

# Emergency Flood damage clean-up basics

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## **Materials List (per project)**

### **Worker Protection**

N95 or N100 respirator with exhaust valve

Half-face negative air respirator w/HEPA filters

Extra bags for vacuum cleaner

Heavy-duty water-proof gloves

Nonwoven polypropylene disposable coveralls  
(w/attached hood and foot cover) tyvek)

Goggles or safety glasses with side shields

Cap with brim, hard hat if working under people or wet materials

Non-skid shoe covers

Personal cleanup station

Two 16 oz. eye wash bottles

First aid kit (OSHA-compliant for four workers)

Fire extinguisher

Pump pressure sprayer

Case of bottled drinking water

Paper towels

Toilet paper

Emergency phone number sheet

Plastic totes, milk crates for contents, etc.

magic markers for sorting, moving boxes,

plastic bags for clothes.

### **Supplies**

Heavy-duty trash bags for heavy material such as plaster

Two large heavy-duty garbage cans with casters

Roll of 10 ft. wide 6 mil poly

Staples for staple gun

Rolls of duct tape

Scrub brushes

4-inch-wide blade scrapers

Cardboard boxes to store cleaned objects

Packing tape and Magic markers

Mist bottles

Utility knife blades

Hundred watt light bulbs for reflector lamp

Box of disposable gloves

32 oz. mop heads

Non phosphate detergent (like Savogran® TSP)

(or) General cleaning detergent such as pine sol

Mildew-cide / anti- microbial EPA registered product like aftershock, mold rid, micro-ban or equivalent

If Professional Anti-microbial is not available, then use Household chlorine bleach (like Clorox®  
Regular-Bleach)

## **Tools**

Carpet cutter with extra blades

Front-end nipper (to pull nails)

Large crow bar

Long handled

Short flat-bar

Staple gun

Cat 's paws nail puller

Mop squeeze bucket

3- 5 gal. buckets (one as a rinse bucket, two as mixing buckets for cleaners)

2 – 2.5 gal. pump sprayers for cleaners

Mop handle for 32 oz. mop head

Broom and dust-pan

Bright flashlights and headlamps

Tool belt and tool belt tools including hammer, measuring tape, scratch awl, Phillips and flathead screw drivers, carpenter's pencil, and utility knife, etc.

Saw horses

Cross-cut hand saw

Brace and bits (where there is no electric)

Drywall saw

Moisture meter (like Delmhorst® J-LITE Moisture Meter)

## **Equipment**

Portable generator

20 ft. extension ladder

8 ft. A-frame ladder

4 and 6-foot A-Frame ladder

Window fan

Lock box

Shop vacuum with HEPA

Shovels and Hoes

Wheel barrow

Hand trucks

## **Dress Appropriately *Before Entering***

Before you enter a home that has been flooded, be sure to have the proper clothing, footwear, and safety items that may be needed.

- Boots**  
Wear waterproof rubber boots or waders with hard soles. If you're walking in muddy, water-coated floors and basements, there are likely sharp objects that you could step on.
- A n/95 Micron Dust Mask**  
Wear a mask over your mouth and nose to protect your lungs from pollutants and disease. A 95-micron mask filters out even the mold particles.
- Gloves**  
Wear gloves, preferably rubber gloves, to handle anything in flooded areas. Materials may be a health hazard due to sewage, chemicals, and oil in the water.
- Hard Hats and Protective Clothing**  
Loose and crumbling ceilings, falling debris, and trapped water are potential hazards to your head and body when entering a flooded home. By wearing water resistant clothing and a hard hat, you'll protect your vital parts from danger.

## **SAFETY**

Of course, you can't wait to get back into your home following the disaster. As soon as the water stops rising and it begins to fall, you figure that it is now safe to go in and start evaluating the damage. Not so fast! There are plenty of hidden dangers that have to be thought out before entering your home. Don't become a statistic by coming back home too soon!

### **Check the Exterior of Your Home**

Do a visual walk around your home to see if there are any downed power lines, or electrical connections that may be in contact with the water. Smell the air around you. Is there a smell of gas in the air? Often times there may be a gas leak. If you find either of these problems, call the proper utility company to correct the problem. If water is still around the house, check to see if the outside walls have cracked or giving way because of the water pressure being exerted on them. If there's water still around, don't enter the home, there's always a chance that the walls could give way and the house could collapse around you. Be cautious around porches and overhangs. These areas may have weakened during a flood and could give way or collapse.

### **Electrical and Gas Connections**

When you arrive at your home, disconnecting the electrical and gas supplies are a good start. By shutting off the gas supply, you lessen the chance of fire and explosion. By disconnecting the electrical supply, you lessen the chance of electrocution. Even if the power is out or the power supply has been disconnected from the power pole by the utility company, your electrical fuse or breaker panel's main fuse or breaker may still be on. In this case, at any time during the day, the utility company could come back and turn the power on to your home. You may not be aware that they've turned the power back on and your panel is now live, subjecting you to potential shock hazards.

If the only way to disconnect the gas and power is inside the home and there's water where you have to shut them off, don't enter the home to do so until you can safely enter the home and the water has been removed. Remember, water and electricity doesn't mix. Every year people die from electrocution in flood-related accidents. Many are from entering a home after the flood waters have receded.



## **Procedures**

### **After Flood Waters Recede**

**Turn off all breakers till electrician can make safe**

### **Dry Out the House**

It is important to **open up the bottom of flooded walls and remove all wet material from them.** Turn on fans and dehumidifiers as soon as possible to dry the home. Deadly mold can form quickly (less than 3 days) in warm and moist areas in the home. Get wet carpeting and padding out of the home as soon as possible. Get garbage, effected clothing, etc. out of the home and clear the floor space in rooms and closets. Open the windows to let the house breath. By getting the home dried out quickly, you'll be on your way to cleaning and repairing it. Anything that the flood waters wet and cannot be thoroughly cleaned will have to be thrown away!

## Removing Moisture, Cleaning and Repairing

Be prepared to let flood-damaged walls, ceilings and floors dry for several weeks if you do not have electricity. If restoration work is completed before proper drying, mold and mildew will continue to grow. The result may be structural damage to your home, the need to repaint walls or replace new wall coverings, and discomfort or illness to family members who have allergies.

### Getting the Moisture Out

Get is as dry as you can as fast as you can. If the weather permits, open doors and windows to remove moisture and odors. If the outside humidity becomes greater than inside, close things up; likewise, close up the house overnight if temperatures drop and moist air might otherwise be drawn indoors. If windows are stuck tight, take off window strips and remove entire sash. If doors are stuck, drive out door hinge pins with a screwdriver and hammer, then remove.

Consider using dehumidifiers to speed up drying when outside humidity levels are high. If possible, rent commercial dehumidifiers, which remove three to four times more water than home models. When using dehumidifiers, shut windows and doors. If there is severe flooding in your home, consider hiring a contractor for water removal. Some companies can dry homes in less than a week with commercial dehumidifiers and air movers.

### Walls and Ceilings

Wash out mud, dirt and debris as soon as possible with a hose and mop cloth or sponge.

Start cleaning from the top floor or upper limit of flooding and work downward.

Remove wallboard, plaster and paneling to at least 2 feet past the flood level. Wallboard acts like a sponge when wet. If soaked by contaminated floodwater, it can be a permanent health hazard and should be removed. If most of the wallboard was soaked by clean rainwater,

consider cutting a 4- to 12-inch-high section from the bottom and top of walls. This creates a "chimney effect" of air movement for faster drying. A reciprocating saw with a metal cutting blade works well, but use only the tip of the blade and watch out for pipes, ductwork and wiring.

Plaster usually does not need to be replaced, though it will take a very long time to dry.

Some paneling may be salvaged if allowed to dry slowly. You also should remove and dispose of any flood-damaged insulation, which will hold water for months after getting wet.

### To clean surfaces

Thoroughly wash and disinfect walls, ceilings, exposed wall cavities and studs. (see three bucket method)

Use a good disinfectant to prevent mildew build-up. Use an EPA registered anti- Microbial if you have it or One cup of chlorine bleach mixed with a gallon of water works well. For a soapier cleaning solution, add a half cup of mild detergent. Wear rubber gloves.

If walls have already dried, work from the floor to the ceiling to prevent streaking. (Dirty water splashed on dry walls may be absorbed and become almost impossible to remove.) Overlap sections, cleaning the ceiling last.

### Floors

Before the house has dried out, scrub floors and woodwork with a stiff brush, plenty of water, a detergent and disinfectant. Carpeting soaked by contaminated floodwater should be removed and discarded unless it can be sanitized at a commercial facility for a cost substantially less than replacement. Vinyl flooring and floor tile may need to be removed to allow drying of subfloor.

Wooden floors should be dried gradually. Sudden drying could cause cracking or splitting. Some restoration

companies can accelerate drying time by forcing air through the fluted underside of hardwood floorboards.

### Once Floors Have Dried

Assess whether your floors can be repaired, replaced or recovered. Consider your time and budget as you make any decisions. Plywood subfloors may have delaminated (separated) from excessive moisture, causing buckling. Sections may have to be replaced or have new plywood nailed over them.

If buckling or warping has occurred, drive nails where the floor tends to lift or bulge. This will prevent further damage. Badly warped hardwood floors usually can't be repaired. Warped, wide pine board flooring, however, will often flatten out after it has thoroughly dried. Plane or sand floors level. Do not refinish until thoroughly dry.

### Removing Mildew

To remove surface mildew on walls or ceilings, HEPA vacuum twice, (once in each direction)

Use a mildew surface cleaner mentioned above or: scrub the mildew with household detergent, then scrub with a solution of one-quarter cup bleach to 1-quart water. Rinse well with clean water. Once fully dry, apply a coat of paint containing an anti-mildew agent.

To remove surface mildew on floors and woodwork, use a phosphate cleaning solution such as powdered automatic dishwashing detergent or trisodium phosphate (4 to 6 tablespoons to a gallon of water), available in hardware stores. Rinse with water, and when dry, apply a mildew-resistant finish.

By using a pump sprayer and bleach water or Anti-Microbial, you can effectively clean your home first and make it sterile

### Cleaning and Sterilizing the Home

. The recommended mixture of water to bleach is ten to one or better yet use EPA registered anti-microbial. The

idea is that the water will soak into the wood and any mold will come out to the surface of the wood. That's where the bleach will then kill the mold.

### Contents; Deciding What to Salvage and Tips on Reconditioning

Save valuable and sentimental things first. Remember they are only things. You still have your health and Jehovah, don't stress on the temporary situation, nothing can happen that God can't reverse.

If things got wet with clean water, (roof leak) they are more likely to be saved, if they get wet from rising water (floods) the water is so contaminated that you need to treat it as if it was sewage water.

Evaluating appliance damage is a high priority after a flood. Have a service person check flooded appliances before you attempt operation or invest a lot of time in clean-up.

Deciding which furniture to save may be a more personal issue, especially if you have antiques and other pieces with sentimental value. Keep in mind that you don't need to repair all pieces of salvageable furniture immediately. You can clean, dry and store them in a warm, well-ventilated place until you have time to deal with them.

Many items can only be saved by professionals using professional equipment, and processes, such as upholstered furniture, etc

#### Three bucket cleaning system

1. Pump sprayer contains detergent (do not use Sprayer for bleach)
2. Rinse bucket ~ should be changed frequently
3. Squeeze wringer bucket for dirty water
4. 32 oz mop head ~ clean or replace frequently

Some examples:

- Mattresses should be thrown away.
- Upholstered furniture soaks up contaminants from floodwaters and should be cleaned only by a professional.
- Wood veneered furniture is usually not worth the cost and effort of repair. Solid wood furniture can usually be restored, unless damage is severe.
- Toys and stuffed animals may have to be thrown away if they've been contaminated by floodwaters.
- Photographs, books and important papers can be frozen and cleaned later. They should be dried carefully and slowly. Wash the mud off and store the articles in plastic bags and put them in a frost-free freezer to protect from mildew and further damage until you have time to thaw and clean them or take them to a professional.
- Immerse glass, porcelain, china, plastic dinnerware and enamelware for 10 minutes in a disinfecting solution of 2 tablespoons of chlorine bleach per gallon of hot water. Air-dry dishes. Do not use a towel. Disinfect silverware, metal utensils, and pots and pans by boiling in water for 10 minutes. Chlorine bleach should not be used in this case because it reacts with many metals and causes them to darken.
- Cupboards and counters need to be cleaned and rinsed with a chlorine bleach solution before storing dishes.

## **Getting Out Water of Basements and Preventing Future Problems**

Before you enter a flooded basement, take time to:

1. Turn off the electricity.
2. Check outside for possible wall cave-ins, evidence of structural damage or other hazards.
3. Turn off gas or fuel service valves.
4. Open doors and windows or use blowers to force fresh air into the basement.

## **Pumping Basements**

For safety reasons, do not use an electric pump powered by your own electrical system. Instead, use a gas-powered pump or one connected to an outside line. Fire departments in some communities may help with pumping services.

More damage may be done by pumping flooded basements too soon or too quickly. Water in the basement helps brace the walls against the extra pressure of water-logged soil outside. If water is pumped out too soon, walls may be pushed in or floors pushed up. To help prevent this kind of structural damage:

- Remove about 2 to 3 feet of the water. Watch for signs of structural failing.
- If the outside water level rises again after the day's pumping, start at the new water line.
- Don't rush the pumping; the soil may be very slow to drain. Whatever is submerged in the basement will not be damaged further by delaying the pumping.
- Sump pump pits often fill up with mud and debris. In order for the sump pump to perform effectively, these pits must be cleaned up from time to time, especially following a flood.



## Cleaning

After water has been pumped from the basement, shovel out the mud and debris while it is still moist. Hose down walls to remove as much silt as possible before it dries. Scrub the walls and floor with a detergent. Floors and walls may need sanitizing, particularly if sewage has entered the basement. Scrub walls and floors with a disinfecting solution of 1 cup chlorine bleach per gallon of water.

## Crawl spaces

Pump out the water, remove the debris, remove the vapor barrier set a fan to suck out and let dry for one or two weeks, then install new vapor barrier. (Very important or your house will never dry, NEVER)

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## Authors note:

The forgoing is a concise amalgamated summary of the guidelines and Standards that have been published by the IICRC, EPA, FEMA and OSHA. It also assumes that you are not hiring a professional remediation company. However, you can judge the quality of the contractor if you do hire one, as they should be following these principles at a minimum.

It is also based on 30 plus years of first-hand knowledge and industry practices. This is the basics so that you can get a safe home again. Flood waters contain many contaminants and should be considered as dangerous as sewage. Wet structures and contents that have been affected must be cleaned and sterilized before re-use.

Please do not cut any corners, your families future health can depend upon your handling this situation right the first time.

Insurance companies are not looking out for your best interests!! Do what will give YOU the healthiest outcome.

Lee

Public Service provided by

Lee and Mike Ramey of To the Rescue! IICRC Master Cleaners, Master Restoration Techs, Certified Mold Remediators, & Council Certified Indoor Environmentalist.

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