

Department of the Army  
Headquarters, U.S. Army Garrison  
Unit 17001, BLDG 730  
APO AP 96555  
14 October 2023

## Kwajalein Atoll Standard Operating Procedure

### MOLD IDENTIFICATION AND REMEDIATION





**DEPARTMENT OF THE ARMY**  
**UNITED STATES ARMY GARRISON - KWAJALEIN ATOLL**  
**UNIT 17001 BOX 1**  
**APO AP 96555-0100**

AMIM-KWG-ZA

14 October 2023

MEMORANDUM FOR USAG - Kwajalein Atoll Community

SUBJECT: Kwajalein Atoll Counter Mold Standard Operating Procedure (SOP)

1. Reference: HQ IMCOM OPORD 23-007, IMCOM Fiscal Year (FY) 23  
Operation Counter Mold (U), 17 April 2023.

2. In my capacity as designated authority for Life, Health, and Safety issues for the USAG Kwajalein Atoll community, I confirm that the attached Standard Operating Procedure (SOP) for Mold Identification and Remediation is adopted by all Units/Agencies for facilities on Kwajalein. This SOP is in accordance with ref (a) and the IMCOM Commanding General's priorities in implementing actions and activities to reduce adverse impacts of, and risks posed by, naturally occurring mold growth.

3. Commander's Intent:

a. Purpose: The purpose of this SOP is to proactively eliminate threats to life, health, and safety from mold and improve the Quality of Life for people in Army facilities on Kwajalein. This SOP will allow Kwajalein to reinforce the Army's commitment to quality facilities and investment in our Army Soldiers, Families, and Civilians.

b. Key Tasks:

- (1) Define mildew, mold, and hazardous mold.
- (2) Inform and educate residents, public works experts, and Garrison leaders how to prevent mold and appropriately mitigate any threats identified.
- (3) Develop and share command-wide prevention and mitigation techniques, procedures, and policies.
- (4) Execute preventive efforts across all at-risk facilities.
- (5) Rapidly mitigate and remediate identified mold threats.

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c. End State:

(1) Eliminate threats to life, health, and safety from mold in Army facilities at Kwajalein Atoll.

(2) Improve confidence of housing and barracks residents in the Army's commitment to quality housing.

4. Accordingly, I am pleased to endorse this SOP. This SOP will be implemented by all tenant units/agencies and remediation will be executed by the LOGCAP DPW or Unit/Agency's organic maintenance and repair organization.

ANDREW R. MORGAN  
COL, MC (FA40C)  
Commanding

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## 1. Purpose

To provide guidelines for remediating building materials contaminated with mold. It is the intent of the Directorate of Public Works (DPW) that all mold remediation be conducted as safely as possible.

## 2. Job Scope

- a. If the quantity of surface area affected by the mold contamination is:
- b. Less than 10 square feet: Remediation can be completed by building occupants. Work must be completed in accordance with this document (see Section 7 Appendix). Remediation support may be requested from DPW in-house or contracted staff under circumstances where the building or barracks manager feels it is required.
- c. Greater than 10 square feet: Contact DPW to visually assess the affected area. DPW will determine the execution method for remediation and repairs.
- d. Note: Kwajalein Hospital Preventative Health should be consulted prior to any mold remediation work greater than 10 square feet that is located directly within an HVAC system or if any materials are suspected asbestos containing building materials.

## 3. Definitions

- a. Containment - A component or enclosure designed or intended to control the release of mold or mold-containing dust or materials into surrounding areas of the building.
- b. Indoor air - Air within the envelope of a building, including air in spaces normally occupied by persons in the building but excluding air in attics and crawl spaces that are vented to the outside of the building.
- c. Indoor mold - Mold contamination that was not purposely grown or brought into a building and that has the potential to affect the indoor air quality of the building.
- d. Mold - Any living or dead fungi or related products or parts, including spores, hyphae, and mycotoxins. Mold is a naturally occurring microscopic fungi that can grow on indoor and outdoor surfaces. Mold can live in all environments, climates, and seasons but requires oxygen, moisture, and a nutrient source to grow. The types of molds and their abundance in an area depend on the availability of nutrients like dirt, water, and temperature. Molds grow well on cardboard, ceiling tiles, paper, and wood products. Mildew is a general term used to refer to certain kinds of mold or fungus that typically grow in a flat growth pattern and are found on shower walls, windowsills, and other places with high moisture levels. Black/Toxic Mold is a generic term used to refer to toxigenic molds, or molds that produce mycotoxins. The color of mold is not an indication of how dangerous it may be. All visible molds should be removed from living areas.

e. **Mold Prevention-** The key to mold control is moisture control. Solve moisture problems before they become mold problems!

- (1) Fix leaking pipes and leaks in the building envelope as soon as possible.
- (2) Watch for condensation and wet spots. Clean and dry wet or damp materials within 48 hours.
- (3) Fix source(s) of moisture problem(s) as soon as possible.
- (4) 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). Whenever possible, ventilate areas with high humidity (showers and dishwashing areas) to the outside.
- (5) Keep heating, ventilating, and air-conditioning (HVAC) drip pans clean, flowing properly, and unobstructed.
- (6) Vent moisture-generating appliances, such as dryers, to the outside.
- (7) Maintain relative humidity below 60%, ideally 30-50%, if possible.
- (8) Maintain a positive pressure on the building envelope.
- (9) Perform regular building HVAC inspections and maintenance as scheduled.
- (10) Do not let foundations stay wet. Provide adequate drainage and slope the ground away from the foundation.
- (11) Clean and repair gutters regularly.
- (12) Allow for adequate natural ventilation in crawlspaces under structures.

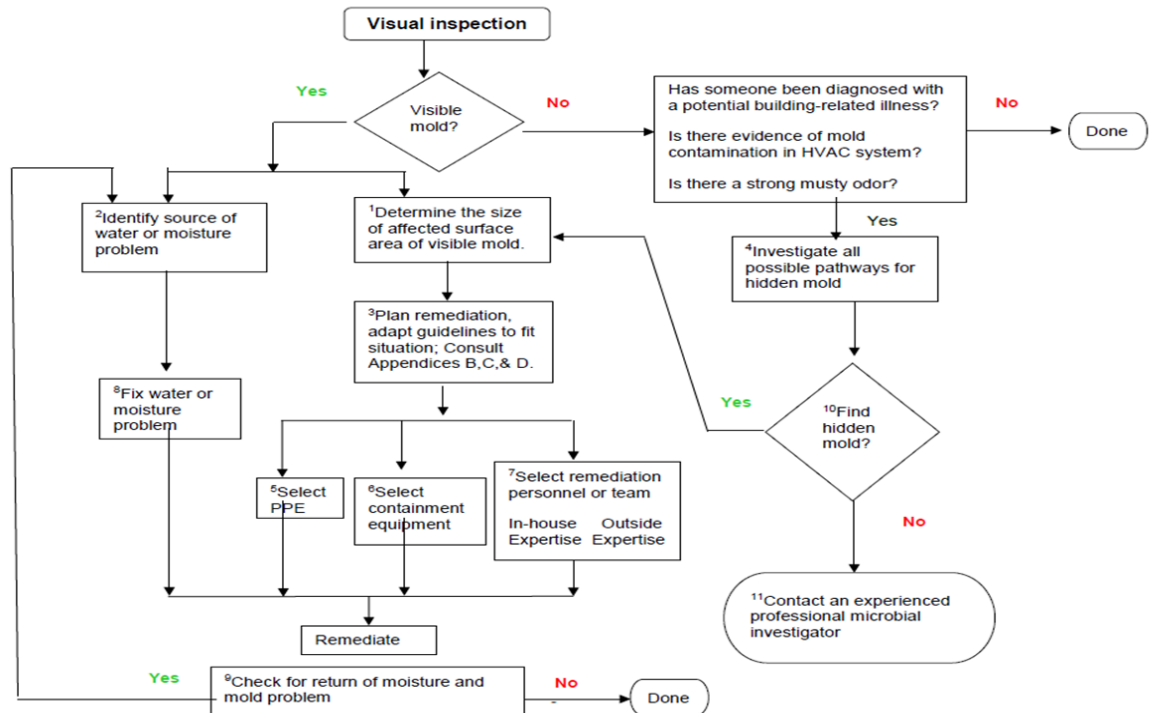
f. **Mold remediation -** The removal, cleaning, sanitizing, demolition, or other treatment, including preventive activities, of mold or mold-contaminated matter that was not purposely grown at a location. Preventive activities include those intended to prevent future mold contamination of a remediated area, including applying biocides or anti-microbial compounds.

## 4. Investigation Decision Logic Plan Flow Chart (App A TG278)

TG 278

### APPENDIX A: Mold Investigation Decision Logic

October 2018



## 5. Roles/Responsibilities:

### a. USAG-KA DPW:

(1) Evaluate areas suspected to be contaminated by mold growth. Provide recommendations to USAG-KA Director of Public Works for remediation for areas >10sqft.

(2) Assist LOGCAP Contractor in identifying the underlying causes of water intrusion and mold growth and develop the appropriate response(s) to prevent recurrence.

(3) Assess conditions for occupancy after water restoration or mold remediation activities.

### b. DPW (LOGCAP):

(1) Shall identify and fix the source(s) of water leak(s) or intrusion.

(2) Shall arrange and manage contract services for water removal and restorative drying of affected structure.

(3) Shall notify IACH PH immediately when an area of suspected mold growth is discovered in excess of 10 square feet, is located within HVAC equipment, or any contaminated materials are suspected to contain asbestos.

(4) Shall 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.

(5) Shall designate a project leader, representing the contractor, to work with USAG-KA DPW personnel during the entire project.

(6) Shall provide USAG-KA DPW 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.

(7) Shall ensure labor hours, materials, and equipment utilized are recorded for all completed Demand Maintenance Orders (DMOs).

(8) Shall ensure service technicians complete the IMCOM Dampness and Mold Visual Assessment (VSA) worksheet as identified in Annex B of OPORD 23-007 (Attached) when required. When completed the VSA worksheet will be converted to Adobe PDF file format and uploaded to the corresponding Army Maintenance Application (ArMA) work request ticket submitted by the customer as supporting documentation for work completed.

(9) The contractor must notify USAG-KA DPW if situations arise that may require a deviation from the original action plan.

(10) Shall ensure service technicians complete the IMCOM Post Remediation Verification (PRMV) worksheet as identified in Appendix 1 (Attached) of OPORD 23-007 when required. When completed the PRMV will be converted to Adobe PDF file format and uploaded to the corresponding ArMA work request ticket submitted by the customer as supporting documentation for work completed.

(11) Shall record and document all activities and services performed in response to the problem. For water restoration, records would include complete moisture readings.

(12) Shall complete the project in a manner which complies with all federal, state, and local government regulations and procedures.

## 6. Procedure for Mold Remediation UH and Other OMA Facilities



Mold growth within an occupied building is indicative of a water problem. The cause of the water problem must be investigated and resolved to prevent remediating the same site multiple times. Likewise, when water is introduced into the indoor environment the affected area must be dried as soon as possible (within 24-48 hours) to avoid the promotion of mold growth.

Once the source of the water problem is identified and eliminated, several methods for remediating visible mold growth are possible. Each situation will dictate which method is most appropriate.

### 6.1 Methods

- a. Method 1: Wet vacuum- steam cleaning may be an alternative for carpets and upholstery.
- b. Method 2: Damp wipe with plain water or with water/detergent solution, scrub as necessary. **Never mix bleach and ammonia. Toxic fumes may be produced. Detergent must be approved by O&M or ESD.**

c. Method 3: High Efficiency Particulate Air (HEPA) vacuum on thoroughly dry surfaces. Dispose of HEPA contents in a well-sealed plastic bag.

d. Method 4: Discard contaminated material in a sealed plastic bag. HEPA vacuum area after material has been removed and then dispose of HEPA contents in a well-sealed plastic bag.

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

a. Employees engaging in the abatement of mold shall have the following PPE available for their use:

- (1) Safety glasses/goggles
- (2) N95 Respirator
- (3) Disposable Coveralls
- (4) Gloves

b. If an employee has questions concerning the appropriate PPE, they should contact their supervisor or IACH PH.

## **6.3 Work Area Containment**

a. Containment of a work area for in-house work less than 10 sq. ft. will not likely be needed, but there are some precautions that will be required prior to performing actual remediation work. For all mold remediation projects, general isolation will be required.

b. The following are best management practices:

(1) Close all doors and restrict general access to the workplace while actual remediation is being performed.

(2) If possible, perform work during hours of minimal building occupancy, such as nights or weekends.

(3) HVAC systems in the immediate area of the work shall be shut down and/or the HVAC returns shall be blanked off where applicable.

(4) Windows in the workplace should be closed and any portable fans shall be turned off.

## **6.4 Disposal**

Once mold contaminated materials have been removed and sealed in plastic bags, waste can be disposed of as regular trash. No special labeling or disposal requirements are necessary.

## **7. References & Training Materials**

a. OPERATIONS ORDER (OPORD) 23-007/1800ZFEB23.

b. Annex C - U.S. Army Public Health Center Technical Guide 277 (TG-277): Industrial Hygiene Public Health - Army Mold Remediation Guidance.

c. Annex D - U.S. Army Public Health Center Technical Guide 278 (TG-278): Industrial Hygiene Public Health - Mold Assessment Guide.

d. Training Materials

(1) Housing Inspection Tutorial <https://www.youtube.com/watch?v=tCtu7XMLKvA>

(2) Inspection Briefing <https://www.youtube.com/watch?v=WQxTpuNbtpo>

(3) Mold and Mildew Information <https://www.youtube.com/watch?v=K4rbNpH8Op0>

(4) Kwajalein Mold Training Slide Decks <Z:\Public Files\Training\Ft Riley Mold Training Slides>

## Appendix

### Guidelines for Remediating Building Materials with Mold Growth Caused by Water (\*Refer to Cleanup Methods in section 6.1)

Material or Furnishing Affected	Cleanup Methods (*)	Personal Protective Equipment	Containment
SMALL - Total Surface Area Affected Less Than 10 square feet (ft <sup>2</sup> )			
Books and papers	3	Recommended  N-95 respirator, gloves, and goggles	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		
Wood surfaces	1, 2, 3		
MEDIUM - Total Surface Area Affected Between 10 and 100 (ft <sup>2</sup> )			
Books and papers	3	Limited or Full  Use professional judgment, consider potential for remediator exposure and size of contaminated area	Limited  Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area
Carpet and backing	1,3,4		
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	1,3,4		
Wallboard (drywall and gypsum board)	3,4		
Wood surfaces	1,2,3		

<b>LARGE - Total Surface Area Affected Greater Than 100 (ft<sup>2</sup>) or Potential for Increased Occupant or Remediator Exposure During Remediation Estimated to be Significant</b>			
Books and papers	3	<b>Full</b>  Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area	<b>Full</b>  Use professional judgment, consider potential for remediator exposure and size of contaminated area
Carpet and backing	1,3,4		
Concrete or cinder block	1,3		
Hard surface, porous flooring (linoleum, ceramic tile, vinyl)	1,2,3,4		
Non-porous, hard surfaces (plastics, metals)	1,2,3		
Upholstered furniture & drapes	1,2,4		
Wallboard (drywall and gypsum board)	3,4		
Wood surfaces	1,2,3,4		

## **Annex B**

### **Post Remediation Verification Letter**

#### **Property location**

Installation

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Property Address

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#### **Instructions:**

- **Areas reported and identified as mold have been treated (remediated):**

Either Box A or B below must be filled out. The mold remediation team member must fill out Box A.

- **Areas reported that do not contain mold:** The mold remediation team member must fill out Box C.

**Mold damage has been treated:** (If Box A and B are filled out, Box C does not need to be filled out.)

**Box A:** To be filled out by the certified mold remediation team member (can be remediated in a single visit).

I certify that:

- I treated the areas that were reported and identified as having mold. Treatment can include removing, cleaning, sanitizing, and preventing mold.
- I gave a copy of my report to the tenant and recorded it for maintenance records.

---

**Mold remediation team member signature**

**Date**

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**Garrison Commander  
or delegated authority signature**

**Date**

**Box B:** To be filled out by the certified mold remediation team member (will require rescheduling for more extensive remediation services).

I certify that:

- The reported areas with mold at this property have been treated (remediated).
- With reasonable certainty, the underlying causes of the mold reported have been treated.
- I gave a copy of my report to the tenant and recorded it for maintenance records.

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**Mold remediation  
team member signature**

**Date**

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**Garrison Commander  
or delegated authority signature**

**Date**

**No mold damage was found** (If Box C is filled out, Box A and B do not need to be filled out.)

**Box C:** To be filled out by the mold remediation team member

I certify that:

- I inspected this property.
- I did not find signs (evidence) of any mold.
- I gave a copy of my report to the tenant and recorded it for maintenance records.

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**Mold remediation  
team member signature**

**Date**

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**Garrison Commander  
or delegated authority signature**

**Date**