



Mud-Out Manual

North American Mission Board, SBC

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Mud-out Manual

Introduction

A flood response, particularly a mud-out, is much more complicated than it would appear on the surface. The following issues must be considered when entering a flood disaster area.

Property Owner Job Order Approval

In any disaster response, we must concern ourselves with litigation liability. We have to look out for the safety of workers. We need to be sure that all workers are insured. Before any work is started on site, we must have a property owner job order approval signed by the owner with specific details of the job spelled out on the form. (See Appendix Two)

Safety Considerations

In assessing your own situation and making decisions about safety, crews must be the primary concern. Know your limitations. Many well-intentioned volunteers have been injured or killed during operations simply because they did not pay attention to their own physical and mental limitations. You must know your limits and monitor your condition. Fatigue leads to injury.

The following are guidelines for safe operations.

Buddy System – Always work in pairs or in a group.

Hazards – Be alert for hazards, such as sharp objects, dust, hazardous materials, power lines, leaking natural & LP gas, high water, fire hazards, and unstable structures. If water is present, check the depth before entering. Never enter rising water.

Safety Equipment – Wear safety equipment and clothing appropriate to the task.

- Helmet or hard hat
- Goggles
- Dust mask
- Whistle (for signaling others)
- Work gloves
- Rubber boots
- Heavy duty rubber gloves

Rotate Teams – Have back-up teams available. Monitor the length of exposure of active crews. Have crews drink fluids and eat to maintain themselves.

Safety Rules

1. Be sure all utilities have been cut off before entering a damaged building, especially in wet areas. Stand on dry area (board or ladder) while turning electrical switch off in wet area.
2. When entering a flooded area, assume the area is contaminated. Graves may have been open; septic and sewer systems overflow. There is also the possibility that LP gas tanks may be loose and leaking. LP gas gathers close to the ground.
3. Normally stepping on a rusty nail would bring the risk of tetanus. In a flood situation, the nail could also carry hepatitis or potentially deadly diseases. Therefore, anyone responding to a flood disaster must have a current tetanus shot and should consider getting hepatitis shots.
4. It is common in disasters to encounter wild and domestic animals that may be rabid. Snakes and possibly even alligators maybe in spaces you would not expect them. Never reach into a space you cannot see into. Be cautious of dogs and cats wandering or approaching the area.
5. Examine structures for damage before entering or working – floors, overhead, walls, loose objects that may fall. If there is question about the integrity of a building, wait until local building authorities have inspected the building before entering.
6. Ventilate closed rooms or buildings before entering to allow escaped gas or foul odors to escape. Do not linger in areas where gas fumes are present. Be especially careful about flames or sparks where fumes are detected.
7. Take care to have good footing when using ladders and scaffolds. Be careful in wet or slick areas.
8. Remove ladders, scaffolds, or ropes when not in use to prevent children or others from climbing. Do not leave tools and equipment unattended. Guard against leaving piles of lumber, furniture, clothing, debris, etc. where children might play and risk injury.
9. In flooded areas – basements, floors, outdoor pools – probe ahead for holes or submerged objects. Use a wood pole with a dry handle.
10. Avoid fatigue. Do not work on ladders or scaffolds or operate machinery when tired or on medications that cause drowsiness.
11. Wear proper clothing, i.e., boots in wet areas, heavy shoes in construction areas, gloves, hard hats, long pants and sleeves. Protect yourself against the sun or cold. Wear safety equipment as required or provided.

12. Provide sufficient lighting in work areas – daylight or artificial. Look first into areas before entering. Check for glass, nails, or other sharp and protruding objects.
13. Be aware of where other volunteers are located and be concerned for their safety before throwing something out a window or using equipment.
14. Assume fallen electrical lines are live until notified by utility companies that current is off (also phone service and cable TV). Continue to use caution because of possible improper use of electric generators in nearby homes.
15. Prevent health hazards by cleaning areas where decay, mildew, or chemicals odors may result from wetness or perishables, such as food.
16. Only experienced persons should operate power machinery. Follow safety requirements when refueling is taking place. Never operate gas power equipment indoors.
17. Designate a first aid coordinator.
18. Make safety and hygiene a priority. Get adequate rest, fluids, and nourishment so you can achieve maximum effectiveness.
19. Personal decontamination
 - a. Take boots and gloves to decontamination area to be cleaned. Also, clean equipment (tool, shovels, etc.).
 - b. Keep clean clothes in a plastic bag on work site.
 - c. Pour bleach solution over body from head to feet (2 tablespoons of bleach per one gallon of water). Premix in gallon jugs.
 - d. Take regular showers and dress in clean clothes.
 - e. Place contaminated clothes in a plastic bag and return clothes to designated location to be laundered in disinfectant—very important.
20. Lifting should always be done in a way that protects the back from strain or other injury. To lift safely:
 - Bend your knees and squat.
 - Keep the load close to your body.
 - Keep your back straight.
 - Push up with your legs.

Helpful Hints

- Wear suitable rain gear and rubber boots while spraying or pressure washing.
- Use rubber gloves and wear goggles when handling bleach and other disinfectants.
- Wear heavy-duty rubber gloves with work gloves over them.
- Work within your strengths and limitations – physical (strength and health), emotional (stress management), and mental (knowledge and skills).
- Use hand sanitizer before consuming anything or wash hands with bleach and water mix. (one tablespoon bleach to one gallon water).
- Disinfect tools used each day upon completion of work. At the end of the day, dispose of all used mop heads and sponges.
- Do not drink water in area until verified safe.
- Eat regularly and increase water intake according to heat and workload. Take snacks and bottled water to site.
- Rest when you can. Some people can work longer than others. Gauge yourself. Do not be intimidated by what others do if it affects your strength and usefulness. Sleeping may be difficult. Try to arrange what is best for you.
- Dispose of any articles that are punctured (such as gloves and boots).
- Do not open refrigerators and freezers. Duct tape doors and keep them shut.
- If you are unfamiliar with motorized tools, do not attempt to use them until properly trained.
- If basement is flooded, start pumping the water in stages (pump about 1/3 of the water each day).
- Make safety a priority so that you can achieve maximum effectiveness, not only for you but also your team.

Mud-out Cleaning Procedures

1. Explain to the homeowner what we do when we mud out a home.
2. Explain to the homeowner the health hazard that may be present if the interior walls have had water and mud between them. Explain that the type of mold that grows from floodwaters and mud can cause serious lung problems. Remember to get the owner to sign a work release (see Appendix Two).
3. Walk carefully through the structure. Floors may be slippery or weakened.
4. Shovel out mud and silt before it dries.
5. Allow homeowner to decide which articles are to be salvaged and which are to be thrown away.
6. Use dollies and hand trucks to remove heavy items.
7. Be sensitive to homeowner's loss, which will most often be everything due to contamination.
8. When all articles are removed, determine how much wall and floor removal is necessary.
9. Cut walls 12 inches above flood level.
10. Pressure wash entire area beginning at flood level.
11. Use mops, squeegees, and brooms to eliminate excess water.
12. Disinfect entire area beginning at flood level. Use a garden sprayer to lightly spray affected area.
13. Remove and dispose of all floor coverings.
14. Remove all built-in cabinets if the water line is above the counter top.
15. Mattresses and upholstered furniture should be removed and disposed.
16. Advise owner to let area dry thoroughly before beginning repairs. Drying time may take a few weeks to several months.
17. To sanitize: use one tablespoon bleach to one gallon water. This is recommended for dishes and does not need to be rinsed.
18. To disinfect: use $\frac{3}{4}$ cup bleach to one gallon water. Apply with garden sprayer. Let stand five to ten minutes. Rinse thoroughly.

Procedure for Draining a Basement

Water in the ground outside a building is pushing hard against the outside of the basement walls. The water inside the basement is pushing right back.

If the basement is drained too quickly, the pressure outside the walls will be greater than the pressure inside the walls, which may make the walls and floor crack and collapse, causing serious damage.

Follow these steps to pump water out of a basement without causing damage:

1. Never go into a basement that has water standing in it unless you are sure the electricity is off.
2. When the floodwaters are no longer covering the ground, you can start pumping the water out of the basement.
3. Pump the water level down two to three feet. Mark the level and wait overnight.
4. Check the water level the next day. If the water went back up or covered your mark, it is still too early to drain the basement. Wait 24 hours. Then pump the water down two to three feet again. Check the level the next day.
5. When the water stops going back up, pump down another two to three feet and wait overnight. Repeat steps four and five until all the water is pumped out of the basement.

**Don't be part of the problem,
Be part of the solution.**

Appendix One

Mud-Out Equipment List

- _____ Hope in Crisis tracts
- _____ Equipment owners manual
- _____ Fire extinguisher
- _____ First aid kit
- _____ (2) Gas-powered pressure washer (minimum 1500 psi)
- _____ (4) 50-foot heavy duty water hose
- _____ 2 ½ ??? gas-powered water pump
- _____ (2) inexpensive sump pumps
- _____ 3500-watt generator with extension cords and floodlights
- _____ Electric exhaust fan
- _____ 16-inch chainsaw with spare bar and chain (chaps, helmet, ear and eye protection, gloves)
- _____ Heavy duty wet/dry shop vac.
- _____ Five-gallon gas can
- _____ (2) 2 ½-gallon gas cans
- _____ Tool box with basic tools
- _____ (6) wrecking bars (crow and pry bars) of assorted lengths (you will need a lot of these)
- _____ Reciprocating saw with spare blades
- _____ Circular saw with spare blades
- _____ ½-inch drill with assorted bits
- _____ Bolt cutters
- _____ Sledge hammer
- _____ Large scoop shovel
- _____ Square shovels (long handle seems to work best especially for your back)
- _____ Hack saw with spare blades
- _____ (3) wheelbarrows (1 to every 3 or 4 people)
- _____ Appliance hand truck
- _____ (2) water coolers
- _____ Six-foot step ladder
- _____ (4) 18-inch traffic cones
- _____ Squeegees
- _____ Pitch fork
- _____ Brooms (push brooms)
- _____ Rubber gloves and boots
- _____ Rain gear (jacket and pants)
- _____ Hard hats
- _____ (2) garden sprayers
- _____ (6) five-gallon buckets (can never have too many of these)
- _____ Bleach (do not store in the trailer)
- _____ (6) empty one-gallon jugs for mixing sanitizing solution
- _____ **Optional**
- _____ Additional pressure washer
- _____ Heavy duty mud hog pump