



CLEANUP DEFINITIONS AND PRACTICES

Overview

The Housing Committee has created this overview document addressing cleanup activities conducted by National VOAD organizations. The intent of this guide is to improve coordination by using a common vocabulary about cleanup activities following a disaster. With a common foundation, organizational accountability can grow and lead to greater efficiencies, cohesiveness, and increased speed and consistency at which cleanup activities are conducted.

Definitions

The terminology used to describe the cleanup process varies by agency/actor; this variance sometimes causes delays, confusion, and the duplication of services, ultimately hampering assistance delivery. Below is a list of terminology which all National VOAD member organizations, partners, and affiliate organizations should use.

- **Assessment:** An evaluation of a request for assistance that includes an estimate of resources needed, including labor, and a written scope of work that highlights specific or special safety concerns, if any.
- **Reclamation:** The salvaging (removing and cleaning) of personal items such as family heirlooms and non-porous items from the home with and at the direction of the homeowner or tenant.
- **Interior Debris/Contents Removal:** Removal of flood-affected personal items, furniture, appliances, fixtures, and any other items that are not structural components of the home that were submerged or damaged by floodwaters. This step is considered complete when all items to be discarded have been removed from the structure and any remaining undamaged items are in a safe location.
- **Muckout:** Removal of mud, muck, silt, and other semi-solid material from a home that has had water inundation.
- **Gutting:** Tearing out and removal of infrastructure elements, including protruding nails in exposed studs and flooring, from a home that has been damaged by water. Gutting is considered complete when all damaged construction materials, especially protruding nails, have been removed.
- **Final Cleaning and Sanitizing** (post-gutting, pre-mold treatment): The thorough cleaning of any remaining dried or wet remnants from the structure after gutting to prepare for mold control and treatment. Completion is typified by the absence of all nails, piles of dust/contaminates, and standing water in the basement/crawl space, plus surfaces being clean and rinsed of dirt, mud, and other contaminants.
- **Mold Control and Remediation:** The intentional use of safe chemicals and equipment such as dehumidifiers, fans, and air scrubbers to eradicate or halt abnormal mold and mildew. Drying the structure, controlling humidity, and bringing the moisture content of structural components (infrastructure) to an accepted level prior to repairing or rebuilding is also a key element of the process.
- **Exterior Debris Removal:** Removal of unwanted and damaged trees, vegetation, and other disaster debris from houses, lawns, fields, and nearby forests and placing it in containers or in piles for disposal.

Safety Practices and Hazardous Materials

This information is for reference only; this is not a comprehensive list. Each organization involved in cleanup must establish protocols and procedures to ensure the safety of their volunteer work force.

General Safety

- Never enter a flooded basement unless you are certain the electricity has been turned off
- Tetanus shots are strongly recommended for all volunteers and staff doing any type of cleanup work
- Brief all volunteers regarding safe practices and safety hazards and review the site work plan
- Ensure that all volunteers sign liability waivers
- Ensure that a homeowner release has been signed
- Wear an N-95 or greater (N-100) particulate respirator
 - To ensure proper seal if half-face respirators are being used fit tests should be done
- Wear non-vented goggles or other eye protection
- Wear heavy work gloves with nitrile gloves underneath to avoid contact with hazardous materials.
- Use mosquito repellent.
- Wear long pants, a long-sleeved shirt, and boots or sturdy work shoes with puncture-proof soles
- Do not use gasoline-powered pumps or generators indoors or in a confined space. Gasoline engines emit deadly carbon monoxide exhaust fumes
- Wash hands regularly, especially before eating, and/or use additional bacterial wipes
- Ensure proper lighting (example: head lamps, podium lights, etc.)
- Ensure availability of clean water for emergency eye washing
- Barricade or segregate dangerous areas such as open holes or fragile structures, etc.
- Segregate areas highly contaminated by mold with a plastic bubble to facilitate continuity of work
- Never fill a generator gas tank while running.
- There are vectors that pose additional risk associated with debris:
 - Salmonella: common vector- cockroaches
 - Leptospirosis: common vector- rats or mice
 - Dengue: common vector- mosquitoes

Working with Mold

- Brief all volunteers regarding safe practices and safety hazards and review the site work plan
- Ensure that all volunteers sign liability waivers
- Ensure that a homeowner Release of Liability and Indemnity document has been signed
- Wear an N-95 or greater (N-100) particulate respirator
 - To ensure proper seal if half-face respirators are being used fit tests should be done
- Wear non-vented goggles or other eye protection
- Use face shields and respirator if using a foaming treatment or power washer
- Wear heavy work gloves with nitrile gloves underneath to avoid contact with hazardous materials.
- Wear disposable coveralls
 - Tyvek suits are recommended; hooded suits provide more complete protection
- Wearing rubber boots is recommended
- To measure humidity and evaluate efficiency of cleaning afterwards: have an interior humidity measuring device and portable humidity measuring device for materials (ex. wood).
- Utilize equipment to eradicate mold such as:
 - Ozone generator machine
 - Dehumidifiers
- Ultraviolet light

Asbestos

- Brief all volunteers on the possibility of asbestos being present on a work site
- Refer to your organizational policy outlining the handling of asbestos and other hazardous materials.
- If asbestos is identified, stop work and notify the site leader to contact a certified asbestos remediation specialist to handle the situation
- Wear an N-95 or greater (N-100) particulate respirator
 - To ensure proper seal if half-face respirators are being used fit tests should be done

Best Practices for Cleanup

Below are guidelines for cleanup that responding organizations should follow in an effort to provide consistency in the work done on private property across all responding VOADs, partner, and affiliate organizations. The goal is to ensure that there is awareness of and adherence to these practices at all levels of organizations involved in cleanup activities.

1. Coordination

- To facilitate and maximize the use and benefits of groups' resources while reducing the duplication of efforts:
 - Use a central point of contact/coordination for work requests
 - Match the requests (amount of work and type of work) with the resources an organization can offer

2. Documentation

- Be consistent in capturing and recording information to enhance interagency communication as response transitions into recovery.
- Maintain a comprehensive list of work requests that each agency/group has taken on, and ensure it includes the status of each job so key personnel know if a work request is pending or in process, which agency is responsible, and when it is completed.
- Document each situation thoroughly, i.e., have a case history of work done for a household that allows for follow-up on specifics.
- Be sure to have Homeowner documentation
 - Signed Right of Entry form
 - Signed Release of Liability and Indemnity form
 - Signed information release form allowing the owner's information to be shared with organizations willing to assist and the government entities to ascertain eligibility for additional support
- Also have complete Volunteer documentation:
 - Signed Release of Liability and Indemnity form
 - Emergency Contact Information
- Keep records of all expenses and of volunteer hours per site for potential federal cost share purposes.

3. Assessment

- An assessment is a physical inspection and evaluation of a structure or site as requested by a household member or landlord to understand assistance needs and document the scope of work, including resources needed (see below) to respond. Follow these steps to complete an assessment:
 - Find out if the person asking for help is the homeowner or a tenant or landlord.
 - Determine if the response needed fits agreed response criteria
 - Prioritize responses considering the household profile: Senior citizen(s). Single parent family. The household has members with special physical and/or psychosocial needs. The household has other vulnerabilities, e.g., refugee or other newcomer status.
 - Assess and document safety hazards/concerns
 - Decide if water, electricity, and gas need to be turned off. If so, make plans for each utility to be properly stopped/restarted.
 - Estimate resources needed: labor, tools, time, other needs assistance
 - Draft a detailed scope of work that the responding organization and household head (or landlord, as relevant) agree on
 - Report regularly (daily, weekly, etc., as agreed) to coordination point of contact or referring organization on the status of the work request, i.e., not started; partially completed, and what is left to be done, or finished. This will help ensure holistic response tracking.

4. Removing Water from Flooded Basements

- Examine the exterior of the house for signs of structural damage. If structural damage is evident, consult an expert to determine whether it is safe to enter the house.
- Before entering flooded homes, turn off the main electricity supply and any fuel oil or gas supply.
- When possible, call on the local fire department to pump out flooded basements. If this is not an option, pump with caution
- NOTE: Basement walls, floors, and foundations can collapse if deep standing water is pumped out quickly and the outside ground is still saturated.
 1. Begin pumping when floodwaters are no longer covering the ground outside.
 2. Pump the water out one foot at a time. Mark the water level and wait overnight.

3. Check the water level the next day. If the level rose to covered the mark, it is still too early to drain the basement.
4. Wait 24 hours, then pump the water down one foot again. Check the level the next day.
5. When the water in the basement stops returning to the mark, pump out 2 to 3 feet and wait overnight.
6. Repeat daily until all the water is out of the basement.

For more information: https://www.fema.gov/sites/default/files/documents/fema_cleaning-flooded-buildings-hurricane-sandy-fs-001.pdf

6. Interior Debris Removal

- Be sure the house is safe to enter and for having a work team inside
- Before entering a home, turn off the main electricity supply and any fuel oil or gas supply
- Check with the relevant point of coordination or local government authority for guidance on debris management / debris separation before starting to work
- Use a hard hat considering that there may be falling objects from above or protruding objects.
- Remove all flood-affected personal items*, appliances, fixtures, furniture, area rugs, and any other items that are not a structural component of the home
 - * If there are questions about personal items check the scope of work and / or contact the household (head) for additional direction

7. Mucking Out a Flooded Structure

- Using all safety and sanitation precautions, including wearing protective clothing, boots, gloves, etc., remove mud, muck and silt that was deposited in the house by flood waters
- Defer to local debris management guidelines for disposal

8. Gutting a Flooded Structure

- Infrastructure damaged by water will need to be removed from the house
- Gutting typically involves removing these materials and leaving the bare stud walls
 - Damaged sheetrock/drywall
 - Remove at least 2 feet above water damage line
 - Cutting at the 4 ft. level allows replacement of full sheets
 - Trim and molding
 - Paneling
 - Insulation
 - Pressed board
 - Plywood
 - Carpeting/padding
 - Flooring
 - Cabinets
 - Nails from studs and floor
 - Linoleum
- Electrical fixtures (switches, outlets, breakers) must be replaced
- Electrical wiring must be assessed/repaired in consultation a qualified electrician

9. Final Cleaning and Sanitizing

- After mucking out and gutting a flooded structure, the remaining structure, including walls, framing, and floors, must be cleaned thoroughly.
 - Use a high pressure washer with detergent to wash off any remaining dirt, mud, muck and contaminants
 - Scrub surfaces with brushes if necessary
 - Use a disinfectant if viral or bacterial contamination is suspected
 - Rinse surfaces with clean water
 - Remove standing/remaining water with a shop vac or pump

10. Mold Treatment

This information is for reference only. National VOAD does not endorse one method of mold treatment/removal over another and strongly encourages individuals and organizations to educate themselves on the appropriate methods to address mold problems in homes. See the appendix for additional informational resources on ways to treat household mold.

- Minimize contamination of unaffected areas and contaminant exposure to workers.
 - Workers must wear recommended Personal Protective Equipment (PPE).
 - Isolate areas to be treated from areas that are unaffected.
 - Ventilate the treatment area with negative air pressure by using a box fan in an exterior

- window.
- Dampen all materials to be removed just enough to prevent particulate from becoming airborne.
 - Do not saturate the structure.
- Immediately bag all materials to be discarded.
- Mold must be physically removed.
 - It is not sufficient to kill the mold.
 - Live or dead, mold is a respiratory hazard.
 - Biocides such as bleach should not be used indiscriminately.
 - Remove and discard all porous materials that may be contaminated with mold
- Remove mold from hard, non-porous surfaces:
 - Clean mold from hard surfaces by using a non-ammonia detergent and water
 - Do not put a used rag back in the detergent solution
 - Use a stiff brush to scrub rough surfaces such as concrete
 - Use a HEPA vacuum to remove dust and mold residue
- Work from high to low, from the furthest point from the ventilation to the closest point. Use gravity and airflow to avoid recontamination.
- Thoroughly dry all surfaces inside the home or other structure to prevent mold growth. Mold cannot grow without moisture.
- Use fans and heaters to remove moisture from materials, and dehumidifiers or exhaust ventilation to extract moisture from the air. .
- Moisture meters must be used to ensure the structure is sufficiently dry before rebuilding. Defer to local guidance on acceptable moisture levels.
- Remember, the KEY to mold control is controlling the moisture level.

11. Exterior Debris Removal

- Trees, infrastructure debris, and other vegetation and debris that ended upon a property and nearby open lands as a result of the disaster must be removed.
- Chainsaw operators must be trained and wear proper protective clothing and gear.
- If debris is being piled up for later removal, sort it according to local waste guidelines and in consultation with the local point of coordination and/or local authority

12. Building Demolition

- Get local guidance on demolition permits, i.e., are they required prior to activity.
- Be aware of hazardous materials, e.g., asbestos in older buildings, and follow guidelines for hazardous materials and waste removal.
- Typically, volunteer agencies do not clear hazardous waste.
 - Asbestos and lead paint may need to be removed by certified contractors
 - Please see the following resources on approved methods of asbestos removal—if you come across this hazardous material on-site it is advisable to confirm the best course of action with local EPA representatives.

Resources for Flood and Mold Cleanup

These resources are shared for further reference but not as an endorsement of one practice or method over another.

1. “A Brief Guide to Mold, Moisture, and Your Home” published by the US Environmental Protection Agency <https://www.epa.gov/mold/brief-guide-mold-moisture-and-your-home>
2. “Dealing with Mold & Mildew in Your Flood Damaged Home” published by the US Federal Emergency Management Agency (FEMA) http://www.fema.gov/pdf/rebuild/recover/fema_mold_brochure_english.pdf
3. “Emergency Preparedness and Response: Floods” published by the US Centers for Disease Control and Prevention <http://emergency.cdc.gov/disasters/floods/>
4. “Respirator Fit Testing- What it is, Why You Need it and What You Can Expect” published by the Agency for

Healthcare Research and Quality

<https://www.ahrq.gov/sites/default/files/wysiwyg/nursing-home/materials/respirator-fit-testing.pdf>

*For more background information, including safety practices, sample waiver of liability and risk management policies, please see NVOAD's Long Term Recovery Guide <https://www.nvoad.org/wp-content/uploads/National-VOAD-LTR-Guide-2023-1.pdf>.

** Important information about respirators; the use of respirators requires fit tests and avoiding facial hair to guarantee projection.