

**Hurricanes Katrina and Rita
FEMA-DR-1603/1607-LA
Information Sheet # 012**

MOLD REMEDIATION

Extensive disaster-related damages caused many eligible facilities to become inundated or exposed to wet and humid conditions. The extensive damage and the limited availability of private repair and restoration contractors delayed cleanup activities. In addition, the disruption of electrical power inhibited the use of water extraction, pumping, and electric drying equipment. As such, the damaged structures and interior building contents remained waterlogged until workers were available and access was possible. The water saturation may have caused growth and propagation of mold on structures and interior contents causing health-related problems and increasing the costs of repairs.

GUIDANCE:

Employee Safety is Critical. See Attachment A.

Identifying Disaster Damages. To verify that mold damages identified by the applicant are a direct result of the disaster event, Project Officers (POs) should conduct an overall assessment of the condition of the structure, preferably working with a mold specialist. Specifically, the PO should make sure that the mold growth was caused by the disaster event and did not exist before the disaster event. Many situations will be obvious. Others will require closer examination.

- Check the seals around windows. Areas around windows and exterior vents are susceptible to water infiltration if not properly sealed. Evidence of poor seals may indicate pre-disaster leaks, which could have caused mold growth.
- Check the surface water drainage flow pattern around the structure to determine if there is a propensity for water to accumulate around the building. The evidence of standing water against an exterior wall may indicate that the facility had a history of water intrusion, which could have caused the mold growth.
- Check the condition of rain gutters and downspouts. The presence of rusted rain gutters, drains or vegetative growth in the gutters is an indicator of poor building maintenance practices. Poorly maintained drain gutters could cause localized flooding at the base of structures, water intrusion and subsequent mold growth that could have existed before the disaster event. Likewise, the absence of rain gutters would cause the same effects.
- Check for evidence of pre-disaster stains on ceiling tiles. If the tiles have evidence of leakage it is possible that water intrusion existed before the disaster event.

- It also is appropriate to request information from the applicant to clarify or validate inspection observations.

Mold Remediation Consultants. It is the responsibility of the applicant to show evidence of mold damage during the inspection process. Applicants sometimes may contract for the services of mold remediation specialists who will conduct tests and provide a report and remediation recommendations. A FEMA Mold Specialist may be available to review these reports and determine whether the remediation recommendations are appropriate. If the FEMA Mold Specialist disagrees with the applicant's mold consultant's report, the applicant may be required to provide additional information to support its claim.

Assessing Applicant Scope of Work. The extent of mold damage and the type of materials damaged will warrant a specific method of remediation. Accordingly, applicants may engage in a variety of mold cleanup methods to remediate mold damage. The method of remediation depends on the types of material that are damaged and the extent of damage. Applicants may choose to use professional contractors or force account personnel to accomplish the remediation work.

Remediation work could include simple cleaning techniques such as damp wiping, water extraction and drying. Remediation work may entail comprehensive procedures that consist of removing and replacing sections of building components, replacing furniture and equipment, or cleaning of Heating, Ventilation, and Air Conditioning (HVAC) systems.

If visible mold growth is present, sampling for mold may not be necessary. There are no Federal limits set for mold or mold spores, and such sampling cannot be used to check a building's compliance with Federal mold standards. However, applicants may choose to conduct surface sampling before and after remediation work to determine if an area has been adequately cleaned or properly remediated. Applicants should use professionals who have specific experience in designing mold-sampling protocols, sampling methods, and interpreting results.

The costs of mold sampling, both pre- and post-remediation, may be eligible for reimbursement, provided there was evidence present prior to remediation to suggest the existence of disaster-related mold. The costs of mold sampling that reveal no presence of disaster-related mold is not eligible for direct reimbursement, but generally may be attributed to an applicant's administrative expenses.

To assess the reasonableness of the applicant's scope of work, Attachment B includes EPA-suggested mold remediation methods for several types of building materials. The suggested remediation methods are based on the size and type of materials affected by mold growth caused by clean water damage. Applicants may choose to use alternative cleaning methods because of "black water" (flood water) intrusion.

Negligence. The repair of damage caused by negligence on the part of the applicant is not eligible for reimbursement. Therefore, if an applicant failed to take reasonable measures to prevent further damage to a facility, such as allowing the uninhibited spread of mold to

previously undamaged portions of a facility, the damage caused by that negligence might be found ineligible for Federal assistance.

However, if the applicant can document and justify why reasonable measures were not taken to prevent further damage to a facility from mold, or why measures that were taken were insufficient to prevent further damage to a facility from mold, such damages may be eligible for reimbursement. Mitigating factors may be present, such as the disruption of electrical power that inhibited the use of water extraction, pumping and electric drying equipment, causing interior elements to remain wet for an extended period of time.

Public Assistance staff will carefully and thoroughly document in the Project Worksheet the circumstances involved, explain how the mold has spread, and indicate what preventive actions (if any) were performed by the applicant. This documentation process is especially critical when the additional mold-related repairs appear to qualify the facility for replacement under the 50% Rule – Repair or Replacement. Potential determinations of ineligible damage due to negligence will be discussed with the DPAO and PAO prior to informing an applicant of any such adverse determination, which may give rise to an appeal pursuant to 44 CFR §206.206.

Repair vs. Replacement Determinations. Situations may arise where mold-related damages would result in the extensive replacement of certain building components (e.g., sheetrock, ceiling tile, insulation, etc.). When these eligible damages are combined with other disaster-related damages, the facility may qualify for the cost of replacement rather than repair. The FEMA Policy Digest, *Repair or Replacement*, and FEMA Policy 9524.4, *Eligibility of Facilities for Replacement under 44 CFR §206.226(d) (1) (The 50% Rule)*, will be followed. Mold remediation costs documented under Category E can be used in the 50% rule calculations for repair vs. replacement.

44 CFR §206.226(f) states: *A facility is considered repairable when disaster damages do not exceed 50 percent of the cost of replacing a facility to its predisaster condition, and it is feasible to repair the facility so that it can perform the function for which it was being used as well as it did immediately prior to the disaster.*

When the damage to a large-scale facility is extensive and a calculation of the repair and replacement costs is warranted, the following actions should take place:

- A Mold Specialist, working in close coordination with the PO and PAC, should be used to prepare a detailed damage cost estimate using the FEMA Cost Estimating Format process. In addition, all efforts should be closely coordinated with the Mold Specialist in order to provide guidance on appropriate remediation procedures and assistance in determining reasonable costs.
- Certain costs identified in the FEMA Policy Digest and FEMA Policy 9524.4, will not be used in the calculations of repair or replacement. It is important to confirm that the Mold Specialist is aware of these guidelines and that the repair costs do not include codes and standards upgrades (even if required by local building officials), demolition, site work, or applicable project management costs.

- If the repair calculation for the facility is greater than or equal to 50% of the replacement cost, then replacement will be considered, subject to the concurrence of the DPAO or PAO. PACs will coordinate with DPAOs to obtain their concurrence prior to formal submission of the PW to the DFO for processing. DPAOs will confirm that the Mold Specialist applied proper estimating techniques, that the 50% Rule was properly applied, and that the Mold Specialist's findings were conclusive as to the extent of disaster-related damages.

Project Worksheet Documentation. If applicants used contracted services to sample for mold or to perform remediation work, the PO should verify that the procurement of those services were in accordance with the applicants' procurement policies and the Federal procurement requirements. Specifically, the 44 CFR Part 13.36 requires that all procurement transactions be conducted in a manner providing full and open competition.

If the applicant did not use a competitive procurement process, the PO should advise the PAC. The PAC will coordinate with the applicant to obtain further information to evaluate the project's eligibility in accordance with the other methods of procurement stated in 44 CFR Part 13.36.

The PO should read the applicants' contract documents, mold assessment, and recommended remediation reports carefully to determine the appropriate eligible scope of work.

If the applicant has included a scope of work in its contracts for remediation work that is above and beyond what is deemed eligible by the PO, the PW should reflect only the eligible scope of work. A narrative describing any significant mold-related disagreement with the applicant will be included with the PW.

In addition to the usual documentation requirements, the PW should include additional attachments, if appropriate. Such attachments include -

- A copy of the mold remediation consultant's contract and report;
- A report from the FEMA Mold Specialist;
- A narrative describing the additional disaster-related damages caused by mold and the remediation actions taken by the applicant;
- Any documentation addressing finding of ineligibility on the basis of pre-existing mold or negligence on the part of the applicant;
- CEF documentation, if applicable;
- Discussion of the 50% Rule, if applicable;
- Force account costs; and
- The following statement to be included on the PW: "Applicant has indicated that no further mold prevention and remediation work is needed; and that no further mold remediation will be eligible unless it is found in otherwise hidden areas during reconstruction."

For mold remediation completed through June 30, 2006, the work will be considered an emergency protective measure (Category B) **if** immediate access to the facility was available and activities were performed to stop the spread of mold. Such activities include -

- Removing wet porous items such as carpet and upholstered furniture;
- Cleaning of non-porous surfaces;
- Pumping;
- Dehumidification; and
- Removing a limited amount of drywall to allow drying of wall cavities.

This would not include HVAC components, structural members, or other hard surfaces. Only mold remediation work that would have been documented under Category B would be eligible, to include as a Mission Assignment.

For mold remediation completed through June 30, 2006 to prepare for repair/restoration, and for all mold remediation completed after June 30, 2006, the work would be considered permanent work (Category E). Work includes actions such as -

- Removal of contents, architectural finishes, drywall, carpet, etc.;
- Cleaning of non-porous surfaces;
- Pumping when necessary for repair;
- Dehumidification when necessary for repair;
- Removal of HVAC components;
- Cleaning of structural or hard surface components; and
- Actions to allow safe entry.

The Standard Flood Insurance Policy (SFIP) will cover mold remediation with some exceptions (exceptions such as the lack of action to stop or prevent mold).¹ Therefore, if a building is located within an identified flood hazard area (A or V zone) and is insurable under the NFIP, then a reduction will be made for coverage allowed by a SFIP or an equivalent amount if there is no SFIP in affect. The category (B or E) under which the work is placed is not relevant in regard to the SFIP. Category B and E PWs for buildings in Flood Hazard Areas will be written for single buildings and routed for insurance review.

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Because this document is not exhaustive, either in topics or in detail, information should be verified with FEMA Public Assistance Program officials before becoming the basis for decision making.

¹ See NFIP Adjusters Claim Manual, page VIII-11

Attachment A

EMPLOYEE SAFETY

Many types of mold exist. All molds have the potential to cause health effects. Molds can produce allergens that can trigger allergic reactions (sneezing, runny nose, red eyes and skin rash) or even asthma attacks in people allergic to mold. Others are known to produce potent toxins and/or irritants. Potential health concerns are an important reason to prevent mold growth and to remediate/clean up any existing indoor mold growth.

Even though FEMA and TAC personnel are not involved in the removal or repair of moisture-damaged structures, FEMA and TAC personnel may be involved in verifying damages inside structures that are suspected to contain mold or inside structures where mold remediation is in progress. In those instances, all FEMA and TAC personnel should wear Personal Protective Equipment (PPE). An inexpensive paper mask and care in not touching mold areas may be all that is necessary for the type of visual inspections and limited exposures common to the Public Assistance Program. However, if extensive time is anticipated in mold-infested areas or prior testing has shown evidence of toxic-type molds more extensive PPE should be obtained.

At a minimum, the US Environmental Protection Agency (EPA) recommends the use of the following additional PPE:

Gloves: Long gloves that extend to the middle of the forearm.

Goggles: Goggles that do not have ventilation holes are recommended. Avoid getting mold or mold spores in your eyes.

Respirators: Some N-95 respirators resemble a paper dust mask with a nozzle on the front; others are made primarily of plastic or rubber and have removable cartridges that trap most of the mold spores from entering. In order to be effective, the respirator or mask must fit properly; carefully follow the instructions supplied with the respirator.

Additional information about PPE that should be worn when inspecting structures that contain mold can be found at the following websites:

<http://www.epa.gov/iaq/molds/whattowear.html>

<http://www.epa.gov/iaq/molds/i-e-r.html>

Attachment B

CLEAN UP METHODS

(For Mold Growth From Clean Water Damage)

Method 1: Wet Vacuum

Wet vacuums are vacuum cleaners designed to collect water. They can be used to remove water from floors, carpets, and hard surfaces where water has accumulated. They should not be used to vacuum porous materials, such as gypsum board. They should be used only when materials are still wet – wet vacuums may spread spores if sufficient liquid is not present. The tanks, hoses, and attachments of those vacuums should be thoroughly cleaned and dried after use since mold and mold spores may stick to the surfaces.

Method 2: Damp Wipe

Whether dead or alive, mold is allergenic, and some molds may be toxic. Mold generally can be removed from nonporous (hard) surfaces by wiping or scrubbing with water, or water and detergent. It is important to dry these surfaces quickly and thoroughly to discourage further mold growth. Instructions for cleaning surfaces, as listed on product labels, should always be read and followed. Porous materials that are wet and have mold growing on them may have to be discarded. Since mold will infiltrate porous substances and grow on or fill in empty spaces or crevices, mold can be difficult or impossible to remove completely.

Method 3: HEPA Vacuum

HEPA (High-Efficiency Particulate Air) vacuums are recommended for final cleanup of remediation areas after materials have been thoroughly dried and contaminated materials removed. HEPA vacuums are also recommended for cleanup of dust that may have settled on surfaces outside the remediation area. Care must be taken to assure that the filter is properly seated in the vacuum so that all the air must pass through the filter. When changing the vacuum filter, remediators should wear PPE to prevent exposure to the mold that has been captured. The filter and contents of the HEPA vacuum must be disposed of in well-sealed plastic bags.

Method 4: Discard – Remove Damaged Materials and Seal in Plastic Bags

Building materials and furnishings that are contaminated with mold growth and are not salvageable should be double-bagged using 6-mil polyethylene sheeting. These materials can then usually be discarded as ordinary construction waste. It is important to package mold-contaminated materials in sealed bags before removal from the containment area to minimize the dispersion of mold spores throughout the building. Large items that have heavy mold growth should be covered with polyethylene sheeting and sealed with duct tape before they are removed from the containment area.

More information on Clean Up Methods can be found at the following website:

<http://www.epa.gov/mold>.