U.S. Army Garrison
Fort Knox, KY
Directorate of Public Works

STANDARD OPERATING PROCEDURES FOR

MOLD IDENTIFICATION AND REMEDIATION

April 2023

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DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, US ARMY GARRISON COMMAND, FORT KNOX
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AMIM-KNG-ZA 28 April 2023

MEMORANDUM FOR RECORD

SUBJECT: Fort Knox Counter Mold Standard Operating Procedure (SOP) Endorsement

1. Reference HQ IMCOM OPORD 23-007, 16 Feb 2, IMCOM FY23 Operation Counter Mold.

2. In my capacity as designated authority for Life, Health, and Safety issues for the U.S. Army Garrison (USAG) Fort Knox, I confirm that the attached Standard Operating Procedure (SOP) for Mold Identification and Remediation is adopted by all Units/Agencies for facilities on Fort Knox. 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: To proactively eliminate threats to life, health, and safety from mold and improve the Quality of Life for people in Army facilities on Fort Knox. This SOP will allow Fort Knox to reinforce the Army's commitment to quality facilities and investment in our Army Soldiers, Families, and Civilians.

b. Key Tasks:
   i. Define mildew, mold, and hazardous mold.
   ii. Inform and educate residents, public works experts, and Garrison leaders how to prevent mold and appropriately mitigate any threats identified.
   iii. Develop and share command-wide prevention and mitigation techniques, procedures, and policies.
   iv. Execute preventive efforts across all at-risk facilities.
   v. Rapidly mitigate and remediate identified mold threats.

c. End State:
   i. Eliminate threats to life, health, and safety from mold in Army facilities on Fort Knox.
   ii. 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 Directorate of Public Works or Unit/Agency's organic maintenance and repair organization.

BRADFORD.JIMMY.MELVIN.1108335633 Digitally signed by BRADFORD.JIMMY.MELVIN.1108335633 Date: 2023.04.28 13:02:08 -04'00'

LANCE A. O'BRYAN
COL, FA
Commanding

1. Purpose

The purpose of this Standard Operating Procedure (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 Fort Knox. This SOP will allow Fort Knox to reinforce the Army's commitment to quality facilities and investment in our Army Soldiers, Families, and Civilians. This SOP provides 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 quickly and safely as possible. This SOP is in accordance with the U.S. Army Installation Management Command (IMCOM) Commanding General's priorities in implementing actions and activities to reduce adverse impacts of, and risks posed by, naturally occurring mold growth. This SOP is a product of the U.S. Army Garrison (USAG) Fort Knox, Directorate of Public Works (DPW) Mold Management Plan (MMP).

This document is intended for the use of DPW controlled buildings/work areas to include single-Soldier housing and Unaccompanied Housing (UH/barracks). It does not apply to privatized housing, outdoor areas/structures, or naturally ventilated areas (i.e., fences, wood/block walls, bunkers, carports, etc.), or non-conditioned spaces (example: garages, warehouses, tents, Quonset huts, storage buildings, sheds, equipment, etc.).

2. Definitions and General Information on Mold

2.1 Definitions

a) Mildew is a general term used to refer to certain kinds of mold or fungus that typically grow in a flat growth pattern and may be found on shower walls, windowsills, and other places with high moisture levels (condensation and/or humidity).

b) 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 soil or organic matter, water, and temperature. Molds grow well on cardboard, ceiling tiles, paper, and wood products. Indoor mold is 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.

c) Black/Toxic Mold is a generic term used to refer to toxigenic molds, or molds that produce mycotoxins. This term typically refers to the species *Stachybotrys chartarum*, which can be identified in water damaged buildings.

2.2 General Information on Mold

Mold is any living or dead microscopic fungi or related products or parts, including spores, hyphae, and mycotoxins. Molds reproduce by creating microscopic spores that are suspended in and transported through the air. Mold spores continually waft through the indoor and outdoor air. Mold can grow on virtually any surface as long as these growth conditions exist. Typical conditions that

lead to mold growth in buildings are chronic water intrusion, lack of adequate ventilation and moisture control, or isolated floods caused by the weather or a water pipe bursting. Mold and mildew can be found anywhere on indoor surfaces which have sufficient moisture to establish growth such as windowsills, bathroom and shower walls, tilework, damp basements and crawlspaces, site of water leaks, on furniture, air ducts, drywall, floors, walls, ceilings, etc. The color of mold varies and is not an indication of if or how hazardous it may be.

All indoor visible molds and associated mold sources should be remediated and repaired. In most cases, if visible mold growth is present, sampling is unnecessary. Since no Environmental Protection Agency (EPA) or other federal limits have been set for mold or mold spores, sampling cannot be used to check a building's compliance with federal mold standards. All molds should be treated the same with respect to potential health risks and removal. In all situations, the underlying cause of water accumulation and/or elevated indoor moisture that led to mold growth must be rectified, or mold growth will recur. By controlling moisture and eliminating mold growth, we can prevent damage to building materials and furnishings, save financial resources, and avoid potential health risks.

3. Mold Prevention

The key to preventing mold growth is moisture control. Solve moisture problems before they become mold problems. Prompt corrective action addressing elevated humidity, water leaks, spills or wet items is critical in the prevention of mold growth. The other key factor in preventing mold growth is housekeeping. Maintaining a clean, dry, and well-ventilated indoor space is a preventive action to prevent the conditions that encourage mold growth. Working environments which contain dust buildup and clutter, combined with excess moisture or water intrusion is a prime medium for mold growth. Occupants, building managers, and tenants must do their due diligence in maintaining a clean and healthy indoor environment.

- *Note: Occupational Safety and Health Administration (OSHA) Act of 1970 (29 USC 654) requires employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm and that employees comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct; consult OSHA for more information (800-321-OSHA or osha.gov/).*

General Tips to Prevent Mold Growth

- Maintain a dry, clean, and well-ventilated indoor space, allowing conditioned air to flow unobstructed.
- Clean and dry damp/wet materials, clothing/towels, equipment, furnishings, etc. within 48 hours to reduce the potential for mold growth. Dry items before storage.
- Watch for condensation and wet spots. Clean and dry wet or damp materials within 48 hours.
- Keep windows and doors closed in conditioned spaces.
- Water spills, standing water/liquid, and damp towels/materials will be cleaned and dried properly.
- Remove as much moisture as possible from mops and mop buckets before storage.
- Prevent condensation by increasing surface temperature or reducing the moisture level in air (humidity). To increase surface temperature, insulate or increase air circulation.

- Sufficiently ventilate areas prone to elevated humidity (showers, locker rooms, indoor pools, laundry, and dishwashing areas) to the outside in order to maintain acceptable indoor humidity levels. Vent moisture-generating appliances, such as dryers and kitchen exhaust hoods to the outside.
- Utilize the exhaust fan when bathing/showering until the moisture/steam is gone from the bathroom. Do not open bathroom windows when the exhaust fan is on.
- Submit an Army Maintenance Activity (ArMA) work order request and consult with your building manager for the following tips:
  - Upon discovery, submit a work order for repairs for leaky plumbing/pipes, leaks in the building envelope, or other leaks/condensation/water intrusion in the building by submitting an ArMA request to the DPW Work Order Section, as soon as possible for the following examples, but not limited to: water intrusion issues, window/roof leaks, plumbing leaks, if gutters are not functioning properly, if downspouts are emptying rain at the building foundation, or you notice that building foundations stay wet, etc.
  - Maintain relative humidity below 60%, ideally 30-50%, if possible. Maintain slight positive pressure within the building envelope.
  - Maintain the building envelope to keep water/moisture out of the building.
  - Maintain heating, ventilating, and air-conditioning (HVAC) components to ensure they are in working in optimal condition.
  - Reduce the moisture level in air, increase ventilation (if outside air is cold and dry), or dehumidify (if outdoor air is warm and humid).
  - Keep HVAC drip pans clean, flowing properly, and unobstructed.
  - Perform regular building HVAC inspections and maintenance.

4. Mold Remediation

Remediation is a process designed to eliminate mold hazards by removing all moldy materials and thoroughly cleaning affected areas. The removal, cleaning, disinfecting, demolition, or other treatment, including preventive activities, of mold and mold-contamination. Preventive activities include those intended to prevent future mold contamination of a remediated area, including applying biocides or anti-microbial applications. All mold remediation shall be in accordance with Technical Guide (TG)277, TG278, and the USAG DPW Fort Knox MMP.

4.1 Remediation plans will vary depending on the extent of damage:

- Smaller isolated areas consisting of 10 square feet or less of visible mold on non-porous hard surfaces (e.g., such as painted walls, ceramic tiles, hard floors, windows, hard plastic, metal, etc.) can generally be remediated by either facility staff/barracks occupant or DPW by submitting a work order request to DPW in ArMA. See Section 7.1.A for recommended procedures for cleaning an isolated area on a non-porous surface or see Section 7.1.B for detailed instructions to submit an ArMA work order request.
- Larger areas of visible mold consisting of greater than 10 square feet will require experienced professional mold remediation conducted by the Base Operations Maintenance (BASOPS) sub-contractor. An ArMA work order request must be submitted to initiate the process for remediation. See Section 7.1.B for detailed instructions to submit an ArMA request.

5. Roles/Responsibilities

5.1 DPW Operations and Maintenance (O&M), Business Operations & Integration Division (BOID), and/or Engineering Services Division (ESD):

- Identify and fix the source(s) of water and air leak(s) or intrusion.
- Arrange and manage contract services for prompt water removal and restorative drying of affected structure.
- Ensure labor hours, materials, and equipment utilized are recorded for all completed Demand Maintenance Orders (DMOs).
- Ensure BASOPS maintenance contractors complete the IMCOM Dampness and Mold Visual Assessment (VSA) and upload the worksheet into the ticket in ArMA. See Appendix C.
- Ensure BASOPS maintenance contractors complete the IMCOM Post Remediation Verification (PRMV) and upload the worksheet into the ticket in ArMA. See Appendix D.
- Provide Quality Assurance (QA) review of contracted maintenance work order requests.

5.2 DPW Environmental Management Division (EMD):

- Ensure all mold assessments and Site-Specific Work Plans (SSWP) comply with federal, state, and location regulations.
- Ensures that during the initial mold assessment, that asbestos, lead-based paint, or other hazardous materials are identified by a Kentucky-accredited asbestos and lead-based paint inspector.
- Develops, implements, and provides oversight for the SOP.
- Make occupancy recommendations based on the TSCA Certified Mold Inspector's assessment and sub-contracted mold remediation consultant.

5.3 Mold Program Manager (MPM):

- Provide direction within DPW regarding facility management findings and recommendations assessed by a Certified Microbial Inspector which may require the allocation of resources within the DPW.
- Ensure the documents or reports will satisfy the USACE Microbial Assessment Survey requirements, if part of a Mission and Installation Contracting Command (MICC) project for mold remediation projects greater than 10 square feet. (USACE UFGS 028500 Mold Remediation (most current version)).
- Track all mold remediation projects and share information with EMD Toxic Substance Control Act (TSCA) Contractor, Garrison Safety and Industrial Hygiene/Preventive Medicine (IH/PM), as needed.
- Ensure that all contract maintenance personnel comply with the USAG Fort Knox DPW MMP for mold remediation in Fort Knox DPW facilities.
- Maintain familiarity with indoor air quality (IAQ)/mold assessments and mold-related policies; as well as state of the art remediation methods, operations and maintenance, and removal activities involving mold contamination.
- Oversee the TSCA Contractor, who will:
    - Work directly with the DPW MPM, DPW Divisions, IH/PM, and IAQ Professionals on

preventing and remediating mold in facilities on the installation.
  - Interpret regulations and provide guidance on techniques for preventing and remediating mold.
  - Provide guidance on housekeeping procedures to prevent mold growth.
  - Recommend products/cleaning solutions to be used in housekeeping and remediation projects.
  - Review and recommend technical approval or disapproval of Site-Specific Work Plans for remediation projects submitted by the BASOPS for Level II-IV work.

5.4 Base Operations Maintenance Contractor (BASOPS):

- BASOPS and their mold remediation sub-contractor(s) shall comply with Federal, State, and local requirements, as well as the Fort Knox MMP and this SOP.
- Maintain compliance with MMP requirements, approved SSWP (for Level II-IV), and all other applicable regulations.
- All cleaners shall be used in accordance with the manufacturers' instructions and Safety Data Sheet(s) (SDS). All cleaners shall be compatible with target work surface materials.
- Submit a SSWP to the EMD TSCA Manager for approval, prior to commencing remediation work on large scale projects (Level II – IV).
- Relay project duration dates and any delay information to MPM.
- Shall inspect sub-contractor's work site prior to commencement of remediation operations to confirm compliance with the MMP and the approved SSWP, including chemical usage.
- Notifies Contract Officer Representative (COR) to have specific trades identify root causes in need of repair (i.e., HVAC, Roofing, etc.).
- Track status remediation projects and submit regularly, as timeline contracted to DPW, EMD, and MPM.
- Provide a qualified third party IAQ professional to provide clearance sampling, when determined necessary by EMD. Qualified IAQ professional (5+ years in microbial investigations, sampling methods, data interpretation, and remediation protocols).

5.5 Occupants/Tenants/Building Managers:

- UH Occupants follow Unit's recommended housekeeping procedures to reduce the potential for mold growth.
- For suspect mold growth 10 square feet or less, refer to section 6 through 8. Ensure all building and building system (plumbing, electrical, HVAC, and structural) deficiencies are immediately reported to the DPW Work Order Section using ArMa.
- Building Manager shall ensure all occupants are familiar with procedures to prevent mold and how to submit requests using ArMA.
- Require that signed occupant(s) who will be away for more than 7 days, notify the Building Manager. The Building Manager and/or their representative must perform an initial assessment with the occupant to ensure there are no existing deficiencies that may cause mold growth. Then the Building Manager and/or their representative shall inspect the occupant's vacated area at a minimum of two times per week to monitor for moisture/water intrusion and mold growth.
- If you encounter mold and don't know what to do after reading this SOP, inform your chain of command if a resident in Unaccompanied Housing. You may also contact the barracks Building Manager. If in an administrative building, you may contact your chain of command or the Building Manager for additional guidance.

6. Procedures for Mold Remediation UH and Other Garrison Facilities

Fort Knox Goal-Centered Process for Mold Remediation

6.1 Cleanup Methods:

Method 1: **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 upholstery.

Method 2: **Damp-wipe** surfaces with plain water or with water/detergent solution (except wood-use wood floor cleaner); scrub as necessary.

- **Never mix cleaning compounds or chemicals. Dangerous and toxic reactions may potentially occur that could be detrimental to your health or the building occupants. Never mix bleach and ammonia. Toxic fumes may be produced.**
- Chemicals that have not been previously approved for use on the Installation must be approved by DPW EMD Hazardous Materials Program.
- The use of a mild detergent or EPA approved disinfectant will be used when addressing mold contamination. The use of chlorine bleach or sodium hypochlorite is not recommended as a routine practice during general mold cleanup.

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

Method 4: Discard uncleanable contaminated room contents in sealed plastic bag(s). HEPA vacuum area after material has been removed and after surface is dried. Dispose of the contents of the HEPA vacuum outdoors in well-sealed plastic bag(s).

6.2 Personal Protective Equipment (PPE):

Persons engaging in mold remediation shall have PPE as directed by the cleaning product's manufacturer's instructions and the product's Safety Data Sheet (SDS).

PPE available for use to include, but not limited to, and per the manufacturer's instructions:

- Safety glasses/goggles eye protection without ventilation holes are recommended
- Disposable Coveralls/Full Body Clothing
- Gloves
- N-95 Disposable Respirator
- Note: that the Occupational Safety and Health Administration (OSHA) requires that respirators fit properly (fit testing) when used in an occupational setting; consult OSHA for more information (800-321-OSHA or osha.gov/). If a person has questions concerning the appropriate PPE, they should contact their supervisor, Garrison Safety, or Ireland Army Health Clinic (IRAHC) Industrial Hygiene.

6.3 Work Area Containment for cleanup of Small Isolated Area-Total surface area affected less than 10 square feet:

Containment of a work area for in-house work 10 sq. ft. or less 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, a level of containment will be required, based on the area effected.

The following are best management practices:

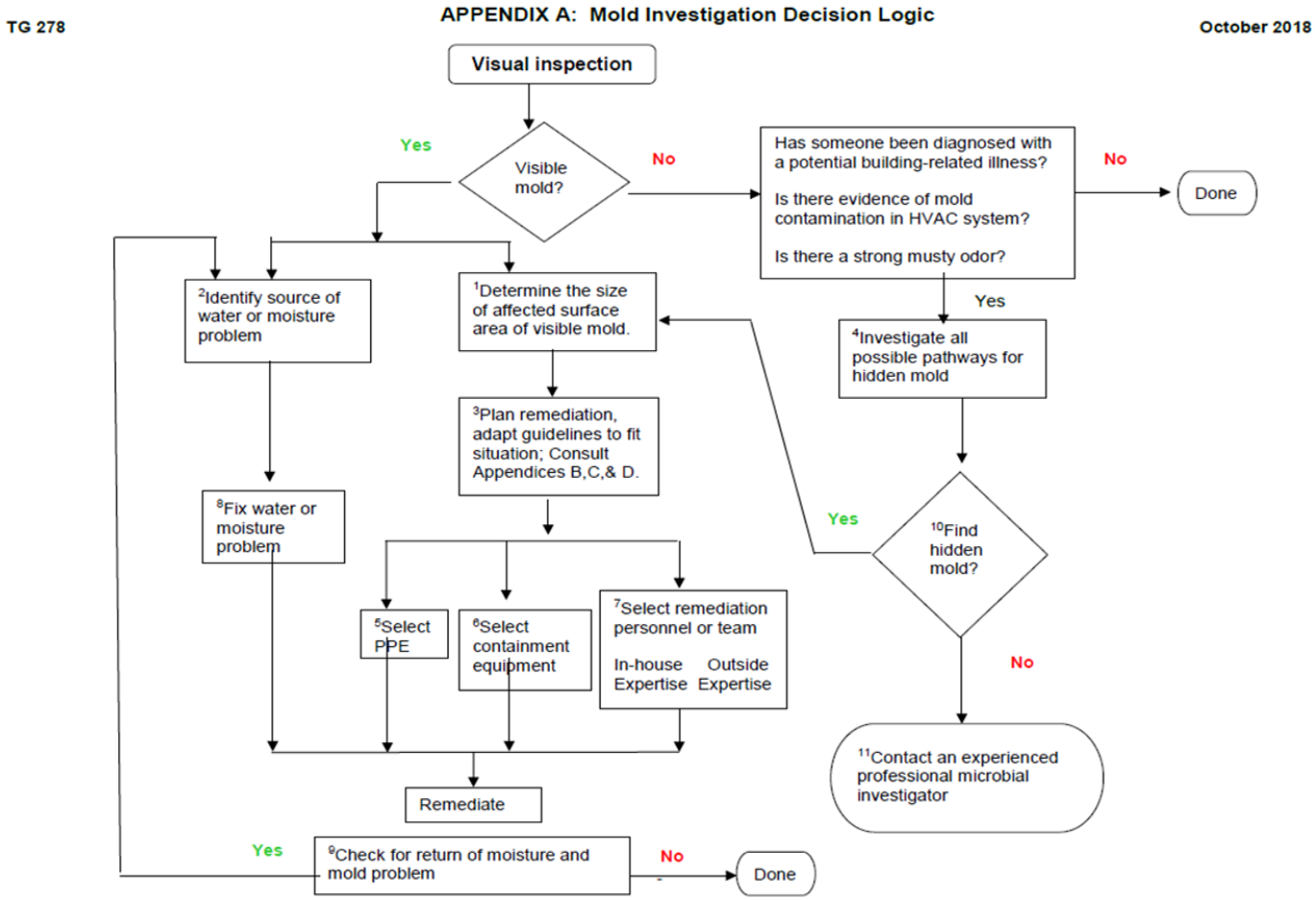
- Close all doors and restrict general access to the workplace while actual remediation is being performed.
- The work area should be unoccupied. If possible, perform work during hours of minimal building occupancy, such as nights or weekends. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons recovering from recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).
- Windows in the workplace should be closed and any portable fans shall be turned off.
- The work area and areas immediately surrounding the work area should be cleaned with a damp cloth and/or mop and a detergent solution. HEPA vacuuming of carpet and fabrics in the areas adjacent to the work area and damp wiping of non-porous surfaces is also recommended.

- *Note: Mold growth in excess of a surface area greater than 10 square feet, will require DPW or sub-contracted remediation cleanup. Limited or Full Containment will be required, based on the nature and scope of the mold growth which will be arranged and completed by DPW or a sub-contracted remediation cleanup team.*

6.4 Disposal

Once room contents have been determined to be uncleanable, then the mold contaminated shall be sealed in plastic bags and removed. The mold-contaminated waste can be disposed of as regular trash. No special labeling or disposal requirements are necessary. If government owned property, consult your building manager for proper disposition and/or replacement.

6.5 Mold Investigation Decision Logic Plan Flow Chart (Appendix A TG278)



7. Job Scope- Mold and/or Moisture Issue Remediation

7.1 If the quantity of surface area affected by the mold contamination is:

A. **Level 1- Small Isolated Area of surface mold (10 square feet or less)** such as non-porous hard surfaces (e.g., such as painted walls, ceramic tiles, hard floors, windows) and small areas on walls caused by clean water:

- *Note: 10 square feet or less is roughly a 3 ft. by 3 ft. patch or half the size of a door.*

- See Appendix A Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water.
- Remediation may be completed by the building occupant or by regular building maintenance staff that are trained on proper cleanup methods, in use of Personal Protective Equipment (PPE) and potential health hazards. This training can be performed as part of a program to comply with OSHA Hazard Communication Standard (29 CFR 1910.1200).
- Work must be completed in accordance with this guidance SOP, MMP, TG277, and TG278.

- Remediation support may be requested from DPW work order request (ArMA) under circumstances where the building occupant or barracks manager feels it is needed.
- Respiratory protection is recommended (N-95 or P100 respirator) to avoid breathing in mold or mold spores. In order to be effective, the respirator or mask must fit properly, so carefully follow the instructions supplied with the respirator.
- *Note: that the Occupational Safety and Health Administration (OSHA) requires that respirators fit properly (fit testing) when used in an occupational setting; consult OSHA for more information (800-321-OSHA or osha.gov/).*
- Gloves compatible with the cleaning compound per the chemical manufacturer's instructions and SDS should be worn.
- Wear goggles to avoid getting mold or mold spores in your eyes. Goggles that do not have ventilation holes are recommended.
- Follow the chemical manufacturer's instructions and SDS for PPE guidance.
- Containment of the work area is not necessary. However, the work area shall be unoccupied whenever possible.
- Use of dust suppression methods is recommended using wet-cleaning or damp-wipe methods.
- Seal contaminated materials that are unable to be cleaned in plastic bags and dispose of as ordinary waste. If government owned property, consult your building manager for proper disposition and/or replacement. If a particular item(s) has high monetary or sentimental value, you may wish to consult a restoration/water damage specialist.
- If the source of excess moisture/water intrusion is known, place a work order based on the emergent status of the repair needed to the DPW Emergency Work order number or ArMA request.
- Clean the area with a mild detergent or EPA approved disinfectant solution to remove mold growth and ensure the area is dried thoroughly.
- *Note: If the building occupant is unable to clean the small, isolated area; if water damaged building materials are involved; if small isolated area returns after cleaning; or if the water and/or mold damage was caused by water intrusion event(s), sewage, or other contaminated water, then follow the steps to submit an ArMA work order request as detailed in 6.1.B.*

B. **Greater than 10 square feet (Level II-IV) of mold**; if the building occupant is unable to clean the small, isolated area; if water damaged building materials are involved; or if the water and/or mold damage was caused by water intrusion event(s), sewage, or other contaminated water:

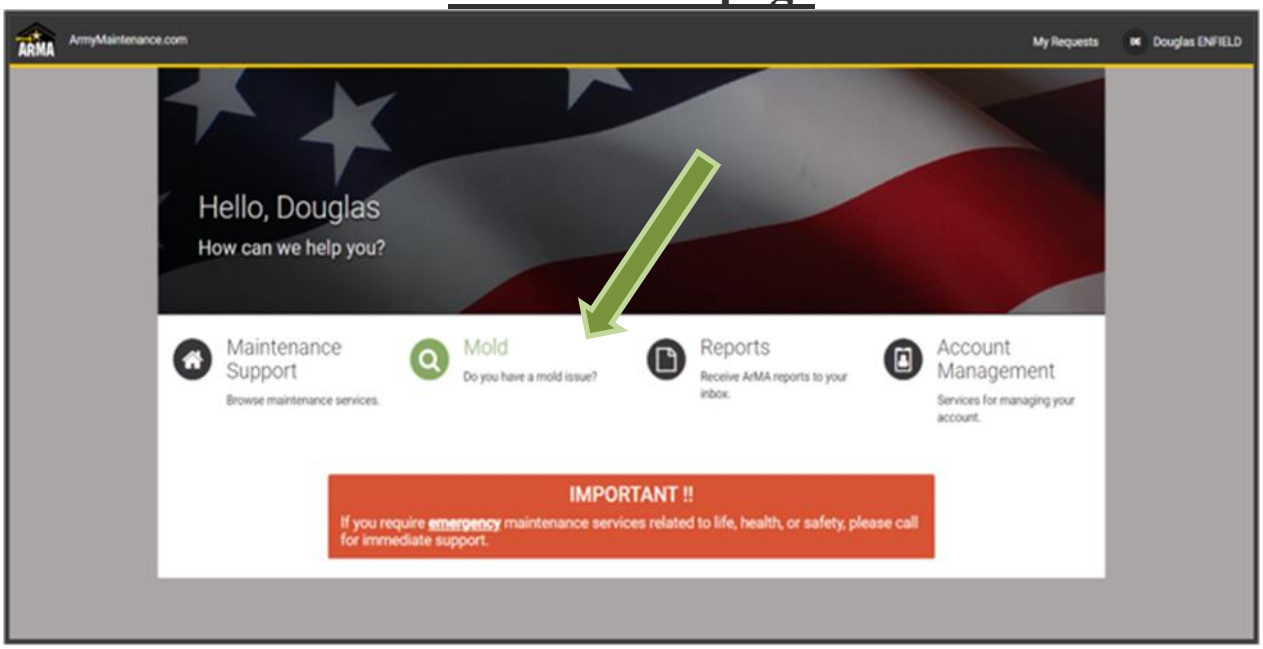
- Contact ArMA using the weblink or smartphone App and submit a work order for Mold.
- It is easy to submit a work order. Follow the steps below.

Step 1-Customer Creates Case in ArMA

- Log into ArMA at https://www.armymaintenance.com/arma or
- Scan the QR code with your smart phone camera to open ArMA.

- If no internet is accessible, call Fort Knox DPW BOID Work Order Reception at (502)-624-5999. Monday-Friday (excluding weekends and Holidays): 0700-1530
- **For all emergencies related to life, health, safety, call 911.**
- For building related emergency service work, please call (502) 624-1171.
- For all other real property service requests please use the Application for submission.
  a) Case is created in ArMA by Customer or Work Order Desk
  b) Customer or Work Order desk will select the Mold Form (green arrow below)

ArMA Homepage

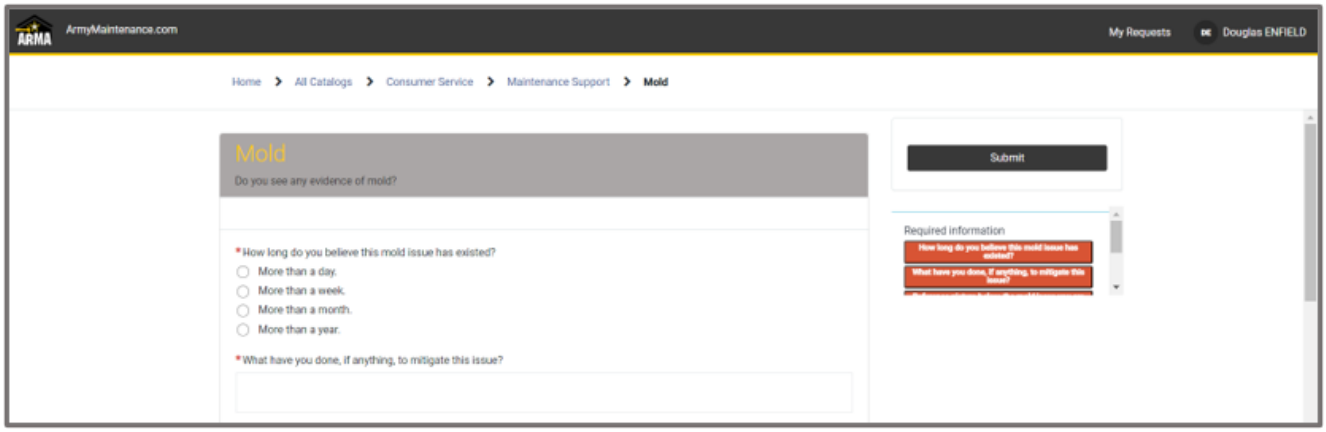


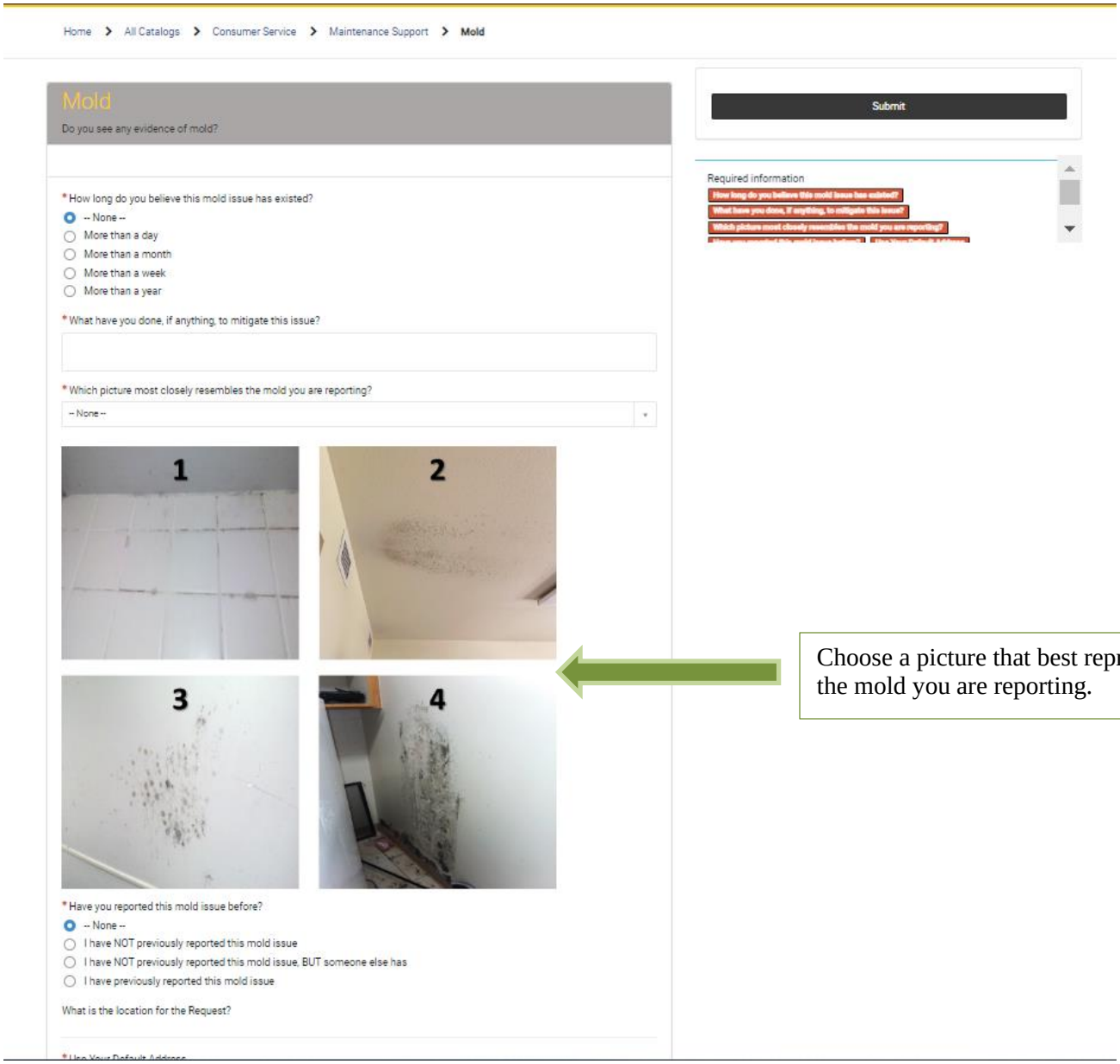
Step 2-Customer completes Mold Assessment Form in ArMA

a. A Mold Customer Assessment form will pop-up and must be completed and submitted in ArMA by the requestor.

- There are 4 fields that are required to be filled out:

1. How long do you believe this mold issue has existed? (Single selection)
2. What have you done, if anything to mitigate this issue? (Fillable)
3. Reference picture below, the mold issue you are reporting looks most like. (Choose one)
4. Have you reported this mold issue before? (Single selection)





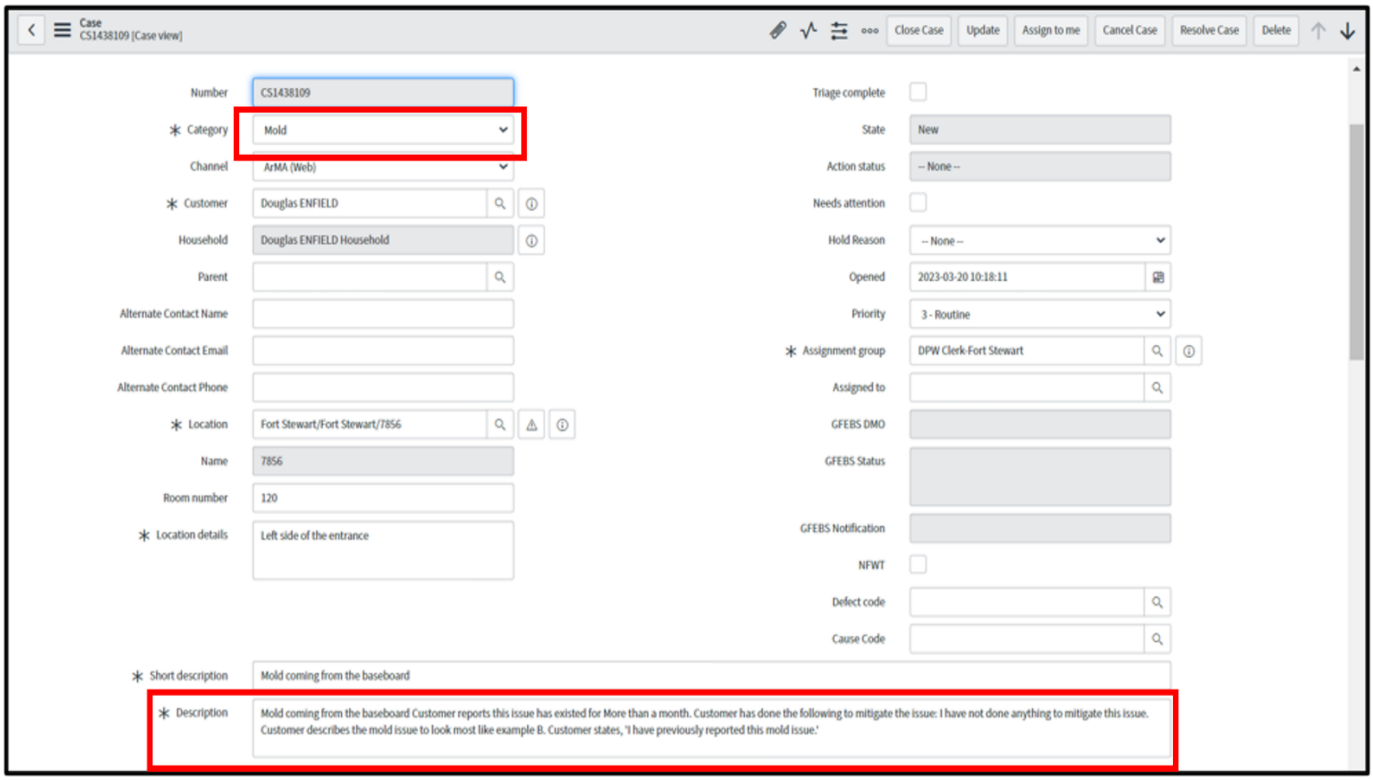
- Mold Category must be selected.
- Fill out ArMA electronic submission form and attach pictures (optional but recommended to better assist DPW with creation of the work order).

Step 3–Submit ArMA request

b. Once all required fields are entered, click Submit.
c. ArMA Case is Submitted to DPW.
d. DPW will determine the execution method and prioritize the mold work order for remediation and repairs.
   e. Mold remediation will be completed in accordance with Defense Centers for Public

Health-Aberdeen (DCPH-A) (APHC) TG277 and TG278.

f. Submitter can follow the work order process in their ArMA account.



Note: If you are experiencing symptoms that you suspect are a result from mold exposure, consult your Primary Care Manager or Provider (PCM or PCP) or a medical professional. If you are experiencing restricted breathing or other airway symptoms that you think are caused by mold exposure, call 911 or consult a medical professional.

7.2 Service Technician Instructions on labor hours, materials, and equipment

- Follow current USAG Fort Knox DPW Mold Management Plan guidance, TG277, TG278, and OPORD 23-007.

7.3 Instructions to service technicians on the Mold Visual Assessment (VSA) and the IMCOM Post Remediation Verification (PRMV) worksheets

- Follow current USAG Fort Knox DPW Mold Management Plan guidance, TG277, TG278, and OPORD 23-007.

8. References & Training Materials

8.1 References:

- OPERATIONS ORDER (OPORD) 23-007/1800ZFEB23 IMCOM FY23 Operation Counter Mold
- U.S. Army Public Health Center Technical Guide 277 (TG-277): Industrial Hygiene Public Health - Army Mold Remediation Guidance
- U.S. Army Public Health Center Technical Guide 278 (TG-278): Industrial Hygiene Public Health - Mold Assessment Guide
- OTSG/MEDCOM Policy Memo 21-026, Protecting Soldiers and Families from Potential Health Impacts Related to Residential Indoor Environmental Mold Exposure 09APR2019
- EPA; A Brief Guide to Mold, Moisture, and Your Home
  - https://www.epa.gov/mold/brief-guide-mold-moisture-and-your-home#tab-4
- EPA; Mold Remediation in Schools and Commercial Buildings Guide
  - https://www.epa.gov/mold/mold-remediation-schools-and-commercial-buildings-guide-chapter-1
- CDC; Mold
  - https://www.cdc.gov/mold/default.htm
- DCPHA-A (formerly known as Army Public Health Center [APHC]); Mold & Indoor Air Quality
  - https://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/Indoor-Air-Quality-Mold.aspx
- American Industrial Hygiene Association (AIHA): Mold Resource Center
  - https://www.aiha.org/public-resources/consumer-resources/disaster-response-resource-center/mold-resource-center
- Occupational Safety & Health Administration. Respiratory Protection Standard, 29 Code of Federal Regulations 1910.134. 76 FR 1152. June 8, 2011.

8.2 Training Materials:

- IMCOM G4 Counter Mold Training-Mold assessment and remediation competency training (CAC-enabled)
  - Headquarters G4 School of Public Works https://armyeitaas.sharepoint-mil.us/sites/IMCOM-HQ-G4/SitePages/Headquarters-School-of-Public-Works.aspx
- USAG Fort Knox DPW EMD Mold webpage
  - https://home.army.mil/knox/index.php/about/Garrison/directorate-public-works/environmental-management-division
    - Fort Knox Mold Awareness Brochure Trifold
    - Fort Knox Mold Awareness Poster
    - DCPH-A Mold Exposure Video
    - Mold Awareness Power Point
- USAG Fort Knox DPW EMD Programs & Training Environmental Officer Training: Information and Registration form available for Initial and Annual Refresher training courses
  - https://home.army.mil/knox/index.php/about/Garrison/directorate-public-works/environmental-management-division/programs-training

- DCPH-A: Protect Your Family from Mold Exposure video
  - https://www.youtube.com/watch?v=e2EIQ3NO_0g
- American Industrial Hygiene Association (AIHA): What is mold? Who's affected? A quick guide to the dangers of mold in your home
  - https://www.youtube.com/watch?v=KsSG-BtFPz4&list=PLm2Z0uH10mT7P2f8z-P8lHr9SPuV1UigM&t=4s

- Newcomer's Orientation-DPW Mold Awareness Brief
- CMDR/1SG Training-Mold Awareness in EMD Briefing
- Housing Inspection Tutorial
  - https://www.youtube.com/watch?v=tCtu7XMLKvA
- Inspection Information Briefing
  - https://www.youtube.com/watch?v=WQxTpuNbtpo
- Mold and Mildew Information
  - https://www.youtube.com/watch?v=K4rbNpH8Op0

9. Appendix A - (Appendix B TG278)

Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water*			
Material or Furnishing Affected	Cleanup Methods†	Personal Protective Equipment	Containment
SMALL - Total Surface Area Affected Less Than 10 square feet (ft²)			
Books and papers 3		Minimum 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 ft²			
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		
LARGE - Total Surface Area Affected Greater Than 100 ft² or Potential for Increased Occupant or Remediator Exposure During Remediation Estimated to be Significant			
Books and papers	3	Full Use professional judgment, consider potential for remediator/occupant exposure and size of contaminated area	Full 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		

(*) Refer to Cleanup Methods as detailed in Section 6.1 Methods of this document.

Use professional judgment to determine prudent levels of Personal Protective Equipment 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 Personal Protective Equipment, 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 PPE and containment. An experienced professional should be consulted if you and/or your remediators do not have expertise in remediating contaminated water situations.

Select method most appropriate to situation. Since molds gradually destroy the thing 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 or important, you may wish to consult a restoration/water damage/remediation expert. Please note that these are guidelines; other cleaning methods may be preferred by some professionals.

Table developed from literature and remediation documents including Bioaerosols: Assessment and Control (American Conference of Governmental Industrial Hygienists, 1999) (4) and IICRC S500, Standard and Reference Guide for Professional Water Damage Restoration, (Institute of Inspection, Cleaning and Restoration, 1999) (6).

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 OSHA may have requirements for Personal Protective Equipment and containment. An experienced professional should be consulted if you and/or your remediators do not have expertise remediating in contaminated water situations. Do not use fans before determining that the water is clean or sanitary.

10. Appendix B

Garrison Points-of-Contact for Mold Related Questions/Concerns

Scenario	Action	POC
Gas or Chemical odor detected	Contact FK Fire Department Garrison Safety Office	Evacuate and Call 911 FKFD – 624-1876 Safety – 624-3381
Unknown odor detected of concern	Contact Garrison Safety Office or Industrial Hygiene	Call 911 if an emergency Safety – 624-3381 IH – 624-5639
Occupants complaining of illness from suspected poor indoor air quality	Contact Garrison Safety Office or Industrial Hygiene (IH) Primary Care Manager (PCM)	Safety – 624-3381 IH – 624-5639 Contact PCM per OTSG/MEDCOM Policy Memo 19-026
Occupants desires an indoor air quality survey conducted	Contact Industrial Hygiene or Garrison Safety Office	IH – 624-5639 Safety – 624-3381
Occupants detect suspect mold growth in their building **(10 ft² or less)**	See procedures in Section 7.1A of this SOP	For additional information: Mold Program Manager – 624-1929/3598 Email: usarmy.knox.id-training.mbx.dpw-emd-info@army.mil
Occupants detect suspect mold growth in their building **(greater than 10 ft²)**	See procedures in Section 7.1B of this SOP to submit a Work Order for Mold through ArMA application	DPW Work Orders through ARMA https://www.armymaintenance.com/arma ArMA QR Code Scan code with Smartphone
Emergency Work Orders/ Night Emergency	Place a work order for building related emergencies	DPW Emergency Work Orders – 624-1171
DPW BOID Work Order Reception Desk	Contact if unable to use internet or weblink to create an ArMA work order request for Mold	624-5999 Monday-Friday (excluding weekends and Holidays): 0700-1530
DPW Housing division	Contact for Unaccompanied Housing questions/concerns	624-4898/8093 Email: usarmy.knox.id-training.mbx.dpw-housing-division@army.mil

Acronyms

ArMA=Army Maintenance Activity
DPW=Directorate of Public Works
FK=Fort Knox
FKFD=Fort Knox Fire Department
IH=Industrial Hygiene, Preventive Medicine Department, Ireland Army Health Clinic (IRAHC)
OTSG/MEDCOM=Office of the Surgeon General/Medical Command
PCM=Primary Care Manager or Provider; your routine medical care provider/facility
SOP=Standard Operating Procedure

Dampness and Mold Visual Assessment (VSA) Worksheet - Appendix C

Dampness and Mold Visual Assessment

Home Address:

Housing Representative Name: Date:

Room/Area (additional copies for each room):

Upon entering room/area, check for musty or damp odor: ☐ None ☐ Mild ☐ Moderate ☐ Strong

Describe source of musty or damp odors:

Relative humidity measurement: Ambient air temperature: Dew point measurement:

Check if component in room	Component	Check if nothing found	Damage or Stains Select the correct score	Check if Near exterior wall*	Visible Mold Select the correct score	Check if Near exterior wall*	Wet or Damp Select the correct score	Check if Near exterior wall*	Component Notes Check the type of material that is affected	Assessment Notes Check for additional detail. Describe if "Other"
☐	Ceiling	☐		☐		☐		☐	Ceiling Tile, Plaster, Concrete, Sheet rock, Metal, Wood	Peeling Paint, Rust, Other:
☐	Walls	☐		☐		☐		☐	Sheet rock, Plaster, Concrete, Block, Brick, Tile, Wood	Peeling Paint, Efflorescence, Other:
☐	Floor	☐		☐		☐		☐	Wood, Carpet, Vinyl, Ceramic, Concrete	Buckling, Other:
☐	Windows	☐		☐		☐		☐	Exterior, Interior, Skylight	Peeling Paint, Condensation, Other:
☐	Furnishings	☐		☐		☐		☐	Furniture, Mechanical, Sink, Toilet, Copier	Peeling Paint, Rust, Other:
☐	HVAC System	☐		☐		☐		☐	Radiator, Forced-air, Fan, Unit ventilator, Window unit	Peeling Paint, Rust, Other:
☐	Belongings	☐		☐		☐		☐	Books, Boxes, Equipment	Wrinkled Paper, Crumpled boxes, Other:
☐	Pipes	☐		☐		☐		☐	Insulated Plumbing, Insulated Gas	Peeling Paint, Rust, Wet, Stained, Other:

*Within 3 feet of exterior wall.

0 - none; 1 - combined area 10 square feet or less; 2 - combined area between 10 and 100 square feet; 3 - combined area greater than 100 square feet; U - uncertain if mold was identified.

Notes:

Post Remediation Verification Letter - Appendix D

Property location

Installation _____

Property Address _____

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 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**

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.

Mold remediation team member signature **Date**

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

Mold remediation team member signature **Date**

Garrison Commander or delegated authority signature **Date**