

# Responding to Water Damage and Preventing Mold Growth



## Overview

While mold is naturally occurring in the environment, excessive mold growth (e.g., fungal buildup) in indoor spaces can cause structural and property damage. Mold can also lead to allergic reactions and other adverse health effects in building occupants, particularly for those who are immune-compromised.

Since mold requires moisture to grow, leaks and other sources of moisture must be repaired as soon as they are discovered. Building materials and other items that become water damaged should also be addressed, ideally within 48 hours, using the guidelines below to prevent excessive mold growth.

## Applicability

This Update aims to prevent fungal amplification and water damage in buildings, both in occupied spaces and spaces under construction, by outlining the proper cleanup and remediation procedures for different types of water damage. These guidelines do not apply to areas where there is evidence of existing mold contamination unrelated to flooding or water intrusion events.

The procedures in this Update are separated into categories based on the type of water damage (i.e., clean vs. dirty water) and the amount of time (greater / less than 48 hours) that the materials have been wet.

## Definitions

- **Clean Water** means any water known not to contain sewage or significant contamination, and includes steam, water known to be from a potable source (e.g., sinks, showers, sprinklers) and rainwater.
- **Dirty Water** is known or suspected to contain sewage, chemical, or biological pollutants. Ground and floodwaters should be considered dirty water when the exact source is unknown.

## Responsibilities

- **Environmental Health and Safety (EHS)** provides guidance to E&M, building occupants, and contractors on evaluating and remediating (cleaning and drying) water-damaged areas; and performs assessments to determine the potential for fungal amplification and the need for environmental testing or sampling.
- **Engineering and Maintenance (E&M)** repairs or contains water infiltrations in a timely manner, cleans or replaces materials damaged by water, and coordinates the use of WCM equipment to dry affected spaces using these guidelines.
- **Capital Planning / Project Managers** ensure that contractors, if necessary, promptly remediate water damage in a manner consistent with these guidelines.
- **Building Occupants** notify E&M of leaks and/or water damage as soon as they are discovered, and communicate with EHS regarding any affected property or work practice functions. Occupants at off-site locations (not serviced by E&M) must notify both the building manager for the area and EHS upon finding water damage.

## Procedure

### NOTIFICATIONS

Upon finding a leak or flood which has resulted in water damage, building occupants must contact:

1. **E&M at 212-746-2288 immediately to address the source of water infiltration, and**
2. **EHS at 646-962-7233 to assess the damage and coordinate remediation.**

Occupants at off-campus facilities not serviced by E&M must notify the building's services provider for their space to address the source of water infiltration and EHS to assess the damage and assure that remediation activities are appropriate. If the event occurs in an unoccupied space (i.e., under construction), the Project Manager, or another responsible person, must notify EHS.

*Note: Clean-up and repair activities in areas that include or impact New York-Presbyterian Hospital (NYP) space or any joint NYP and WCM space (i.e., covered under Article 28 of the New York State Public Health Laws) must be coordinated with NYP Epidemiology/Infection Control.*



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### SAFETY PRECAUTIONS

Prior to commencing clean-up activities, the work area should be reviewed for potential safety hazards such as electrical hazards or unsafe structures.

In addition, building materials that were either damaged as part of the water event or will need to be disturbed as part of the clean-up should be assessed for hazards, such as asbestos or lead-based paint, and whether the water is clean or dirty. Contact EHS for assistance in assessing workplace safety hazards.

- The water source should be assessed to determine if it is clean or dirty.
- All electrical equipment affected or potentially affected should be turned off, unplugged, moved to the tops of surfaces, and covered with plastic if applicable.
- Employees should leave the work area while the flood is actively occurring and during the ongoing cleanup unless assisting EHS or E&M.
- All equipment used for drying that is plugged into outlets where significant amounts of water are present must utilize ground-fault circuit interrupter (GFCI) capability.
- Tripping hazards created by electrical cords from fans or blowers should be minimized where possible.
- EHS will assist with the proper precautions and remediation measures needed if lead or asbestos hazards are an issue in conjunction with water and flood damage.
- Do not alter, unplug, or turn off any fans or dehumidifiers placed in your space, as these are present in order to prevent mold growth and permanent water damage. If noise is a concern, contact EHS.

### CLEAN WATER PROCEDURES

Once the source of the water has been identified and repaired, immediate action must be taken to identify all impacted areas and to minimize the spread of moisture and water damage. This may include actions to collect or contain water, such as damming or diverting it. Once the spill has been contained, all excess water should be extracted with pumps or wet-dry vacuums and drying facilitated by using dehumidifiers and fans/blowers.

In addition to these measures, the following guidelines should be followed to address water-damaged materials when the source of the damage was clean water, and there is no evidence of mold growth.

Materials	Dry Within 48 Hours
Carpet and backing, upholstered furniture and concrete or cinder block surfaces	<ul style="list-style-type: none"> <li>▪ Remove water with a water extraction vacuum.</li> <li>▪ Reduce ambient humidity levels with dehumidifier.</li> <li>▪ Accelerate the drying process with fans.</li> <li>▪ Carpets that are in good condition, show no evidence of mold growth (staining or odor) and do not have a porous underlayment/backing can be steam cleaned or shampooed with a disinfecting cleaner, dried and HEPA-vacuumed.</li> <li>▪ Carpets that cannot be dried adequately or show evidence of mold growth must be discarded and replaced.</li> <li>▪ Upholstered furniture may be difficult to dry completely within 48 hours. If the piece is valuable, you may wish to consult a restoration/water damage professional who specializes in furniture.</li> </ul>
Ceiling tiles and insulation	<ul style="list-style-type: none"> <li>▪ Discard and replace.</li> </ul>
Hard surface, porous flooring (Linoleum, ceramic tile, vinyl)	<ul style="list-style-type: none"> <li>▪ Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.</li> <li>▪ Check to make sure underflooring is dry; dry underflooring if necessary.</li> </ul>
Wallboard (drywall and gypsum board)	<ul style="list-style-type: none"> <li>▪ May be dried in place if there is no visible swelling, and the seams are intact. If not, remove, discard, and replace.</li> <li>▪ Ventilate the wall cavity, if possible.</li> <li>▪ Remove baseboards from affected areas to prevent water from being trapped between the baseboard and the wall.</li> <li>▪ Notify EHS of the condition.</li> </ul>
Wallboard (drywall and gypsum board)	<ul style="list-style-type: none"> <li>▪ Use a moisture meter to identify and mark all areas of water damage remaining after 48 hours.</li> <li>▪ Depending on the location, the extent of the water damage, and the environmental conditions, it may be necessary to remove and replace all water damaged wallboard.</li> </ul>



Materials	Dry Within 48 Hours
Non-porous, hard surfaces (Plastics, metals)	<ul style="list-style-type: none"> <li>Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.</li> </ul>
Wood surfaces	<ul style="list-style-type: none"> <li>Remove moisture immediately and use dehumidifiers, gentle heat, and fans for drying. (Use caution when applying heat to hardwood floors.)</li> <li>Treated or finished wood surfaces may be cleaned with mild detergent and clean water and allowed to dry.</li> <li>Wet paneling should be pried away from the wall for drying.</li> </ul>
Books and papers	<ul style="list-style-type: none"> <li>For non-valuable items, discard books and papers.</li> <li>Photocopy valuable/important items, discard originals.</li> <li>Freeze (in frost-free freezer or meat locker) or freeze-dry.</li> </ul>

### DIRTY WATER PROCEDURES

Water damage caused by any source of water must be remediated as quickly and as thoroughly as possible to prevent fungal amplifications. However, when the water is contaminated, further actions are required than those listed in the previous section to minimize the risk of exposure to infectious or hazardous agents. **If the source of water is known or suspected to be contaminated with sewage, chemical or biological pollution, the guidelines below should be followed.**

#### Sewage / Biological – Work Procedures

Employees engaged in cleanup of areas where there is significant water damage caused by sewage leaks or backups must have the following controls in place:

- Training in both Bloodborne Pathogens and Hazard Communications.
- Personal Protective Equipment (PPE). Proper PPE includes waterproof gloves, boots, and eye protection at a minimum. Contact EHS for assistance with selecting appropriate types of PPE.
- Gloves must be changed frequently, including after any tearing or noticeable damage is detected.
- Cleanup methods selected should minimize the potential for exposure via the nose, mouth, and open wounds, or by inhalation of aerosols or dusts.
- The work area should be contained in a manner that prevents the cross-contamination of other areas.
- No eating or drinking in the contaminated area.
- Wash hands thoroughly after removing gloves and before leaving the work area.

#### Sewage / Biological – Cleanup Procedures

Once the source of the leak has been repaired, and regardless of the amount of time in which materials have been wet, the following cleanup methods should be used in addition to those listed in the previous section:

- Discard (in a controlled manner) and replace all contaminated carpets, ceiling tiles, upholstered furniture, and sheetrock.
- Clean all hard and impervious surfaces using a mild detergent and disinfect by rinsing with a 1/10 bleach to water solution.

#### Chemical Procedures

**If you know or have reason to suspect that there is chemical contamination, contact EHS immediately for an assessment.**

### POST-CLEANUP PROCEDURES

As soon as possible after the completion of any required remediation actions, the responsible person must notify EHS who will assess the area(s) to determine the potential for fungal amplification and the need for environmental testing or sampling.

### References

- U.S. Environmental Protection Agency, Mold Remediation in Schools and Commercial Buildings: <http://www.epa.gov/mold/pdfs/moldremediation.pdf>
- University of Minnesota, Department of Environmental Health and Safety, Managing Water Infiltration into Buildings: [http://www.dehs.umn.edu/iaq\\_fi.htm](http://www.dehs.umn.edu/iaq_fi.htm)