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Responding to Water Damage and Preventing Mold Growth
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Overview

Indoor mold growth can cause structural and property damage, as well as lead to allergic reactions and other adverse health effects in building occupants. Addressing leaks and other sources of moisture as soon as they are discovered (within 48 hours) is important in preventing mold growth.

Definitions

Category 1 (Clean): water known to be from a potable source (e.g., sinks, sprinklers), rain water, and steam.

Category 2 (Gray): water with potential chemical, biological and/or physical contamination from a source e.g. storm drain backups, treated cooling water.

Category 3 (Dirty): highly contaminated water, usually from sewers. Ground and flood waters should be considered dirty water when the exact source is unknown.

Building/Facilities Classifications:

    i. Class 1 Building- Public Safety, High Hazard/Lab Research, Cultural Properties, Data Center, specialized equipment, utilities

    ii. Class 2 Building- Housing, Day Care, Dining

    iii. Class 3 Building- Classroom, general office building

Notifications

Upon discovery of a leak or flood, occupants must contact Facilities at x5885 immediately to address water infiltration. The project manager or other responsible person should contact Facilities if the water infiltration occurs in an unoccupied space. If the flood is related to release of water through a sprinkler head, the lead response will be by the FDNY in coordination with Campus Public Safety Fire Director. Facilities/Public Safety involve EHS in initial response if flood is located in hazardous materials location e.g. lab, damages asbestos containing building material, involves Category 3 dirty water, or involves any other EHS matter.

Safety Precautions

The work area should be reviewed for potential physical danger, such as electrical hazards, falling materials, chemicals. Building materials in the area that may be affected should be assessed for hazards such as asbestos or lead based paint. Contact EHS for assistance.

Category 1 Clean Up Procedures

1. Responders to identify source of flood/water intrusion and work to safely stop active flooding. Determine scope of flooding and source of water, i.e. category.

2. Evaluate migration path and potential for hazards. Bring in additional departments/trades as warranted as necessary.

3. Use containers to catch the water until the leak is fixed. Post signs warning of water on the floors.

4. Protect undamaged materials and areas with plastic, dams, or by relocating items.

5. Most flood waters can be safely cleaned up with wet shop vacuums and absorbent materials. Floods involving Category 3 water require disinfection and use of additional safety precautions (see "Category 2/3 Clean up Procedures below).

6. Representatives from special locations (Class 1 and 2 buildings) should be notified of any flood event.

7. Address condensation puddles in heavily trafficked areas with frequent mopping, signage, and/or walk off mats.

8. Use dehumidifiers, fans and air conditioning to reduce the humidity.

9. Clean non-moldy materials using EPA guidelines below. Non-porous floors and surfaces can be cleaned with a detergent solution. The use of a chemical or biocide that kills organisms such as mold (chlorine bleach, for example) is not needed or recommended.

10. If mold-affected area is greater than 10ft^2, consult with EHS. Occupancy may be restricted until moldy materials are cleaned or removed. Staff performing clean up should wear N-95 respirator, eye protection, and gloves at a minimum when cleaning mold. This work may require the temporary relocation of occupants, installation of filtered exhaust air to keep the space under negative pressure, erection of plastic barriers at doors, and either covering the diffusers or temporarily shutting down the supply and exhaust air systems.

11. Communicate with the occupants affected by mold about the leak and when the office can occupied.

12. 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

Category 2 or 3 Clean-up Procedures

1. Staff performing clean up in areas significantly damaged by sewage-contaminated water must have had Bloodborne Pathogen training in addition to general Hazard Communication training.

2. Staff must be provided PPE including waterproof gloves, boots and eye protection at a minimum.

3. Use work methods that minimize personal exposure and cross-contamination with unaffected areas.

4. Disinfection using Frequency 64 or 1/10 bleach solution with a contact time of 10 minutes should be used.

5. Remove sewage solids, scrub surface (as warranted), drain the area, and let dry

6. Disinfect mops, brooms and brushes and/or replace frequently.

7. Dispose of used protective equipment & other items that can't be disinfected

8. Non-porous items and hard surfaces (concrete floors, plaster walls that are not saturated) can usually be cleaned. Disinfect after the area has been drained.

9. Any porous item that has come into contact with sewage-tainted water is considered contaminated and must be discarded. This includes carpet, drywall and ceiling tiles as well as other items such as books and paper products.

13. Upholstery or, loose rugs, drapery, and so on should be professionally cleaned

14. Wash hands before eating, drinking, smoking, etc..

15. If chemical contamination is suspected, contact EHS for an assessment.

Guidance for Category 1 Clean Up

Materials	Dry Within 48 Hours
Carpet and backing, upholstered furniture and concrete or cinder block surfaces	Remove water with water extraction vacuum. Use dehumidifier to reduce ambient humidity levels. Accelerate drying process with fans.
Ceiling tiles and insulation	Discard and replace.
Non-porous, hard materials/surfaces e.g. tile flooring, metal cabinets	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.
Wallboard (drywall and gypsum board)	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. Ventilate the wall cavity, if possible. Use a moisture meter to identify and mark all areas of water damage remaining after 48 hours.
Wood surfaces	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.
Books and papers	Discard non-valuable items. Photocopy valuable/important items, discard originals. Seek additional guidance for remediating mold-damaged valuables.
Carpet and backing	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. Carpets that cannot be dried adequately or show evidence of mold growth must be discarded and replaced.
Upholstered furniture	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.

NYC Mold Guidelines for Assessment and Remediation
https://www1.nyc.gov/assets/doh/downloads/pdf/epi/epi-mold-guidelines.pdf

EPA Mold Remediaiton in Schools and Commercial Buildings
https://www.epa.gov/mold/mold-and-indoor-air-quality-schools

Preventative Measures

- Periodically and immediately after a major rain event expected to result in damage inspect key locations with water problems to find leaks, moldy/water stained tiles and other materials. Inspect flat roofs immediately after a rainfall for standing water and clogged drain leaders. On flat roofs, remove debris, unclog drains, and sweep standing water into the drains. Inspections of downspouts and gutters requiring access by crane should be coordinated with DASNY. Additionally, inspect interior spaces associated with known leaking downspouts/leaders.

- Regular exterior ground keeping maintenance to facilitate drainage of rain water, including clearing leaves from drains, dry wells, window wells, etc..

- Repair leaks associated with Mechanical Rooms and HVAC equipment including periodic purging of condensate pans and sealing pans/lines.

- Repair or add insulation in areas with potential for condensation on cold surfaces (i.e. windows, piping, exterior walls, room, or floors).

- Repair steam leaks and as soon as possible. Vent steam leaks and moisture-generating, to the outside where possible.

- Repair the weather stripping, seals and cracks around windows and doors. Water can seep through poorly sealed roof doors and windows.

- Areas with current or potential water damage should be reviewed for inclusion in capital projects.

- Issue weekend and holiday cold weather notices to office users. Ideally, targeted inspections would be conducted prior to extended holidays or extreme weather events to ensure windows are closed, cooling/heat levels are appropriate, and water sources are off.

- Keep flood and water cleanup supplies on hand.

- Educate building users on reporting leaks and backups.