

 <b>WAKE FOREST</b> UNIVERSITY	<b>Document #:</b> SAFETY_015	<b>Revision Date:</b> October 4, 2010
	<b>Mold Management Plan Operations &amp; Maintenance</b>	<b>Developed by:</b> Environmental Health & Safety  Approved by: Associate VP of Facilities & Campus Services  <hr/>
	<b>Effective Date:</b> August 1, 2006	

### 1. PURPOSE

The purpose of this Mold Management Plan is to inform employees and students of their respective roles and responsibilities in the recognition, prevention, remediation, and documentation of mold and moisture incidents.

### 2. REFERENCES

U.S. EPA, “Mold Remediation in Schools and Commercial Buildings” (March 2001, Updated June 2001)

### 3. DEFINITIONS

Mold is a common term used to refer to microscopic fungi or patches of fungal growth. Molds typically are fungi with a filamentous growth form often giving rise to “fuzzy,” cottony, or powdery textured colonies. Molds produce spores, which in many species are specialized to become airborne. It is the airborne particles released by fungi that can cause adverse health affects in certain individuals. Molds are commonly found in both indoor and outdoor air. Mold is naturally occurring and therefore cannot be eliminated from any environment.

Mold exposure does not always present a health problem indoors; however, individuals who are sensitive to molds can experience allergic reactions and upper respiratory irritation. Certain molds produce mycotoxins, which have been suggested to contribute to respiratory problems such as rhinitis and persistent cough. Generally, it is not necessary to identify the species of mold growing in an area, and CDC does not recommend routine sampling for molds. Since the susceptibility of individuals can vary greatly, either because of the amount or type of mold, sampling and culturing are not reliable in determining your health risk.

Moisture is necessary for mold to grow and produce spores. Wake Forest University strives to minimize water intrusion problems such as leaks, condensation, flooding, and excessive humidity. WFU will respond to any areas where it has knowledge that

moisture intrusion is evident or visible. In addition, WFU's renovation plans and scheduled deferred maintenance reduction plans include improvements to HVAC systems and interior moisture / humidity levels to further reduce the likelihood of excessive mold growth.

#### **4. RESPONSIBILITIES**

##### Staff, Faculty, and Students

Employees and students should report any visible mold or moisture intrusion to the Facilities and Campus Services Customer Service staff at extension 4255. Water damaged building material or visible mold should not be disturbed by any staff, faculty, or student. The following information should be provided:

1. Location and description of the water damage or mold.
2. Is the area still wet or is there visible water?
3. Is there any odor?

*(Visual inspection for mold and moisture intrusion is the most effective tool for the prevention and remediation of these problems. A musty odor may also be an indicator of mold growth. If there is an odor and no obvious signs of visible growth, a moisture meter may be useful in determining areas of growth within wall cavities, beneath vinyl wallpaper, etc. Inspections for mold and/or moisture will be conducted during routine maintenance procedures.)*

##### Custodial Staff

1. Report to Customer Service or your supervisor any situation which could create conditions for mold growth such as leaking faucets, drainage problems, leaking roofs, etc.
2. Treat and remove mold and mildew encountered during normal cleaning of bathrooms, kitchens, and common areas. Refer to Table 1: "Guidelines for Remediating Building Materials with Mold Growth Caused By Clean Water." The proper personal protective equipment (PPE) should be worn at all times, if applicable, as defined on the MSDS of the cleaning agent. Report steps taken to treat mold / mildew to Facilities Management Customer Service.
3. Clean, dry, and treat any liquid or water that may be a future mold source.
4. Report all visible mold and mildew in quantities greater than 10 square feet to Customer Service and your supervisor.

##### Maintenance Staff

1. Correct and report to Customer Service or your supervisor any situation which could create conditions for mold growth such as leaking faucets, drainage problems, leaking roofs, etc.

2. During routine maintenance, staff should inspect HVAC systems for mold and/or moisture problems that could contribute to mold growth.
3. Treat and remove mold and mildew encountered during normal maintenance and inspection of mechanical spaces, bathrooms, kitchens, and common areas. Refer to Table 1: “Guidelines for Remediating Building Materials with Mold Growth Caused By Clean Water.” The proper personal protective equipment (PPE) should be worn at all times, if applicable, as defined on the MSDS of the cleaning agent.
4. Clean, dry, and treat any liquid or water that may be a future mold source.
5. Report all visible mold and mildew in quantities greater than 10 square feet to Customer Service and your supervisor.

#### Facilities and Campus Services Supervisors and Managers

1. Ensure staff has proper training, cleaning agents, and PPE to perform their duties as defined in this plan.
2. Report all mold and moisture concerns noticed by employees and students to Customer Service to create a work order.
3. Inspect any areas where mold and mildew or moisture intrusion has been problematic during normal building inspections, take corrective action and document with Facilities Management Customer Service.

#### Mold Remediators

A mold remediator is defined as a WFU Facilities & Campus Services personnel trained and supplies with equipment to physically remove mold. The remediators may be augmented with contractor support for any complex or significant mold situation.

1. Respond to assigned work orders.
2. Conduct assessment based on findings.
  - a. If less than ten (10) square feet
    - Seek assistance and advice from Mold Risk Assessors if removal is deemed to be too complicated Refer to Table 1: “Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water.”
    - Isolate area and remove as defined in Table 1 for “Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water.”
    - Wear the appropriate PPE at all times when performing removal operations.
    - Analyze, repair, and report intruding source of moisture to Facilities Management Customer Service.
  - b. If greater than ten (10) square feet or removal is deemed complicated per first bullet above, report issue to Mold Assessor.

3. Attend training as scheduled by Environmental Health and Safety.

#### Customer Service (or Supervisors)

1. Create work orders as requested.
2. Check the “Mold” box when generating the work order.
3. Include all details when closing the work order as provided by requestor and remediator to ensure corrective action was taken.

#### Mold Assessor

A mold assessor is defined as a WFU Facilities & Campus Services personnel trained to test and evaluate existing mold. Based on the evaluation, the assessor will determine the mold remediator personnel and equipment needed to deal with the mold situation

1. Respond to requests by students / employees for assistance.
2. Develop and document remediation plan for complex removals < 10 sq.ft or all remediation > 10 sq.ft on the work order.
3. Initiate and manage all contracted mold removal efforts.
4. Ensure that contractor’s project report is attached to the work order upon completion.
5. Attend training as scheduled by Environmental Health and Safety.
6. Arrange for or conduct testing if conditions warrant.

#### Environmental Health and Safety

1. Review and revise plan as necessary.
2. Maintain training records and schedule and / or conduct the training as needed.
3. Review and audit work orders for completeness and adherence to this plan.
4. Perform site inspections as needed during different stages and types of removal being performed.
5. Provide assistance in PPE selection and use as required by the MSDS of cleaning agent or other technical information.
6. Act as primary communicator for mold and mold related issues at WFU.
7. Generate reports and maintain all records as applicable.

## **5. PROCEDURES**

Please see the following tables for the specific guidelines. Facilities and Campus Services personnel will be responsible only for those remediations described as “Small – Total Surface Area Affected Less than 10 Square Feet.” Remediation for areas greater than 10 square feet will be conducted by qualified external contractors. Refer to Table 1 for “Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water.”

<b>Table 1: Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*</b>			
Material or Furnishing Affected	Cleanup Methods†	Personal Protective Equipment	Containment
<b>Total Surface Area Affected Less Than 10 square feet (ft<sup>2</sup>)</b>			
Books and papers	3	For “Minor” Removal: PPE as required by cleaning agent.  Gloves and Goggles and N-95 Respirator as appropriate	None required
Carpet and backing	1, 3		
Concrete or cinder block	1, 3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1, 2, 3		
Non-porous, hard surfaces (plastics, metals)	1, 2, 3		
Upholstered furniture & drapes	1, 3		
Wallboard (drywall and gypsum board)	3, possible 4		
Ceiling tile	4		
<b>Total Surface Area Affected Greater than 10</b>			
Remediation conducted by qualified contractor			
<b>Cleanup Methods</b>			
<b>Method 1:</b> Damp-wipe surfaces with plain water or with water and WFU approved cleaning chemical products (except wood —use wood floor cleaner); scrub as needed.			
<b>Method 2:</b> Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried). Steam cleaning may be an alternative for carpets and some upholstered furniture.			
<b>Method 3:</b> High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.			
<b>Method 4:</b> Discard _ 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.			
<b>Personal Protective Equipment (PPE)</b>			
Minimum: Gloves, N-95 respirator, goggles/eye protection are recommended			
Limited: Gloves, N-95 respirator or half-face respirator with HEPA filter, disposable overalls, goggles/eye protection			
Full: Gloves, disposable full body clothing, head gear, foot coverings, full-face respirator with HEPA filter			
<b>Containment</b>			
None required at this time for removal of total surface area less than 10 square feet.			
<i>Information provided in table are abstracts from literature and remediation documents including Bioaerosols: Assessment and Control (American Conference of Governmental Industrial Hygienists, 1999) and IICRC S500, Standard and Reference Guide for Professional Water Damage Restoration, (Institute of Inspection, Cleaning and Restoration, 1999).</i>			

\*Source: U.S. EPA, “Mold Remediation in Schools and Commercial Buildings” (March 2001, Updated June 2001)

## **Personal Protective Equipment (PPE)**

Wake Forest University will provide necessary personal protective equipment (PPE) and supplies to perform mold cleanup as outlined in Table 1.

Use professional judgment to determine prudent levels of PPE and containment for each situation, particularly, as the remediation site size increases and the potential for exposure and health effects rises. Assess the need for increased PPE if, during the remediation, more extensive contamination is encountered than was expected. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage or chemical or biological pollutants, then the Occupational Safety and Health Administration (OSHA) requires the appropriate PPE and containment.

Select the method most appropriate to situation. Since molds gradually destroy the things they grow on, if mold growth is not addressed promptly, some items may be damaged such that cleaning will not restore their original appearance. If mold growth is heavy and items are valuable, the owner of the contaminated product may wish to consult a restoration/water damage/remediation expert.

## **6. Education / Training**

Students will be provided information by Residence Advisers on how to report all building concerns to Facilities and Campus Services Customer Service. WFU employees will be trained according to his/her job duties. Training will be conducted at the time of hire, whenever inadequacies in procedure are detected, and when this policy first becomes effective and thereafter when material revisions to this policy are made. Refer to Table 2 for WFU Mold Reduction Plan Training Matrix

1. Information set forth in the Introduction is derived from the U.S. Environmental Protection Agency publication, "Mold Remediation in Schools and Commercial Buildings" (March 2001, Updated June 2001).

<b>Table 2 – WFU Mold Management Plan Training Matrix</b>						
<b>WFU Staff &amp; Students</b>	<b>Recognize Mold</b>	<b>Health Effects</b>	<b>Cause of Indoor Mold</b>	<b>Table 1</b>	<b>Remediation Methods</b>	<b>Assessment of Mold</b>
<b>F&amp;CS CUSTODIAL</b>	X	X	X	X	X	
<b>F&amp;CS CUSTOMER SERVICE</b>	X	X	X	X	X	
<b>F&amp;CS MAINT STAFF</b>	X	X	X	X	X	
<b>F&amp;CS SUPV/MGRS</b>	X	X	X	X	X	X
<b>F&amp;CS MOLD REMEDIATORS</b>	X	X	X	X	X	
<b>F&amp;CS MOLD ASSESSORS</b>	X	X	X	X	X	X
<b>EHS STAFF</b>	X	X	X	X	X	X

## 7. REVISIONS

<b>REVISION</b>	<b>REVISION DATE</b>
<i>Changed signing authority to Jim Alty</i>	<i>10/4/2010</i>
<i>Changed “Facilities Management” to “Facilities and Campus Services”</i>	<i>10/4/02010</i>