Introduction

Concern about indoor exposure to mold has been increasing as the public becomes aware that exposure to mold can cause a variety of health effects and symptoms, including allergic reactions. This document presents guidelines for the remediation/cleanup of mold and moisture problems in EHT Schools. These guidelines include measures designed to protect the health of building occupants and remediators.

Using this document, individuals with little or no experience with mold remediation should be able to make a reasonable judgment as to whether the situation can be handled in-house.

Molds can be found almost anywhere; they can grow on virtually any organic substance, so long as moisture and oxygen are present. There are molds that can grow on wood, paper, carpet, foods, and insulation. When excessive moisture (above 60%) 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 mold and mold spores in the indoor environment. However, mold growth can be controlled indoors by controlling moisture indoors.**

Molds reproduce by making spores that usually cannot be seen without magnification. Mold spores waft through the indoor and outdoor air continually. When mold spores land on a damp spot indoors, they may begin growing and digesting whatever they are growing on in order to survive. Molds gradually destroy the things they grow on.

Many types of molds exist. **All molds have the potential to cause health effects.** Potential health concerns are an important reason to prevent mold growth and to remediate/clean up any existing indoor mold growth.

Since mold requires water to grow, it is important to prevent moisture problems in buildings. Moisture problems can have many causes, including:

- Roof/Window Leaks
- Pipe Leaks
- HVAC Condensate Pan Overflow
- HVAC Scheduling & Short Cycling
- Custodial Floor Care Operations

Some moisture problems in buildings have been linked to changes in building construction practices during the 1970s, 80s and 90s. Some of these changes have resulted in buildings that are tightly sealed, but may lack adequate ventilation, potentially leading to moisture buildup.

When mold growth occurs in buildings, adverse health problems may be reported by some building occupants, particularly those with allergies or respiratory problems. Remediators should avoid exposing themselves and others to mold-laden dusts as they conduct their cleanup activities. Caution should be used to prevent mold and mold spores from being dispersed throughout the air where they can be inhaled by building occupants.

(Note: It is important to understand that there are no Federal or State regulations that define acceptable levels of mold.)

Prevention

The key to mold control is moisture control. In-house EHT Facilities personnel should strive to:

• Conduct routine visual inspections throughout their buildings, paying specific attention to areas known to have moisture problems.

• Fix roof, window and plumbing leaks in the building envelope as soon as possible.

• Watch for condensation and wet spots. Fix source(s) of moisture problem(s) as soon as possible (best practice within 48 hours).

• 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 low indoor humidity, below 60% relative humidity (RH), ideally 30-50%, if possible.

• Perform regular building/HVAC inspections and maintenance as scheduled.

• Clean and dry wet or damp spots within 48 hours.

• Don't let foundations stay wet. Provide drainage and slope the ground away from the foundation.

Step-by-Step Reporting/Response

When, despite routine prevention efforts, evidence is found suggesting the presence of mold (ie. water intrusion, musty odor, visible growth, etc.) the following protocol should be employed.

Reporting:

1. **Notify Facilities personnel immediately.** A work order should be entered to document the complaint/issue; however personally speaking with your building Custodian and/or Maintenance Technician is critical for a rapid response.

   ○ Be sure to report/document exactly the problem or concern, by including the physical evidence of the problem (ie. wet ceiling tile), and/or physical/health related symptoms of staff or students that may be the result of suspected increased mold spore levels.

   ○ Report of a suspected problem may be made by any building occupant, and all complaints shall be taken seriously and investigated thoroughly.

Response:

1. **Investigate the complaint.** After receiving a complaint of water intrusion and/or the possibility of the presence of mold growth, Facilities personnel should gather as much detailed information as possible to

allow for a focused investigation. Every situation is different, and having good information will allow for a more targeted investigation and rapid response.

2. **When the problem is obvious.** When the source of the water/moisture issue is obvious, such as a wet ceiling tile, the tile should be removed and discarded. A visual inspection should then be made above the drop ceiling plane to determine the source of the water.

   Maintenance personnel should remediate (or have remediated via contractor) any mechanical or structural problem. Once this has occurred, the area should be allowed to dry completely. This may include physically drying metal or masonry components, or increasing air circulation for items such as insulation.

   After drying has taken place, a careful visual inspection should be conducted to look for any evidence of mold growth. If no evidence can be identified, as a precautionary measure to prevent possible future growth, the area shall be misted with a biocide (ie. Mold Zapper) and allowed to dry fully. A new ceiling tile should then be installed and its condition monitored.

   (Note: It should be noted that any mold spore, live or dead, has the potential to cause negative health effects in persons sensitive to such allergens. By using a biocide in this process, we seek to kill the always present spores to prevent any possible future reproduction should the environment become suitable.)

   If evidence is found of minor growth, a closer inspection is necessary. Using the example of impacted pipe insulation, the first step would be to determine if the insulation contains asbestos. Maintenance personnel should review their building's AHERA documentation for such record. Should the mold impacted material contain asbestos, a remediation contractor shall be brought in to remove the material. (AHERA records should be updated to reflect such removal.) Should the insulation not contain asbestos, Maintenance personnel should carefully open the insulation to determine if the mold growth is surface only or has propagated throughout the material.

   In the event the mold growth has only impacted the surface or paper covering, assuming the water source has been eliminated and thorough drying has concluded, the surface should be misted with a biocide for

the reasons stated above. In the event the mold growth has worked its way into the insulation, the affected area should be removed and replaced. As spores will certainly be disturbed during this process, the area should be misted with a biocide as a precautionary measure.

3. **When the problem isn't obvious.** When building occupants are suffering from symptoms consistent with exposure to elevated levels of mold spores, and an investigation fails to uncover a moisture issue or mold growth evidence, air samples will be taken to confirm or rule out the presence of excessive mold spores.

   Should this testing disprove the presence of high level(s) of mold spores, Facilities personnel will continue to monitor the area(s). Should test results show the area(s) contain high spore counts, an environmental consultant shall be brought in to provide advice on prevention and cleaning.

   (Note: The examples listed above are common situations and have been included to illustrate basic response protocols. However, each potential mold investigation is unique and the specific information gathered will dictate the proper response for that instance.)

   Considerations

   It is important to understand that not all affected surfaces should be treated the same with regard to cleaning.

   ○ **Hard Surfaces:** When mold growth is found on a hard surface (ie. block wall, tile, metal door frames, drywall or plaster), the area should first be misted with a biocide to kill any live mold spores. This should be followed up with a damp mild detergent wipe to physically remove the spores from the area. It is important that a "damp" wipe be used during this process, to minimize the introduction of water onto the surface.

   ○ **Porous Surfaces:** When mold growth is found on porous surfaces (ie. paper, cardboard, wood, or unpainted block), the area should be misted with a biocide to kill any live spores. If impractical to damp wipe (ie. paper), the biocide should be left to dry. If available, a HEPA vacuum should be used to physically remove the dead spores. If the surface can be damp wiped (ie. wood), it should

be done so as with hard surface cleaning. Any paper materials should be carefully bagged and discarded.

○ **Moderate and Major Growth:** When, after an investigation, it is determined that a moderate or major mold growth event has occurred (usually defined as impacting an area greater than 10 SF), an environmental consultant contractor shall be brought in to assess and provide direction on remediation and testing.

4. **In the loop.** Throughout the investigation and remediation process, the complainant and the Building Administrator shall be kept abreast of all developments and activities. Facilities personnel shall ensure that all findings and activities are documented in the respective work order.

Tools of the Trade

As remediation efforts may expose in-house workers to increased levels of mold spore(s), all Facilities personnel shall have adequate access to the following PPE / Equipment:

1) Dust Mask (N-95 Disposable or Greater)
2) Rubber Gloves
3) High Power Flashlight
4) Floor Fan / Dehumidifier
5) Moisture Meter
6) Humidity Gage
7) HEPA Vacuum
8) Trash Bags (Material Removal)