

Procedures for Handling Water/Moisture Intrusion

REFERENCE GUIDE

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Water/moisture damage occurring inside a building/structure can be very disruptive and costly to occupants and building/structure owners. An expedient but thorough response is critical to preventing issues such as mold growth/contamination, bacterial growth/contamination, and associated odor problems. Molds and bacteria may cause allergic reactions in susceptible individuals as well as other potential health problems.

This document provides a practical approach to handling water/moisture damage and limiting microbial (mold and bacteria) growth. The document is intended to provide guidance and response procedures for Project Support Personnel responding to water/moisture intrusion events inside buildings/structures. This document applies to all situations where a water/moisture intrusion event has occurred. The event may impact various construction/finish materials such as, but not limited to, flooring materials, walls materials, and ceiling components; resulting in unsanitary condition(s) stemming from uncontrolled water accumulation that could promote microbial growth.

Definitions

Project Support Personnel: Workforce involved in mitigating a water/moisture intrusion event. Personnel include employees from Facilities Management staff, individual building management and/or maintenance personnel, or contractors acting on behalf of UC Irvine to address the water/moisture intrusion event.

Water/moisture Intrusion Event: An incident involving the incursion of water/moisture into spaces that are occupied or can be occupied. The incident may involve clean or contaminated water/moisture (gray or black water/moisture) that results from, but is not limited to, flooding, leaks, or spills.

Gray Water/moisture: Water/moisture containing a significant level of contamination and has the potential to cause discomfort or sickness if consumed by or exposed to humans, such as flooding from rainwater or fire sprinkler water.

Black Water/moisture: Water/moisture that is grossly unsanitary and likely contains disease-causing organisms or toxins, such as sewage.

Background: When using a moisture meter to determine the extent of moisture penetration, “background” refers to the value of one or more moisture reading(s) from unaffected area(s) of the same material(s) at the same time.

Responsibilities

Project Support Personnel are responsible for following the Program Components. UC Irvine Environmental Health and Safety (EH&S) may be consulted for Program clarification, monitoring, quality control, and project oversight.

Procedures

To preempt microbial growth, immediate action by Project Support Personnel is required following a floor, leak, and/or spill. Typically, effective moisture mitigation/dry-down within the first 24 to 48 hours is the most effective means towards preventing microbial growth and related damage. The following list of considerations, if carried out quickly and carefully, should prevent or greatly limit microbial growth.

- If applicable, remove any sludge, silt, and mud before it dries. Use a suction hose if necessary.
- Before the area has dried out, scrub the floors and woodwork with a stiff brush, plenty of water/moisture, a detergent, and a disinfectant. A solution of 1/4-cup liquid chlorine bleach per one gallon of water/moisture makes an adequate disinfectant. Test a small area for colorfastness. Remove the sludge, mud or silt from corners, cracks, and crevices. Ensure adequate ventilation whenever using chlorinated products.
- Clean glued-down carpet in place before attempting to pull it up. Use a wet/dry vacuum to extract the water/moisture/liquid and then shampoo the carpet with detergent. Glued-down carpet may be adhered to asbestos containing flooring material(s); confer with EH&S before pulling up the carpet. Remove and discard the spongy carpet padding as applicable. After the carpets are rinsed, quickly dry them by turning on the heat and using dehumidifiers. Wet carpet should be thoroughly dried within no more than 48 hours; if this is not possible, discard the carpet. Note: materials contaminated/contacted with/by gray or black water/moisture must be completely discarded.
 - Where warped, delaminating, or otherwise water/moisture damaged resilient floor tile, sheet flooring, and/or ceramic tile is involved, ensure an asbestos and/or lead containing materials assessment if completed prior to impacting. Contact EH&S for guidance/assistance.
- If a professional carpet cleaner is retained, a steam cleaning method (hot-water/moisture extraction) is preferred.
- After the carpet is thoroughly dried, vacuum the area. Give floors a thorough final washing with a non-sudsing cleaning product. Repeat the drying process. Vacuum again. Until the floors are thoroughly dried; runners should be placed on tile, or other slippery floors to help prevent slips and falls. Musty smell(s) can be reduced by following these procedures:
 - Sprinkle baking soda over the carpet, working it in with a broom or sponge mop.
 - Leave the baking soda treatment on overnight.
 - Vacuum the baking soda out. Vacuum twice, moving back and forth in a different direction the second time.
- Walls may wick up and retain water/moisture. Water/moisture may also accumulate in the interstitial spaces between walls (and, similarly, above ceilings). Prior to disturbing wall and/or ceiling systems (wallboard, baseboard, ceiling tiles, etcetera), confer with EH&S to determine if asbestos and/or lead in paint/surface coatings is an issue. Inspect the wallboard and the interstitial spaces to determine if it is wet. Use a moisture meter to determine the extent of moisture penetration. Reference background moisture level(s).

- Wet walls and ceilings wallboard must be removed to at least the flood/leak/spill level and/or extent; or dried by boring/cutting holes at strategic locations to increase air circulation and quickening drying time. Significant microbial contamination can occur on the back or reverse side of wallboard and/or ceiling tile if left wet. Cut/execute several inspection holes in the wall(s)/ceiling(s) to determine if the interior/interstitial space(s) is/are wet.
- Walls and ceilings containing fiberglass insulation will most likely need to be removed. For walls, check the metal framing sill plate/track for water/moisture accumulation. Water/moisture can flow a considerable distance on hard ceilings. Use a moisture meter to determine the extent of moisture penetration for all impacted area(s)/location(s); comparing to background moisture levels.
- The area under floor-mounted cabinets may be difficult to dry. The cabinets must either be lifted or panels removal from the cabinets to allow for water/moisture removal and drying.
- Paper products and boxes must be completely dried or discarded.
- Computers and other electronic equipment should be inspected by a qualified technician before they are re-energized.

Good ventilation is essential to the rapid removal of water/moisture vapor. Open windows and doors as feasible and/or adjust the ventilation system and related local devices to provide as much air exchange to the outside as possible; or use blowers and dehumidifiers un the wet materials have sufficiently dried. Use a dehumidifier to extract water/moisture out of the room air and maintain relative humidity to less than 70 percent (less than 60 percent is ideal).

References

Standard and Reference Guide for Professional Water/moisture Damage Restoration, ANSI/IICRC S500 (2015) document prepared by the Institute of Inspection, Cleaning, and Restoration Certification Title 8, California Code of Regulations, Subchapter 7, Group 2, Article 9, Section 3362 General Requirements (<https://www.dir.ca.gov/title8/3362.html>)

Contact **EH&S** at (949) 824-6200 or safety@uci.edu for questions.