

RECOMMENDATIONS AND PROCEDURES FOR CLEANING OUT A HOUSE OR BUSINESS FOLLOWING A FLOOD

APRIL 8, 2009

The following is provided as a public service by the Southwest Georgia Chapter of the American Institute of Architects.

FLOOD WATER DAMAGE AND RECOVERY

Time is the key factor in the extent of damage done to elements of the structure. If the water has been in the structure more than a few hours, the damage and amount of material that will need to be removed will be extensive. In this case, items such as gypsum board on the walls and ceilings and insulation under the floor, within the walls and above ceilings become damaged beyond repair and must be removed to minimize further damage to the overall structure.

It is absolutely necessary to initiate the drying process throughout the structure as quickly as possible. **CROSS VENTILATION IS THE MOST EFFECTIVE WAY TO PROMOTE DRYING OUT OF THE INTERIOR OF THE STRUCTURE.** This will require the opening of all doors, both interior and exterior, and opening of all windows, to allow the maximum amount of air movement throughout all rooms of the structure, including closets and other spaces. The movement of air throughout the structure can be supplemented by the use of fans and air conditioning. **DO NOT USE HEATERS TO ASSIST IN DRYING OUT THE STRUCTURE.** Heaters can actually cause the humidity inside the structure to increase rather than decrease and will also promote growth of mildew and bacteria. **KEEP THE STRUCTURE WELL VENTILATED UNTIL THE INTERIOR MATERIALS ARE COMPLETELY DRY.** The length of time will vary. If extensive water soaking has occurred, you may need to test materials with a moisture meter. Most painters and paint stores have moisture meters that can be used for this purpose.

Basic Clean-Up Procedures

After removal of wet and soaked materials, it is necessary to wash down all surfaces with disinfectant. Common household bleach (Clorox or similar) will help you rid the structure of mildew and mold and will help prevent their growth. **IT IS RECOMMENDED THAT THE BLEACH BE MIXED AT A RATIO OF 5 TO 1 (FIVE PARTS WATER TO ONE PART BLEACH).** Use of a standard garden type sprayer will help with the thorough application of the bleach mixture. Wash down all surfaces, being sure to wear appropriate gear, such as rubber gloves. Facemasks and goggles are also recommended. Concrete and masonry wall surfaces can be hosed down and then scrubbed. Do not use bleach on fabrics. Mattresses and upholstered items that are completely saturated with contaminated water are not salvageable. Follow local regulations regarding disposal.

PROTECT YOUR EYES, MOUTH, HANDS AND FEET (WEAR A MASK, GOGGLES, RUBBER GLOVES AND BOOTS) WHEN CLEANING OUT DEBRIS LEFT BY FLOOD WATERS. Use disinfectants to wash your hands before eating.

BEFORE YOU PROCEED:

After the water has receded enough that it is no longer standing in your home or business, you should begin clean-up procedures.

1. Before beginning clean-up efforts, it is recommended that individuals get a tetanus shot if their vaccination is not current. Boosters are good for approximately 10 years. Check with your local health department for more information.
2. Before entering the building, be certain that the electricity has been turned off. If power is still provided in the flooded area, immediately disconnect power throughout the structure by switching the main breaker in the electrical panel to OFF. Verify that gas-burning appliances are not on and that no gas is leaking out of appliances, space heaters or water heaters into the structure.
3. The floodwaters carry all types of creatures that have been displaced from their usual habitats along creeks and river bottoms. Before beginning work, it is necessary that you make a thorough walk-through of the structure, carefully check in all closets, corners, cabinets, drawers, attic spaces, and similar locations throughout the structure for animals, insects and snakes.
4. When performing clean-up activities, be absolutely certain to **WEAR RUBBER GLOVES, GOGGLES, BOOTS AND OTHER PROTECTIVE GEAR** to prevent direct contact with flood water or waterlogged items. The floodwater and materials which were exposed to flood waters contain all sorts of debris and bacteria, which, when in direct contact with skin, can have harmful effects leading to illness or infection. Be watchful of small children and do not allow them to play in the affected areas or with materials that have been exposed to flood water.
5. Take photographs and make written notes describing the damage prior to removal and as the removal process proceeds. A video recording would also be a very effective way to document flood damage. This documentation will be useful if claims need to be filed with insurance companies, banks or various agencies.

FOUNDATIONS:

Structures that are constructed on concrete block or brick piers and foundations should be checked to verify that the floodwaters have not deteriorated mortar joints and weakened foundations. Most older buildings and homes have masonry and brick foundations.

Visually inspect the foundations both around the perimeter and under the house (again, watch for displaced snakes, animals and dangerous insects) and check footings to be sure that mortar has not been washed out of joints between the brick and block.

FLOORS:

Immediately remove the carpet throughout the structure. If there is a pad below the carpet, remove it as well. Carpet and pad that have been soaked with floodwater contain high amounts of bacteria that are hazardous to health. Health hazards aside, leaving such carpet inside will greatly inhibit the overall drying process of the remainder of the structure. It must be removed.

Floor covering other than carpet, such as vinyl, vinyl asbestos and vinyl composition tile, may curl at the edges and the adhesive may not keep it secured to the floor. Removal and replacement most likely will be necessary. These types of floor finishes are extremely slippery when wet, so caution should be taken when walking across them.

Other types of floor covering, such as clay or ceramic tile will generally weather the flood well; however, the sub-flooring to which the clay or ceramic tile may be attached may not dry out satisfactorily – ultimately leading to the removal of these types of flooring as well.

Wood flooring and wood sub-flooring are potentially the most damaged of the materials in the building because absorbing water causes wood to swell. When wood flooring or sub-flooring becomes wet and cannot be dried out rapidly or adequately, the flooring will swell and buckle. Generally, wood floors and sub-floors will need to be removed and replaced. However, in an effort to control costs, attempts should be made to dry this flooring after removal of carpeting or other floor covering material in the hopes of saving it.

INTERIOR WALLS:

Most residential structures and small commercial structures have walls constructed of wood studs and gypsum board (commonly known as sheetrock). Generally, exposure of gypsum board to water for one or two hours will not damage it extensively. Gypsum board which is exposed or in contact with water for longer than two hours will require replacement. This is necessary not only to remove the waterlogged and damaged gypsum board, but also to open up the walls and expose the cavities of the walls so that the insides of the walls and the wood studs within can dry out. If waterlogged or damaged gypsum board is not removed, the wall board will ultimately powder and mildew, causing unpleasant odors and an unacceptable base for paint.

Remove the gypsum board by cutting it horizontally at least 12 inches above the high water line and completely remove it all the way back down to the floor.

Also, if any exterior or interior walls contain insulation, it must be removed from the wall cavities. Insulation that has been immersed in water must be removed for two reasons. First, after being saturated, most insulation is rendered permanently ineffective – particularly loose-fill varieties such as cellulose, vermiculite, rock wool, mineral fiber and blown-in fiberglass, which tend to collapse and compact under their own weight and consequently lose their insulation value. Second, saturated insulation holds water, which, if left in place, can perpetuate high moisture conditions destructive to wood, masonry and metals. High moisture conditions will increase damage to the structure and make it more difficult to dry out the building.

After removing the gypsum board and insulation from the affected walls, it is absolutely vital and necessary to allow the framing and wall cavities to thoroughly dry before installing new insulation or applying new gypsum wall board.

Drying time will vary depending on the amount of water that was within the structure, the degree to which the waterlogged items have been removed from the structure, the amount of cross-ventilation that is introduced and the weather conditions during the drying period. **DO NOT INSTALL NEW MATERIALS UNTIL ALL EXISTING SURFACES ARE COMPLETELY DRY.** A wood stud that is dry to the touch may still be wet in the middle. Allow adequate time for complete and comprehensive drying out of your structure, typically between 1 and 6 weeks.

CEILINGS:

Even though the water may not have reached the ceiling, the extreme humidity from the flood water may trigger swelling of the gypsum board above, causing it to pull loose from the ceiling framing. Check the ceiling by pressing upward on it, and if nailheads appear on the surface, there is some damage.

Renailing and refinishing are the minimum response to this condition; replacement may be necessary. Also, be certain to check the insulation in the attic when this occurs, as it may have become moist and may not allow the gypsum board to dry – resulting in additional problems, such as mildew. Replacement of the insulation will be required.

DOORS AND CABINETS:

Doors and cabinets are both generally constructed of wood, which will swell and become unusable with time. Also, many cabinets are made of plywood or particleboard, which will delaminate or come apart in time. Doors, other than solid wood doors, are also made with veneers. The problem of delamination of plywood and doors will not appear for several days, but will become obvious when the plywood or door veneers begin to peel away from the substrate. Solid wood or wood panel doors have a better survival rate. However, these, too, should be watched for swelling and subsequent shrinkage that may cause them to crack.

EXTERIOR WALLS:

Many houses and small commercial structures in this area are constructed of brick veneer with a water-resistant sheathing as a back-up. This sheathing generally will not be damaged if the weep holes – the slots near the bottom of the brick – are free and open to allow for the water within the wall to drain out and the air to enter and assist in drying the cavity between the exterior sheathing and the back side of the brick. If weep holes are blocked with debris or silt, clean them out. Houses that have elevated floors should have all the perimeter vents opened to allow for as much cross-ventilation and movement of air in the crawl space as possible. This is necessary to adequately dry out the floor joists and floor sheathing from the underside in an effort to minimize the amount of damage to the floor joists as well as the wood sub-floor throughout the structure.

DUCTWORK SYSTEMS:

Ductwork systems also need to be flushed thoroughly and disinfected, as water that has filled the ductwork will deposit bacteria and germs that can introduce illnesses into the structure when the system is utilized.

GAS SYSTEM:

Water can collect in gas lines, causing the pilot light for appliances, heaters and water heaters to burn improperly, and in some cases, go out. Gas can escape if there is a faulty valve or thermal couple. The gas system within the structure should be checked, and appliances checked for proper operation.

ELECTRICAL SYSTEMS:

Electrical systems should be thoroughly checked, especially if the water rose above the wall outlets. Silt can collect in these and cause short circuits. Also check all light switches and light fixtures for water if floodwaters were high enough to reach them. Absolute precautions should be taken when checking the electrical systems and a professional should be called in if there is any concern or question regarding the condition or status of the electrical system.

APPLIANCES:

Most appliances have the electrical motor mounted very low to the floor, so even a small amount of water in the structure can cause damage to motors and bearings. Do not attempt to use these appliances until the motors, their controls and elements have been checked by qualified personnel.

EXERCISE EXTREME CARE WHEN CLEANING OUT A STRUCTURE FOLLOWING A FLOOD. USE PROTECTIVE GEAR AND PROCEDURES AS RECOMMENDED.