

**DESERT RESEARCH INSTITUTE
MOLD ASSESSMENT AND REMEDIATION PROCEDURE**

1.0 Introduction

This Desert Research Institute (DRI) Mold Assessment and Remediation Procedure was established to assure that consistent and uniform information is provided to DRI employees responsible for control, remediation, assessment and prevention of mold contamination

2.0 Purpose & Scope

- 2.1 The purpose of this document is to establish a guideline for Desert Research Institute facilities staff regarding mold contamination assessment and remediation.
- 2.2 Emphasis should be placed on preventing contamination through proactive building maintenance and prompt repair of water damage.
- 2.3 Timely remediation of contaminated materials and building infrastructure repair are the primary responses to mold contamination.
- 2.4 No federal, state, or local regulations exist on mold assessment and remediation. The procedures listed in this document are based on guidelines established by OSHA and the New York City Department of Health.

3.0 Roles & Responsibilities

3.1 Facilities Department

- 3.1.1 Notify EH&S of flooded areas, water damage, potentially contaminated areas, and/or visible mold growth.
- 3.1.2 Implement prevention practices as outlined in this procedure.
- 3.1.3 Implement remediation practices as outlined in this procedure.

3.2 Environmental Health & Safety (EH&S)

- 3.2.1 Assess flooded areas, water damage, potentially contaminated areas, and visible mold growth and determine if an outside industrial hygienist or contractor is required to monitor or repair eliminate the damaged areas.
- 3.2.2 Establish risk-based remediation levels and job specific recommendations.

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3.3 Contractors

- 3.3.1 Before performing work in areas with visible mold surface growth, contact a DRI Facilities Manager, who will consult with DRI EH&S prior to granting permission to begin the work.
- 3.3.2 Should visible mold be discovered on inner surfaces, under moldings, etc., during contracted work; stop work and contact a DRI Facilities Manager, who will consult with DRI EH&S prior to granting permission to continue the work.

4.0 Prevention Practices

- 4.1 Moisture control is the key to mold control. Facilities shall act promptly when water leaks or spills occur indoors.
- 4.2 Any initial water infiltration should be stopped and cleaned promptly. A prompt response (within 24-48 hours) and thorough clean-up, drying, and removal of water-damaged materials will prevent or limit mold growth.
- 4.3 Mold prevention tips include:
 - 4.3.1 Repairing building structure and plumbing leaks as soon as possible.
 - 4.3.2 Looking for condensation and wet spots. Fix sources of moisture intrusion problems as soon as possible.
 - 4.3.3 Preventing condensation by increasing surface temperature or reducing the moisture level in the air (humidity). To increase surface temperature, insulate or increase air circulation. To reduce the moisture level in the air, repair leaks, increase ventilation (if outside air is cold and dry), or dehumidify (if air is warm and humid).
 - 4.3.4 Keeping HVAC drip pans clean, flowing properly and unobstructed.
 - 4.3.5 Performing regularly scheduled building/HVAC inspections and maintenance, including air filter changes.
 - 4.3.6 Maintaining indoor relative humidity below 60%.
 - 4.3.7 Venting moisture-generating appliances (e.g., autoclaves and dryers) to the outside where possible.
 - 4.3.8 Venting kitchens and bathrooms according to local code requirements.

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- 4.3.9 Cleaning and drying wet or damaged areas as soon as possible, but no more than 48 hours after discovery.
- 4.3.10 Providing adequate drainage around buildings and sloping the ground away from building foundations. Follow all local building codes.
- 4.3.11 Pinpointing areas where leaks have occurred, identifying the causes, and taking preventative action to ensure no recurrence.

5.0 Assessment

- 5.1 The presence of mold, water damage, or musty odors should be addressed immediately. In all instances, any source(s) of water must be stopped and the extent of water damage determined.
- 5.2 Visual inspection: A visual inspection is the most important initial step in identifying a possible contamination and should be conducted/verified by EH&S personnel. Primary areas of concern may include:
 - HVAC system (including filters, cooling coils, drain pans, humidifiers, dehumidifiers, cooling towers and ducting).
 - Ceiling tiles
 - Drywall
 - Cardboard
 - Carpet
 - Other material known to promote biological growth
- 5.3 Sampling: If visual mold growth is present, sampling is not required for remediation recommendations. Sampling (bulk and air) *may* be conducted when:
 - 5.3.1 Evidence of growth is not observed during visual inspection and unexplained occupant complaints exist that are associated with mold exposure.
 - 5.3.2 Visual assessment is not adequate (i.e., visible growth is not detected but significant water staining and/or damage has occurred and conditions have been favorable for growth).
 - 5.3.3 Evidence from visual assessment and/or bulk sampling indicates contamination of HVAC systems.
 - 5.3.4 Identification of specific fungal contaminants is required as part of medical evaluation.

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6.0 Analysis

- 6.1 Analysis of bulk/surface and air samples is conducted by a qualified lab specializing in microscopic analysis of microbial samples. The presence of trace fungal spores in samples is considered background.
- 6.2 Although exposure criteria do not exist, large differences in fungal types or levels as compared to uncontaminated outdoor air may indicate sources of indoor amplification or contamination.

7.0 Remediation Practices

- 7.1 Sources of water infiltration including leaks, seepage, high humidity, and other underlying causes of fungal growth should be promptly rectified prior to commencement of remediation activities. Humidity levels should be maintained below 60%.
- 7.2 Remediation levels and specific recommendations are established by EH&S (or outside consultant, if applicable) on a case-by-case basis.

7.3 Level 1 – Minimal Surface Contamination (small isolated area, such as ceiling tile replacement, small areas on nonporous materials).

- 7.3.1 Remediation can be conducted by all Facilities staff. Such person must receive training on proper clean-up methods, PPE, and potential health hazards. This training can be performed as part of a program to comply with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200). EH&S staff will provide job specific recommendations.
- 7.3.2 Minimum PPE is disposable gloves. An N-95 respirator and eye protection are recommended. Respirators must be used in accordance with voluntary use per the OSHA Respiratory Protection Standard (29 CFR 1910.134).
- 7.3.3 Contaminated materials should be removed from the area in a sealed impermeable plastic bag. These materials may be disposed as ordinary waste.

7.4 Level 2 – Moderate Surface Contamination (moderate isolated area, such as sheetrock panels, removal of small carpeted areas)

- 7.4.1 Remediation can be conducted by specifically trained Facilities staff or a qualified outside contractor. Personnel should be trained in handling hazardous material, such as asbestos and fungi, abatement in addition to training on proper clean-up methods, PPE, and potential health hazards. This training can be performed as part of a program to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200) and an Asbestos 16 hour Operations and Maintenance training course per (29

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CFR 1926.1101) or equivalent. EH&S staff will provide job specific recommendations.

- 7.4.2 Respirator (N-100, HEPA), gloves and goggles are required. Respirators use must be in accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134) for non voluntary use.
- 7.4.3 Work area should be unoccupied. Removing people from spaces adjacent to the working area is not necessary, but is recommended for high risk individuals (i.e., asthma sufferers, persons with allergies, etc).
- 7.4.4 Surfaces in the work area that could be contaminated should be covered with secured plastic sheets before remediation to contain dust/debris and prevent further contamination.
- 7.4.5 Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, should be done.
- 7.4.6 The work area used by remediation workers for egress should be HEPA vacuumed or cleaned with a damp cloth or mop and detergent solution.
- 7.4.7 All areas should be left dry and visibly free from contamination and debris.
- 7.4.8 Contaminated materials that cannot be cleaned should be removed from the building in a sealed impermeable plastic bag. These materials may be disposed as ordinary waste.

7.5 Level 3 – Extensive Surface Contamination (large, multiple contaminated areas, not easily isolated such as., many sheets of drywall and large carpeted areas or building wide contamination, including contaminated HVAC systems)

- 7.5.1 Remediation should be handled by qualified outside contractor trained in handling hazardous materials, such as asbestos and fungi abatement. Industrial hygienist or other environmental health & safety professionals with experience performing microbial investigations and/or mold remediation should be consulted prior to remediation activities to provide oversight for the project and contractor should have previous experience in fungal remediation.
- 7.5.2 Full face respirators with HEPA cartridges, gloves, and entire body protective clothing, including coverings for the head and feet, are required.
- 7.5.3 Complete isolation of work area from occupied spaces using plastic sheeting sealed with duct tape (including ventilation ducts/grills, fixtures, and other openings) or other critical barriers. Negative pressure should be

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maintained inside of the work area with an exhaust fan equipped with a HEPA filter. Airlocks and decontamination room are available.

- 7.5.4 Moving high-risk individuals from adjacent spaces is recommended.
- 7.5.5 Dust suppression methods, such as misting (not soaking) surfaces prior to remediation should be done.
- 7.5.6 The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth or mop and detergent solution. All areas should be left dry and visibly free from contamination and debris.
- 7.5.7 Contaminated materials that cannot be cleaned should be removed from the building in sealed impermeable plastic bags. The outside of the bags should be cleaned with a damp cloth and detergent solution or HEPA vacuumed in the decontamination chamber prior to their transport through uncontaminated areas of the building. These materials may be disposed as ordinary waste.
- 7.5.8 Air monitoring is conducted prior to re-occupancy.


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Concurrence

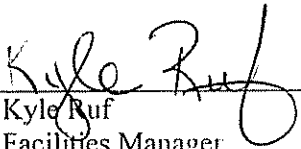
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Rev. 0 August 2005

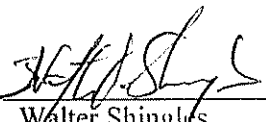
Rev. History: Martha McRae
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Rev. 1 April 2008

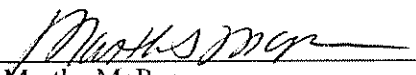
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