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**Environmental Safety & Health**

University of Maryland, Baltimore County

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# University of Maryland, Baltimore County Mold Management Plan

Administered by

Office of Environmental Safety and Health

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## **Policy Statement**

It is the policy of UMBC to take all necessary measures to avoid mold growth and mildew in university facilities. When suspect microbial growth is discovered a systematic approach will be undertaken to remediate it. In the event of a flood or a large water leak that results in wet building components or furnishings, immediate efforts must be made to stop the leak and dry out the moisture. Faculty and Staff should contact Facilities Management at 410-455-2550 and the office of Environmental Safety and Health at 410-455-2918 to ensure appropriate initial response actions are taken. Residential students and staff should contact Residential Life Facilities at 410-455-3948 M-F between the hours of 8am-4:30pm to report an emergency. For facility emergencies after hours call or visit the front desk of your community and the staff will contact the Maintenance Assistant (MA) on duty. For suspected microbial growth concerns, Residential Life Facilities will contact Environmental Safety and Health.

## **Overview**

Concern about indoor exposure to mold has been increasing as the public becomes aware that exposure to mold may cause a variety of health effects and symptoms, including allergic reactions. This document presents guidelines for the prevention and remediation/cleanup of mold and moisture problems in facilities at UMBC including measures designed to protect the health of building occupants and remediators. Mold spores are found almost anywhere, and mold will grow on virtually any organic substance given moisture, oxygen, and certain temperature ranges are present. It can grow on wood, paper, carpet, foods, dust, and insulation. When excessive moisture accumulates in buildings or on building materials, mold growth will often occur, particularly if the moisture problem remains undiscovered or unaddressed. It is impossible to eliminate all molds and mold spores from the indoor environment. However, mold growth can be controlled indoors by controlling moisture. Since mold requires water to grow, it is important to prevent/correct moisture problems in buildings. There are

numerous indoor air contaminants in addition to mold. The Environmental Safety and Health office (ESH) serves as the clearinghouse for all suspect microbial growth and indoor air quality complaints. ESH can assist in investigating and identifying building deficiencies, specific health complaints, and hidden sources of contamination.

## **Prevention**

The control of moisture is the key to mold control. Water leaks or other moisture issues in residential facilities and living areas should immediately be reported to Residential Life Facilities at 410-455-3948 M-F between the hours of 8am-4:30pm to report an emergency. For facility emergencies after hours call or visit the front desk of your community and the staff will contact the Maintenance Assistant (MA) on duty. Leaks or moisture issues in any other University facility should be reported immediately to Work Control at 410-455-2550.

The following are some guidelines to keep moisture levels at a minimum:

- Fix leaky plumbing and leaks in the building envelope as soon as possible.
- Watch for condensation and wet spots. Fix sources of moisture problems as soon as possible.
- Prevent moisture due to condensation by increasing surface temperature or reducing the moisture level in air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in air, repair leaks, increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
- Keep heating, ventilation, and air conditioning (HVAC) drip pans clean, flowing properly, and unobstructed.
- Vent moisture-generating appliances, such as dryers, to the outside where possible.
- Maintain indoor humidity below 60% relative humidity (RH), ideally 30-60%, if possible.
- Perform regular building/HVAC inspections and maintenance as scheduled.
- Clean and dry wet or damp spots within 48 hours.
- Do not let foundations stay wet. Provide drainage and slope the ground away from the foundation.

## **Roles and Responsibilities**

### **Environmental Safety & Health:**

- Evaluate areas of suspected microbial growth and provide recommendations to Facilities Management for remediation.
- Assist Facilities Management in identifying the underlying causes of water intrusion and microbial growth and develop the appropriate response(s) to prevent recurrence.
- Provide guidance for proper remediation efforts.
- Provide frequent communications to affected departments and building occupants.
- Assess conditions for occupancy after water restoration or mold remediation activities.

### **Facilities Management (FM):**

- Identify and fix the sources of water leaks or intrusion.
- Arrange and manage contract services for water removal and restorative drying of affected structure.
- Notify ESH immediately when an area of suspected microbial growth is discovered more than 10 square feet in size, located within HVAC equipment or any contaminated materials are suspected to be asbestos containing.

- Provide frequent communications to affected departments and building occupants.
- Oversee remediation efforts until remediation is complete. Follow ESH guidance on remediation efforts.

### **Residential Life Facilities:**

- Identify and fix the sources of water leaks or intrusion.
- Arrange and manage contract services for water removal and restorative drying of affected structure.
- Notify ESH immediately when an area of suspected microbial growth is discovered more than 10 square feet in size, located within HVAC equipment or any contaminated materials are suspected to be asbestos containing.
- Provide frequent communications to affected departments and building occupants.
- Oversee remediation efforts until remediation is complete. Follow ESH guidance on remediation efforts.

### **Contractor:**

- Evaluate and document the extent of damage (e.g. water or mold) in the structure, systems and building contents using appropriate monitoring and detection equipment.
- Designate a project leader, representing the contractor, to work with ESH and Facilities Management personnel during the entire project.
- Provide ESH and FM representative a written action plan. Depending on the response activity, the action plan will include a timeline and goals for drying and the implementation of mold remediation techniques.
- The contractor must notify FM if situations arise that may require a deviation from the original action plan.
- Provide daily updates to FM and ESH regarding the progress of remediation.
- Shall record and document all activities and services performed in response to the problem. For water restoration, records would include complete moisture readings.
- Shall complete the project in a manner which complies with all government regulations and procedures.

### **Moisture Assessment:**

- Anyone who finds or has a potential water related surface contamination concern including moisture or water intrusion should report it to their supervisor, building manager, Facilities Management or Environmental Safety and Health (ESH) as soon as possible.
- If a concern is received or an issue found during an inspection, the assessment will be performed following ESH procedure.
- Assessment will include visual inspection of the area of concern and may include moisture, temperature, and humidity instruments.
- Campus has on call industrial hygiene firms to assist with assessments if deemed appropriate by initial assessment.
- Any issues that are determined to require further attention will be addressed by staff and on call remediation experts to mitigate any issues that may occur following industry standards and practices.
- If the assessment discovers an issue, then remediation efforts will begin to restore the area to normal conditions. This includes removal of any affected material, finding the moisture source, eliminating it, and restoring the area.
- Special consideration will be given to potentially affected individuals and the circumstances of the issue to determine the course of action for the space during remediation efforts.

- All affected individuals will be notified as appropriate during and after the assessment if further actions are required. Anyone with questions about the process or status of a concern should contact ESH or their supervisor.

## **Water Intrusion and Suspect Microbial Growth Assessment:**

**Terminology** - “Suspect Microbial Growth” or “Surface Moisture Contamination” – Discoloration observed by an employee on surfaces of organic material that could facilitate the growth of various types of fungi (areas that look like mold growth but have not been confirmed to be mold growth by a lab.)

### **Prevention Strategy**

- Monitor and control humidity levels in all spaces with a target range of 30-60% RH.
- Clean and dry all flood events within 48 hours
- Investigate minor leaks and drips as soon as they are reported to determine if they are creating a microbial growth environment

### **Receiving Reports of Suspect Microbial Growth**

- An employee or concerned university community member reports something that looks like mold or a musty odor.
- Any facilities staff determines if discoloration is present on an organic material that could indicate mold growth.
  - If discoloration is present on an **inorganic surface**, like metal or tile, there is **no risk of sustained mold growth**, and the area can be cleaned without a formal inspection.
  - If discoloration is present on an **organic surface** like wood, paper drywall, carpet, or fabric, the staff member observing should **report to Environmental Safety and Health (ESH) (5-2918)** for a Suspect Microbial Growth assessment.

**Inspection** – ESH will complete or assist in the inspection of Suspect Microbial Growth and will be responsible in assisting with recommendations for treatment. The inspector will recommend a timeline for treatment based on the severity of the case including if/when occupants will need to be out of the space. Special consideration will be given for any known preexisting conditions or circumstances.

**Third Party Inspection-** In addition to walkthroughs by staff, third party vendors may perform periodic inspections on a scheduled and as requested basis to monitor unoccupied spaces for temperature and humidity control. Any areas found to be out of industry standards are reported and responsible individuals are notified to correct the observance.

**Testing** – In most cases, air sample testing and surface sample testing are **not needed** to determine the location and severity of a Suspect Microbial Growth. The treatment procedures are very thorough and would not change based on the results of testing. Testing can be used after treatment if the incident warrants confirmation of air quality.

**Treatment** – An abatement team will conduct a treatment based on industry regulations, best practices, and the inspector’s recommendations. In most cases, the occupants of the space will be required to leave for several hours while affected material is removed and antimicrobial chemicals are used. Occupants will be notified of this window of time before treatment begins.

**Post Treatment** – Usually there is some amount of restoration work needed in an affected space. This work can include drywall patching, carpet replacement, and painting and can be done with the space occupied. The inspector may do post treatment inspection/sampling to confirm that the conditions for microbial growth have been eliminated.

## **Indoor Air Quality Investigation:**

**Background:** “Indoor Air Quality (IAQ) refers to the air quality within and around buildings and structures, especially as it relates to the health and comfort of building occupants. Understanding and controlling common pollutants indoors can help reduce your risk of indoor health concerns.” (*EPA Introduction to Indoor Air Quality, 2018*) Indoor air quality can be affected by various contributing factors like vapors, fumes, leaks, and odors. Other contributing factors can be items like temperature, humidity, poor ventilation, or no ventilation. It is important to report any concerns as close to the event as possible to help with identification. Throughout the indoor air quality assessment all the involved individuals will be informed of the progress and findings as needed.

**Receiving complaint or concern:** When Environmental Safety and Health (ESH) receives a complaint or concern about the indoor air quality in an individual’s area of work or other space, as much information as the individual can provide will be asked for. Items may include symptoms the person experiences while in the area, if there are new or unusual odors, any new activities occurring in the area, etc. The duration of the odor or air quality issue as well as a timeline to start to develop any trends. A meeting may be requested with the reporting individual to ensure that all concerns of the individual will be addressed.

**Inspection:** A walkthrough inspection of the area of concern, surrounding areas, mechanical rooms, and rooftops and/or air intake locations will be performed as required. Also, at this time research is done to see if any new work has been occurring from other departments in the area which could generate the concern (i.e. hot work, maintenance, etc.). An inspection of the area will be completed as soon as possible from receiving the concern. Walkthrough of the space can include the use of ESH industrial hygiene equipment. During the walkthrough if a source is found, the appropriate individuals will be alerted to mitigate the issue that is causing the air quality issue. If a source cannot be found or has dissipated before the inspection can begin, ESH will inform the individual with the concern of the areas that were inspected and what to do if the issue arises again.

**Testing/Sampling:** Some assessments, if other means of detection are inconclusive, may require sampling of the air to help determine a source. ESH retains the services of third party accredited Industrial Hygiene (IH) firms that can provide more in-depth analysis of the air quality. The IH firm may be utilized if an issue is found and additional information is needed. If an issue is not readily identifiable the IH can be used to develop a sampling plan based on the area and other identifying traits for each situation. In situations where no source or contributing factors can be found and other conditions are normal for the space the IH firm can perform sampling at the request of the concerned employee(s) department. Cost of the sampling will be billed to the requesting department to have the sampling and analysis occur.

**Post Analysis:** If sampling is performed ESH will receive a summary report which may include recommendations or items of concern from the IH firm. ESH will review the results and if necessary, develop a mitigation strategy with the appropriate individuals. ESH can meet with individuals of the affected area to answer questions about the results and any remaining concerns. It may be necessary to perform additional sampling to ensure that the mitigation efforts addressed the issue.

## **Notification:**

Once a potential issue has been reported and an initial inspection has been conducted: ESH will inform Facilities Management, Residential Life Facilities and appropriate department personnel of the result of the inspection, review the proper steps to mitigate the situation and also review any concerns or restrictions that may apply during the course of mitigation.

A timeline for mitigation will be developed and frequent communications and updates will be had with the personnel occupying the affected area.

In the case of a Residential Life Facility being adversely impacted, Residential Life will communicate directly with students and, if deemed appropriate, family members.

**Below is a sample communication intended for residential students and their family.**

### **Preemptive Steps to Prevent Mold in Residential Buildings and How to Report Concerns**

#### **Health and Safety Update from Residential Life and Environmental Safety and Health**

Residential Life, in collaboration with Environmental Safety and Health, strives to ensure the safety and well-being of all students living on campus, and to communicate about the many ways we are proactively working to do so.

One of the subjects that has become an increasing concern on U.S. university campuses is suspect microbial growth, or mold. We'd like to share with families and students the preemptive steps we take on a regular basis to keep residential spaces treated and clean, some steps students can take to create a healthy environment in their room/apartment, and what happens if they have a concern. For more information, call James Donlan, Residential Life, at 410-455-8736.

#### **Our preemptive steps:**

- Clean all public spaces daily or weekly
- Clean all resident spaces during the summer break
- Install equipment to remotely monitor temperature and humidity levels in buildings and HVAC function
- Routinely clean HVAC units in resident spaces and replace air filters
- Update and renovate areas with new flooring and painting as needed
- Repair and replace any water-damaged building material
- Inspect all resident spaces during the summer break for temperature and humidity control
- Assess areas of reported concern

#### **Actions students can take to prevent mold:**

- Report all water leaks or high humidity conditions immediately to residence life maintenance staff. Submit a work order through [fxit.umbc.edu](http://fxit.umbc.edu) or call 410-455-3948 (FXIT).
- Empty trash regularly and clean out old and unwanted food from refrigerators.
- Keep surfaces, floors/carpeting, and bathroom (including shower curtain liner) clean and dry.
- During hot weather, set the air conditioning thermostat above 70 degrees and the fan on auto. Do not open windows when air conditioning is in use.
- Allow clothing and shoes to dry completely before storing.
- House plants may be a potential source of indoor mold growth and should be avoided.

#### **If students have a concern, we are here to help:**

- Report any leaks/water stains or humidity issues immediately to Residential Life facilities maintenance at 410-455-3948.
- If you have a question or concern about mold or indoor air quality:
  - Submit a work order through [fxit.umbc.edu](http://fxit.umbc.edu) or call 410-455-3948 (FXIT).
  - A facilities staff member will do a preliminary inspection looking for
    - humidity and other sources of moisture
    - discoloration on organic surfaces
  - An inspector will follow up if
    - discoloration is found on organic surfaces
    - there seems to be a moisture issue present

If it is determined that treatment is needed:

- You will be contacted with a time window when you will need to be out of your room/apartment.
- In most cases, it takes about 4-6 hours to remediate suspected mold.
- Only in extreme cases do residents need to be relocated.

Treatment

- Remediation is conducted by certified professionals who isolate the affected area and actively scrub the air during material removal with HEPA filters.
- If needed, air samples ordered and compared to outdoor sample.
- Antimicrobial treatments can be applied that are non-toxic but may have an odor.
- If material (like drywall) is removed, it may be reinstalled later while the resident is back in the room/apartment.