



**OFFICE OF
FACILITIES**
Occupational and
Environmental Safety

Last Modified:

Last Reviewed: 08/2018

Approved: Sharmila Pradhan
Occupational & Environmental Safety Manager

Water damage, Water Intrusion, and Mold Prevention

INTENDED AUDIENCE: These guidelines are applicable to all Montgomery College Facilities. They should be used by Facilities Managers, and Project Managers, as well as, Contractors hired by Montgomery College.

PURPOSE: These guidelines are intended to rapidly respond to water damage, protect occupant health and prevent fungal amplifications in buildings (both in occupied spaces and spaces under construction) by outlining the proper cleanup procedures for different types of water damage. These guidelines do not apply to areas where there is evidence of existing, visible, mold growth. The procedures in this SOP 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.

Water leaks and water intrusion events result in presence of unwanted water and moisture. Such events can cause hazards such as slips, trips, and falls, electrocution, or mold growth. Water can also cause serious damage to equipment and building materials. Mold spores are present in air, both indoors and outdoors. We breathe in mold spores all the time. Since mold requires moisture to grow, it is important that leaks and other sources of moisture are repaired as soon as they are discovered. It is also imperative that building materials and other items that become water damaged, are addressed as soon as possible (i.e., within 48 hours) using the guidelines in this SOP to prevent excessive mold growth.

SIGNS OF WATER INTRUSION

Stains on ceiling tiles, peeling paint, warping walls or wooden furniture, loose floor tiles or base boards could be indicative of water intrusion or small leaks that need further investigation. Facilities staff need to be vigilant for signs of water damage and report it to the Facilities Helpdesk. If the signs mentioned above re-occur, then instead of repeatedly replacing ceiling tiles, or other building materials, contact Environmental Safety. Building occupants may also contact Environmental Safety if they see recurring signs of water intrusion. Environmental Safety will investigate all reports of water damage and flooding and document the actions taken.



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RESPONSIBILITIES

Employees, students and contractors must notify the Facilities Helpdesk when there is flooding or water intrusion.

Campus Facilities

Director of Campus Facilities , or his designee leads the response to all major flooding events. They maintain communications with Environmental Safety and follow ES staff recommendations for mold prevention and building air quality. Larger flooding events that impact large portions of a building or multiple departments and offices will be coordinated by the Campus Director with the support of the Vice President & Provost. A Campus Facilities Manager designated by the Director may coordinate smaller incidents affecting fewer offices.

Facilities Custodial employees

Promptly cleanup flooding and other water intrusion events using appropriate methods and personal protective equipment.

Assist Operations & Maintenance staff in the cleaning and drying process. Use wet/dry vacuums, water extractors, fans, and industrial de-humidifiers.

Disinfectants may be used to clean up small areas (less than 10 sq ft area) of mold or mildew on surfaces.

Follow the SOP for Mold remediation if applicable.

Facilities Operations & Maintenance employees

Provide trained professional tradespersons for response to building floods.

Assist managers / supervisors in the evaluation and repair of damage to building materials and furnishings, post event return to normal operating conditions.

For smaller incidents, Manager or Supervisor of the Operations team coordinates with Environmental Safety, Custodial employees, Central Facilities



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(Architect, Engineer, Project Manager), and the supervisor or manager(s) of the affected offices.

Provide routine maintenance on critical building systems to ensure appropriate indoor conditions and to help prevent water infiltration and floods. This may include clearing indoor plumbing, and drainage systems, window repairs, roof and gutter inspections and repairs.

Provide appropriate Personal Protective Equipment to employees responding to water and mold conditions. Follow SOP for Mold Remediation id applicable.

Facilities helpdesk employees

Create a record in the Work Order system to document the flood damage initial report, and key, follow-up actions.

Occupational and Environmental Safety

Environmental Safety employees must respond to reports of water-related incidents and provide guidance to ensure health and safety of building occupants, as well as, employees responding to the incident.

Assist Operations & Maintenance or Building Services staff to asses the extent of water damage. Use instruments like water meter and humidity measurements if necessary.

Provide mold remediation contractor services and supervise the contractor's work to ensure compliance with all regulations, and industry standards or best practices.

Respond to complaints by employees and investigate potential cause of physical and /or health concerns.

Respond to events involving sewage backflows, Category 2 or Category 3 waters.

Asses conditions for occupancy after the remediation or restoration activities are complete.



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Communicate with building occupants, O&M, Building Services and Central Facilities.

DEFINITIONS

Clean Water or **Category 1 Water** includes water from a source that does not pose significant hazard to human health. Examples are water from broken or leaking potable water supply lines, steam, water known to be from a potable source (e.g., sinks, showers, sprinklers) ice melt, and rain water. Time, temperature, and association with other materials may degrade category 1 water.

Gray Water or **Category 2 water** is water that has some degree of contamination at its source and contains, chemical or biological pollutants, microorganisms, nutrients for microorganisms that can potentially cause sickness or discomfort if consumed by humans. Examples are washing machine or dishwasher water, sump pump failures, and broken aquariums.

Black Water or **Category 3 Water** is highly contaminated water which could cause serious illness or death if consumed by humans. Examples are sewage from sanitary drains, toilet backflows, rising flood waters from rivers and streams, laboratory waste water, ground water containing silt and soil contaminants flowing into buildings.

Porous material includes carpet, carpet pad, wall board and drywall insulation.

Non-porous Material includes metal shelves, filing cabinets, ceramic fixtures.

FLOODING RESPONSE

Hazard Assessment & PPE: Identify the source of water, as procedures are different for clean and dirty water. If grey or black water is the source, employees may need to have BBP and Hazard Communication training before they can assist in this work. Ensure employees are wearing appropriate personal protective equipment (PPE) such as rain boots, gloves, coveralls, face masks. Before starting work, check for electrical hazards, unsafe structures,

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and hazardous materials such as asbestos and lead based paint. Consult Environmental Safety if such conditions exist. Do not rush to clean-up without assessing the hazards, or fulfilling training and PPE requirements. If available employees are not trained or equipped to address the situation, call a contractor.

CLEAN WATER PROCEDURES

Stop the Water: First address the source of the water, and stop it as best as possible. Creating a dam to divert the flow, or containing it and sucking it out until a patch can be applied, are some options. Quickly and thoroughly dry all porous and non-porous materials. It is strongly recommended to start the response within 24 hours and complete it within 48 hours of the flood.

Prevent further water intrusion. Repair the water leak,

Initial Response: Once the water is diverted and the leak addressed or patched, perform water extraction with wet vacuums on carpets. Move or elevate furniture and equipment, such as, filing cabinets and copiers so the porous materials get air and dry faster. Dehumidifiers alone will not dry wet, porous materials. Heavy duty floor fans and air movers may be needed.

Insurance recordkeeping: Contact the office of Risk Management to begin the insurance claims process. Facilities Director or designee will need to communicate with insurance representative.

Document damage: Conduct an assessment of all building materials, furnishings, and record the extent of damage using pictures. Environmental Safety can help in the assessment by using the moisture meter to measure dampness in dry wall and wood.

Response continuation: Dry materials using Table 1 for guidance. Cut or drill holes in wet drywall (small holes or whole bottom sections) if necessary to allow air movement and drying inside the wall cavity. Wet portions of lower sheet rock may need to be removed and replaced.

Consult Environmental Safety within 48 hours to confirm if materials are dry, and provide moisture readings if necessary. Drying and shampooing carpet is



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adequate as long as the carpet dries within 48 hours, and the backing is also dry. If the carpet or backing gets moldy, they may have to be replaced.

Communicate with building occupants. Inform the Provost and the Vice President or Dean of the affected departments, so they can communicate the situation and actions taken to their employees. Provide alternative work space and relocate occupants if extensive work is needed to remove walls or carpets.

MOLD PREVENTION

When water intrusion has not been corrected and building materials are wet for more than 48 hours, Environmental Safety must conduct a visual inspection of the damaged areas. Involve Environmental Safety early on, so they can watch and document the measures implemented and know where to look for assessing moisture. Recommendations by Environmental Safety will depend on the extent of damage, types of material affected, presence of visible mold growth. ES will also determine the containment or cleanup methods, personal protective equipment required and whether occupants need to be relocated. If visible mold growth is discovered, follow the Standard Operating Procedure for Mold Remediation.

While mold is naturally occurring in the environment, excessive mold growth (fungal amplifications) in indoor spaces can cause structural and property damage, as well as lead to allergic reactions and other adverse health effects in building occupants. Sampling for mold spores in air does not provide any useful information, because there are no regulatory limits for mold spores in air, results are difficult to interpret, and different individuals have differing levels of sensitivities to different species of molds. The USEPA and the Centers for Disease Control do not recommend sampling for mold. The best way to prevent mold is to prevent moisture, and the cleanup or remediation process is the same without regard to the type or species of mold.