit its regrowth, or "tenting" with chlorine dioxide gas to kill mold without gutting and discarding materials. It is not yet known, however, to what extent such methods remove the risks posed by the residue of dead mold, chemical reactions, or long-term effects on the building materials.

New technological developments in the cleaning and restoration industry have led to an increasing number of companies in the field. The variety of choices can make it difficult for consumers to be certain the company they contract with will be worth the investment. Thus experts suggest working with businesses certified by organizations such as the Association of Specialists in Cleaning and Restoration (www.ascr.org), the Institute of Inspection, Cleaning, and Restoration Certification (www.certifiedcleaners.org), or the American Indoor Air Quality Council (www.iaqcouncil.org).

Recommended Steps for Mold Cleanup in Flooded Homes[6]

1. **Wear protective gear.**
   - Use gloves, goggles, and a respirator rated N-95 or higher.
2. **Isolate work area and ventilate to outdoors.**
   - Seal off moldy areas from the rest of the building to prevent contamination from spore releases.
   - Open windows.
   - Turn off central air systems.
   - Tape plastic over air grilles.
   - Drape plastic in stairwells if other floors are dry and clean.
3. **Remove and dispose of moldy, porous materials in plastic bags if possible.**
   - Remove and discard flooded carpeting, upholstery, fabrics, and mattresses.
   - Clean, disinfect, and dry valuable items outside the home to attempt to salvage them.
   - Never reuse flooded padding.
   - Remove all wet, fibrous insulation.
   - Remove and discard heavily moldy paper-faced drywall and other paper or particle board products.
   - Remove all vinyl wallpaper, flooring, and other materials that may inhibit drying of interior framing.
4. **Clean and sanitize.**
   - Remove molds, don't just kill them, because dead mold spores can have the same health effects as live spores.
   - 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.
   - Follow directions carefully when using disinfectants; avoid mixing bleach with ammonia and acids.
   - Remove any sediment, hosing opened cavities if necessary.
   - 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.
   - If possible, use a HEPA-filtered vacuum to remove mold residue.
   - 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.
5. **Use borate treatments.**
   - Apply to wood to resist mold, termites, and decay.
   - The penetrating type is more expensive, but it offers better protection.
6. **Flush air.**
   - Open windows and use fans to remove lingering spores.
7. **Speed dry.**
   - Close windows and use fans, air conditioners or heaters, and dehumidifiers to dry wet materials as quickly as possible.
   - Keep windows open if electricity is off.
8. **Be alert for mold.**
   - Mold can reappear in two to three days. If it does, repeat cleaning process and use speed drying equipment and moisture meters if available.
9. **Do not attempt restoration until all materials have dried completely.**
10. **Restore using flood-resistant materials.**
    - If possible, use closed-cell spray foam insulation in walls, or rigid foam insulating sheathing that does not absorb water.
    - Choose solid wood or water-resistant composite materials.
    - Elevate wiring and equipment.
    - Consider removable, cleanable wainscoting or paneling.
    - Use paperless drywall.
    - Use restorable flooring such as ceramic tile, solid wood, or stained concrete.

ENDNOTES

1 Renchie, D. L. *Selecting Mold Remediation Contractors.* Texas A&M University System. *http://texashelp.tamu.edu/011-disaster-by-stage/recovery/ER-027-Selecting-Mold-Remediation-Contractors.php* (retrieved 12/2/05).

2 *Guidelines on Assessment and Remediation of Fungi in Indoor Environments.* New York City Department of Health, Bureau of Environmental and Occupational Disease Epidemiology, *http://home2.nyc.gov/html/doh/html/epi/moldrpt1.shtml* (retrieved 6/7/06).

3 Sumpano, L. V. *et al. A Proactive Approach to Indoor Mold.* Alabama Association of Realtors. *www.realtor.org/letterlw.nsf/23e5e39594c064ee852564ae004fa010/49e133bf827ff63386256bdd0066ecda/$FILE/Mold%20Paper%20rwh%20rev%202-27.doc* (retrieved 6/7/06).

4 Wilson, S. *et al.* "Investigation into Techniques for Cleaning Mold-Contaminated Home Contents." *Journal of Occupational and Environmental Hygiene* 1(7): 442–447. July 2004. *http://taylorandfrancis.metapress.com/(dneylvzmj22jco55y5qhxe45)/app/home/contribution.asp?referrer=parent&backto=issue,9,13;journal,25,31;linkingpublicationresults,1:110614,1* (retrieved 6/7/06).

5 *Mold Remediation in Schools and Commercial Buildings,* EPA. *www.moldlaw.info/pdf/181274_1.pdf* (retrieved 6/7/06).

6 The complete version, created by Claudette Hanks Reichel, is in "Mold Removal Guidelines for Your Flooded Home," available at *www.lsuagcenter.com.*

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Produced by Office of Publications and Marketing at Cornell University 1/07 14M GP 070237
Printed on recycled paper.