



# Tips for Drying Out a Water-Damaged Building

Maryland Historical Trust

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Once a building has been exposed to a large volume of water, either floodwater or rainwater, steps must be taken to dry the building out, assess damage, and plan for repairs and restoration. This information sheet discusses concerns and procedures for helping structures to dry out.

Flooding may be quick, but drying out a building is a time consuming effort. Allowing natural ventilation and evaporation to work is better for the building than using heated forced-air or air conditioning systems. The rapid drying out of a historic building using hot air power drying systems can cause irreparable harm to significant features of the building.

Before starting to dry out your building, make certain to address health and safety concerns. Safety must come first; do not endanger yourself, your family, or other occupants. Assume all power lines are live. Do not trust the fact that power may be off all over the neighborhood; turn off the power to your house. Check for the odor of leaking LP or natural gas and turn off these services. Be aware that floodwaters may be contaminated with sewage or animal waste and present a health hazard. During clean up, protect eyes, mouth, and hands, and use disinfectants to wash hands before eating. If you are uncomfortable when entering your house and have any question regarding personal safety, do not go inside, but have a professional make an assessment.

Make a photographic record before you begin to clean up the damage. Documentation of the damages will be beneficial when negotiating with insurance adjusters.

Make temporary repairs to roofs and windows to prevent additional water from entering the building as you work to dry it out. Plan on temporary repairs lasting a minimum of six months. Temporary repair options include the use of tarpaulins, 30- or 90-pound felt paper, or plywood covered with tarpaper.

Water saturation affects a building in three ways:

1. Water causes direct damage to materials. Wallboard disintegrates; wood can swell, warp, or rot; electrical parts can short out, malfunction, and cause fires or shock.
2. Mud, silt, and unknown contaminants in the water get everything dirty and are unhealthy. Floodwater is more damaging than rainwater.
3. Dampness promotes the growth of moisture-related mold, mildew, and fungus that leads to dry rot.

Efforts to promote natural and controlled drying out of the building should start at the attic. If the insulation is wet, remove it and dispose of properly. After being wet, most insulation is ineffective,

but it will continue to hold moisture for a long time and will create high moisture conditions which will damage metal, masonry, and wood.

Remove any water soaked items stored in the attic for treatment. The weight of water soaked boxes can cause cracking in the plaster ceilings of the floor below. Open windows and vents to allow fresh air to circulate. If your electrical system is safe and you have an attic fan, turn it on.

As you enter rooms, inspect ceilings carefully. Wet plaster and sheetrock are very heavy and can be a hazard. Be aware of bulging ceilings that may hold trapped water. If rainwater has collected in the ceiling, the rainwater will find its own route into the floors below. Collect water in buckets by poking holes at the edge of the bulging ceiling to release the water.

Plaster responds to drying out much better than sheetrock; however, durability depends on the plaster mix, the original application, the degree of water saturation, placement, and the type of lath used. Plaster over metal lath is likely to require replacement. Wood lath may expand if saturated, causing the plaster keys to break. Check for loose plaster and plan to reattach it using plaster washers. Plaster ceilings can be temporarily shored by using 2x4s nailed together to form a "T," then wedging the top of the "T" to press plywood against the ceiling.

Most plaster walls can be saved if damaged by clean rainwater. Drain water that may be held within the wall cavity by removing the baseboard and drilling holes through the plaster or sheetrock several inches above the floor. Use cordless or hand drills to avoid electrical shock and be careful to avoid wiring within the walls. Remove any insulation if wet via the baseboard removal and allow the wall cavity to dry out thoroughly.

If sheetrock has been exposed to water for less than two hours, it can probably be repaired. If the sheetrock was exposed to floodwater for more than two hours, it will be saturated by contaminated water and require complete replacement.

Open windows in all rooms, even if there is no evidence of moisture retention. If the windows are swollen shut, remove the inside stop bead to free window sash. The use of window fans will help draw fresh air through the building, helping to dry out wall cavities between interior and exterior walls.

Wash down wood features, including trim, doors, mantels, and stairs, to remove mud and silt. Mold and mildew can be cleaned off using a weak solution of Clorox and water or commercially available disinfectant. Historic wallpapers require specialized treatment. Any features removed during the clean up should be labeled and saved for later reinstallation. Many significant features, such as trim, have been lost due to owners or contractors acting in haste to clean up.

Remove wet carpets and furniture from the house. Drying out these items in the house only adds to the moisture level within the house. Remove sheet vinyl or linoleum flooring to allow for maximum evaporation.

If wood floors are coated with mud, wash down with fresh water. Floorboards may begin to warp as they dry, but further drying may bring the boards back to their original shape. The use of weights or shoring on the wood floors during the drying process may lessen the occurrence of severe warping and buckling. Remove vapor barriers and insulation from beneath the floor to allow for complete air circulation. Do not use heating, air conditioning, or other forced air to promote drying of wood floors. Rapid drying can promote cupping of the floorboards as the top surface dries out faster. Drying out floorboards may take several months.

If the duct work has standing water, wash it out with clean water. Replace electrical receptacles if water levels reached high enough to cover them.

If your basement is flooded, do not rush to pump it out. Draining the basement while the surrounding ground is saturated may create uneven pressure on the basement walls and floor resulting in cracking or collapse. Once water surrounding the house has drained off, lower the water level in the basement by two or three feet, mark the water line, and wait overnight. If the basement water level rises, then it is too early to fully pump out the basement. If the water level is stable or lower, then pump out another two or three feet and again check the water level overnight.

Water-damaged household furnishings including textiles, books, photographs, paintings, and furniture should receive proper treatment to minimize damage and ease repair and restoration. In general, wet mud should be rinsed off objects with clean water before air drying, but consultation with a conservator for specific guidance on the treatment of historic objects is strongly recommended.

Remember that air circulation is the key to completely drying out a structure. Heaters or air conditioners should not force the drying process. If you force your building to dry too quickly, additional damage to the building elements will occur.

For further information regarding water-damaged buildings, consultation with the State Historic Preservation Office and reference to the following publications are recommended:

- Treatment of Flood Damaged Older and Historic Buildings, National Trust for Historic Preservation Information Booklet No. 82, 1993.
- Repairing Your Flooded Home, Federal Emergency Management Agency and American Red Cross, ARC publication 4477, FEMA publication 234, August 1992.
- After the Flood: Water Damage and Your Historic Building (videotape), Historic Preservation Information Service, University of South Dakota, 1994.

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