

MOLD REMEDIATION – KEY STEPS

The EPA has developed the following guidelines for mold remediation managers. These guidelines are generally helpful, but we believe an expert in the industry should be consulted and a more specific response plan for adjusters be created.

- Consult health professional as appropriate throughout process;
- Select remediation professional;
- Assess size of mold problem and note type of mold-damaged materials;
- Communicate with building occupants throughout process as appropriate to situation;
- Identify source or cause of water or moisture problem;
- Plan remediation, adapt guidelines to fit situation, see Table 1 & Table 2;
- Remediate;
- Fix water or moisture problem;
- Clean and dry moldy materials; see Table 2;
- Discard moldy items that can't be cleaned;
- Dry non-moldy items within 48 hours; see Table 1;
- Check for return of moisture and mold problem;
- Schedule inspection

TABLE 1: Water Damage Cleanup and Mold Prevention (6)

This table presents strategies to respond to water damage within 24-48 hours. These guidelines are designed to help avoid the need for remediation of mold growth by taking quick action before growth starts. If mold growth is found on the materials listed in Table 1, refer to Table 2 for guidance on remediation.

Table 1: Water Damage – Cleanup and Mold Prevention	
Water-Damaged Material†	Actions
Books and papers	<ul style="list-style-type: none"> • For non-valuable items, discard books and papers • Photocopy valuable/important items, discard originals • Freeze (in frost-free freezer or meat locker) or freeze-dry
Carpet and backing – dry within 24-48 hours§	<ul style="list-style-type: none"> • Remove water with water extraction vacuum • Reduce ambient humidity levels with dehumidifier • Accelerate drying process with fans
Ceiling tiles	<ul style="list-style-type: none"> • Discard and replace
Cellulose insulation	<ul style="list-style-type: none"> • Discard and replace
Concrete or cinder block surfaces	<ul style="list-style-type: none"> • Remove water with water extraction vacuum • Accelerate drying process with dehumidifies, fans and/or heaters

Table 1: Water Damage – Cleanup and Mold Prevention

Water-Damaged Material†	Actions
Fiberglass insulation	<ul style="list-style-type: none"> • Discard and replace
Hard surface, porous floorings§ (Linoleum, ceramic tile, vinyl)	<ul style="list-style-type: none"> • Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary • Check to make sure underflooring is dry; dry underflooring if necessary
Non-porous, hard surfaces (Plastics, metals)	<ul style="list-style-type: none"> • Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary
Upholstered furniture	<ul style="list-style-type: none"> • Remove water with water extraction vacuum • Accelerate drying process with dehumidifiers, fans, and/or heaters • May be difficult to completely dry within 48 hours. If the piece is valuable, you may wish to consult a restoration/water damage professional who specializes in furniture
Wallboard (Drywall and gypsum board)	<ul style="list-style-type: none"> • May be dried in place if there is no obvious swelling and the seams are intact. If not, remove, discard, and replace • Ventilate the wall cavity, if possible
Window drapes	<ul style="list-style-type: none"> • Follow laundering or cleaning instructions recommended by the manufacturer
Wood surfaces	<ul style="list-style-type: none"> • Remove moisture immediately and use dehumidifiers, gentle heat, and fans for drying. (Use caution when applying heat to hardwood floors.) • Treated or finished wood surfaces may be cleaned with mild detergent and clean water and allowed to dry • Wet paneling should be pried away from wall for drying

Table 1: Water Damage – Cleanup and Mold Prevention

Water-Damaged Material†	Actions
	<p>* If mold growth has occurred or materials have been wet for more than 48 hours, consult Table 2 guidelines. Even if materials are dried within 48 hours, mold growth may have occurred. Items may be tested by professionals if there is doubt. Note that mold growth will not always occur after 48 hours; this is only a guideline.</p> <p>These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then Personal Protective Equipment and containment are required by OSHA. An experienced professional should be consulted if you and/or your remediators do not have expertise remediating in contaminated water situations. Do not use fans before determining that the water is clean or sanitary.</p> <p>† If a particular item(s) has high monetary or sentimental value, you may wish to consult a restoration/water damage specialist.</p> <p>§ The subfloors under the carpet or other flooring material must also be cleaned and dried. See the appropriate section of this table for recommended actions depending on the composition of the subfloor.</p>

TABLE 2: Mold Remediation Guidelines (7)

This table presents remediation guidelines for building materials that have or are likely to have mold growth. The guidelines in Table 2 are designed to protect the health of occupants and cleanup personnel during remediation. These guidelines are based on the area and type of material affected by water damage and/or mold growth.

In cases in which a particularly toxic mold species has been identified or is suspected, when extensive hidden mold is expected (such as behind vinyl wallpaper or in the HVAC system), when the chances of the mold becoming airborne are estimated to be high, or sensitive individuals (e.g., those with severe allergies or asthma) are present, a more cautious or conservative approach to remediation is indicated. Always make sure to protect remediators and building occupants from exposure to mold.

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*			
Materials 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 and drapes	1, 3		
Wallboard (drywall and gypsum board)	3		
Wood surfaces	1, 2, 3		

Table 2: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*			
Materials or Furnishing Affected	Cleanup Methods†	Personal Protective Equipment	Containment
MEDIUM – Total Surface Area Affected Between 10 and 100 (ft²)			
Books and papers	3	Limited or Full Use professional judgment, consider potential for remediators exposure and size of contaminated area	Limited Use professional judgment, consider potential for remediators/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 and 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 remediators/occupant exposure and size of contaminated area	Full Use professional judgment, consider potential for remediators 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 and drapes	1, 2, 4		
Wallboard (drywall and gypsum board)	3, 4		
Wood surfaces	1, 2, 3, 4		

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

Materials or Furnishing Affected	Cleanup Methods†	Personal Protective Equipment	Containment
<p>* Use professional judgment to determine prudent levels of Personal Protective Equipment and containment for each situation, particularly as the remediation site size increases and the potential for exposure and health effects rises. Assess the need for increased Personal Protective Equipment, if during the remediation, more extensive contamination is encountered than was expected. Consult Table 1 if materials have been wet for less than 48 hours, and mold growth is not apparent. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then the Occupational Safety and Health Administration (OSHA) requires PPE and containment. An experienced professional should be consulted if you and/or your remediators do not have expertise in remediating contaminated water situations.</p>			
<p>† Select methods most appropriate to situation. Since molds gradually destroy the things they grow on, if mold growth is not addressed promptly, some items may be damaged such that cleaning will not restore their original appearance. If mold growth is heavy and items are valuable or important, you may wish to consult a restoration water damage/remediation expert. Please note that these are guidelines; other cleaning methods may be preferred by some professionals.</p>			
<p>Cleanup Methods</p>			
<ul style="list-style-type: none"> ● <u>Method 1:</u> 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. ● <u>Method 2:</u> Damp-wipe surfaces with plain water or with water and detergent solution (except wood – use wood floor cleaner); scrub as needed. ● <u>Method 3:</u> 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. ● <u>Method 4:</u> 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. 			
<p>Personal Protective Equipment (PPE)</p>			
<ul style="list-style-type: none"> ● <u>Minimum:</u> Gloves, N-95 respirator, goggles/eye protection ● <u>Limited:</u> Gloves, N-95 respirator or half-face respirator with HEPA filter, disposable overalls, goggles/eye protection ● <u>Full:</u> Gloves, disposable full body clothing, head gear, foot coverings, full-face respirator with HEPA filter 			
<p>Containment</p>			
<ul style="list-style-type: none"> ● <u>Limited:</u> Use polyethylene sheeting ceiling to floor around affected area with a slit entry and covering flap; maintain area under negative pressure with HEPA filtered fan unit. Block supply and return air vents within containment area ● <u>Full:</u> Use two layers of fire-retardant polyethylene sheeting with one airlock chamber. Maintain area under negative pressure with HEPA filtered fan exhausted outside of building. Block supply and return air vents within containment area. 			

PLAN THE REMEDIATION BEFORE STARTING THE WORK

Questions to Consider Before Remediating

- Are there existing moisture problems in the building?
- Have building materials been wet more than 48 hours? (See Table 2 and text)
- Are there hidden sources of water or is the humidity too high (high enough to cause condensation?)
- Are building occupants reporting musty or moldy odors?
- Are building occupants reporting health problems?
- Are building materials or furnishings visibly damaged?
- Has maintenance been delayed or the maintenance plan been altered?
- Has the building been recently modeled or has building use changed?
- Is consultation with medical or health professionals indicated?