

# Section 3- Recovering from Disaster Damage to Your Historic Building

The following information will assist those who own and care for older and historic buildings that are at risk of damage from storms and floods.

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## Basic safety rules to follow in the event of flood or storm damage:



- Do not walk through flowing water.
- Do not drive through a flooded area.
- Stay away from power lines and electrical wires.
- Check to be sure your electricity is turned off. If any wiring was submerged, have it inspected before turning the power back on.
- Look before you step. Floods deposit mud which may be slippery. Floors may have been weakened. Snakes may be hiding under buildings or in upper floors that were not flooded.
- Smell the air for gas leaks.
- Vent electrical generators, heaters and charcoal grills properly if you use them. Carbon monoxide exhaust kills.
- Clean everything that got wet. Get inoculations and wear rubber gloves as part of your protective clothing. Hose-down concrete and masonry walls. Scrub other surfaces with disinfectant. Discard any food and medicine that came in contact with flood water. Flood waters carry infections sewage and hazardous chemicals.

# Section 3:

## RECOVERY

The information in this section will help you and your advisors as you plan and implement a recovery project. The stressful and exhausting work of recovery from disaster will go much smoother with an effective plan.



In the weeks and months following a disaster, take the permanent measures needed to repair and restore your site and obtain the needed resources and qualified professionals to accomplish these tasks. You must make challenging decisions about meeting public regulatory requirements, maintaining sensitivity to historic preservation and rendering your site more secure against damage from future disasters. Seek advice from preservation specialists. You will also need to consult with your local building officials and regulatory boards. Get technical assistance and information about preventive measures to guard against future damage.

# Plan a Recovery Project

Planning determines what needs to be done, when to do it, who will do it and how much it will cost. Planning ahead gives you the lead time necessary to deal with the unusual situations so often encountered working on historic buildings.

**The following steps need to be considered during the Recovery phase:**

1. Planning Team – You need help
2. Strategy – A basic plan
3. Treatment and Methods – What to do
4. Logistics – Put it all together
5. Specifications – Tools for understanding
6. Personnel – Who does the work
7. Scheduling – When to do the work

# Planning Team – You need help

Planning an effective project is complex. Gather a planning team around you. Your planning team might include the building owner or someone from the owner's family or the institutions staff, an architect, consultants or specialists and contractors. If an owner depends only on him or herself and one contractor to plan a project, the possibilities for effective problem solving are limited.

Members of the team may come up with widely differing analyses and solutions to any given problem. This is good, since it gives you a choice of solutions and treatments. Preservation specialists serve in large part to provide these alternate solutions. But it is the staff and contractor who ends up doing the work. Their “hands-on” experience provides them with valuable insight. If they participate in developing the solutions and making decisions, their performance on the project will be much better than if they are just told what to do.





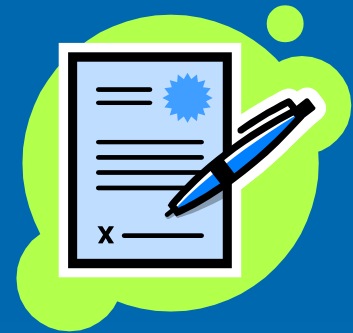
# Strategy – A Basic plan

A basic strategy must be carefully tuned to match the resources available (time, money, skills, etc.). Review your goals so you know what you want. Review your resources so you know what you can expend to get there. Following are examples of basic strategies that have proved useful in storm and flood recovery:

- If resources are extremely limited, plan to deal only with poor conditions in the highest priority categories of life and building safety. Then temporarily protect critical systems and parts with historic significance from further deterioration.
- If you have limited but regular and continuing supply of resources, stabilize the current conditions with regular preventive maintenance and slowly upgrade problem areas. Develop a continuing maintenance program of preventative maintenance to hold current conditions. Upgrade fair and poor conditions on an incremental basis over several years. Pay close attention to priorities.
- If resources are plentiful, bring the building up to a desirable condition all at once. Begin with a recovery project or a series of projects to improve conditions within a few months or years. Once the project is under way, develop a continuing program of preventive maintenance to hold current conditions and improvements. If you do not maintain the improvements, the building will just deteriorate and become susceptible to storm damage again. Finally, follow through with the remaining recovery projects to maximize benefits of improved conditions and to reduce maintenance costs. (continued on next slide)

- Of course the main work is to repair the damage. Frequently there will have been a backlog of deferred maintenance and poor conditions before the flood which resulted in more damage to the building. Recovery work often includes additional repairs to make up for this deferred maintenance. This is necessary so the next storm doesn't just damage the building all over again. Maintenance of the improved condition is necessary after recovery to prevent another round of deferred maintenance and severe storm damage.

Once you have developed a strategy set it down in writing. This will help you clarify your thinking so it will be easier to use the strategy as you develop the project. Revise the strategy as needed to reflect changes in the situation as recovery proceeds.



# Recovery Project Priorities

Priority	Description	Example
Life Safety	Protect occupant's and worker's life and limb.	Turn electrical system off. Check for gas leaks.
Safety Structure	Ensure structural systems will support maximum worst case loads. Protect from catastrophic hazards such as fire and vandalism.	Rebuild damaged foundation. Replace cracked studs.
Weather Envelope	Keep water, wind and sun out of building.	Rebuild roof structure. Re-roof with new shingles.
Drying Out	Reduce moisture to long-term equilibrium.	Install blowers in damp crawl space. Monitor drying progress.
Utilities	Heating, electrical, plumbing systems.	Remove and clean ductwork. Flush out and sanitize domestic water lines.
Interior Finish	Plaster, woodwork and decorative finishes on ceilings, walls, floors.	Remove peeling paint and wallpaper. Repair plaster, repaint and hang new wallpaper.
Grounds	Lawns, plantings, walks and drives, walls and fences, land conservation.	Infill erosion trench. Re-grade for slope away from building. Establish lawn.



# Treatments and Methods – What to do

To develop a treatment is to decide what to do about the condition of particular building elements. Treatments can range from continued monitoring of changing conditions such as the moisture content of woodwork as drying out progresses, to a simple housekeeping task such as cleaning a wood parquet floor, to the more complex such as completely rebuilding foundation piers.

Develop a list of treatments to address the conditions of each building element or system described in your damage inventory listing and other damage documentation. (from Response section) This list is sometimes called a “scope of work.” Prioritize the list, then develop and describe specific treatments for each item. A treatment description includes the purpose of the work, the intended result and specific materials, details of construction and methods needed to achieve the result. Focus on “poor” and then “fair” conditions if your resources are very limited.

When you are uncertain about what to do, wait before proceeding with the actual work on that item. Except for high priority situations involving life safety or water entry, you usually will have as much time as you need to plan effectively. Stop to think about how long your clapboards or windows have gone without paint. It may be that they could go on for a few more months or years with relatively little damage. The delay is worthwhile if you use the time to plan and implement a more effective treatment.

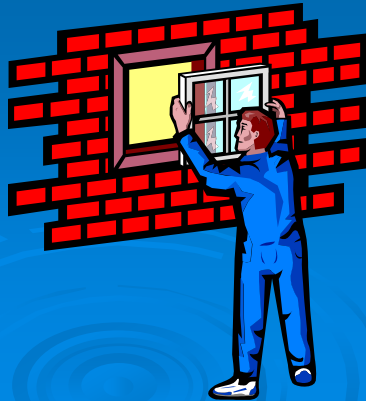
# Minimal Intervention

Do as little as possible while still achieving your goals and objectives.

Protect and preserve building elements that are deteriorated but still functional. Repair, when preservation is not possible, by splicing in limited areas of an element with matching materials. Replace a whole element as a last resort only when damage to an element is so extensive that repairs are not economical. “Replacement in kind” with the same material is preferable to substitution with modern materials. In some cases modern materials will be desirable if their performance over time is well known and if they will not cause deterioration of other building elements.

For example, rework the flashing or add a cap to a leaking chimney. Then after a year re-evaluate before you consider more drastic steps such as waterproofing or rebuilding the chimney.

Do not confuse minimal intervention with doing nothing or with quick fixes that only treats symptoms. Hopeful neglect is no substitute for action.



# Logistics – Put it all together

Start with the prioritized list of all the needed treatments. Group treatments into projects as you begin to develop them. Outline each project on a separate project sheet, even if you do not yet know all the details. Use the sheet to collect notes whenever an important point about the project comes up.

Combine similar treatments to give each trade or contractor enough work to be efficient, such as rejuvenating all the doors or windows at once, or combine all the treatments in one area. For example, to make efficient use of scaffolding, do window repairs, siding repairs and exterior painting at the same time as extensive cornice repairs, all on the same side of the house.

Follow the standard sequence of work when possible. Do major structural work before finish work. Re-establish the weather envelope, then work on interior finishes for ceilings, then walls, then floors. Complete major building work before beginning the finish landscaping.

Divide recovery work into a few or several sub-projects. Have enough different sub-projects to easily establish priorities and schedules, but not so many that it is difficult to remember which is which. Most projects have three to ten sub-projects.

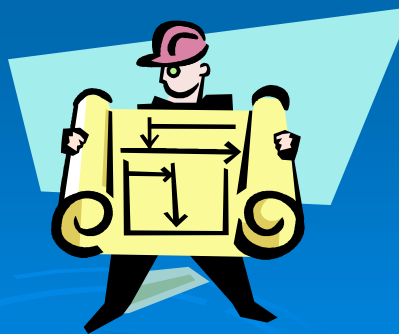
Once a project is clearly defined, list what you want done. Architects or preservation specialists can provide invaluable assistance even on projects as limited as replacing a roof. When your roof leaks and you get estimates from roofing contractors, the price may vary greatly because one firm bids for higher quality material or installs more effective flashing. Detailed specifications from a professional not only give you a better chance of obtaining quality work, they ensure that estimates will be based on providing the same product and services.



# Specifications – Tools for Understanding

The end result of planning should be a clear picture in everyone's mind about what is going to happen. This might be expressed simply in a list of jobs to be performed, with a written paragraph describing the job. A complete set of drawings and specifications may be needed for more complex projects on important buildings.

The advantage of architectural specifications, which includes drawings and written descriptions, is that they prevent confusion about exactly what you want done. Contractors and trades people often misunderstand verbal instructions and have their own strong views about what should be done. A specification on paper also provides an invaluable tool to evaluate the effectiveness of a particular treatment and is a record of what was done. This information will be valuable for future maintenance.



Not everyone can read. Do not assume that because someone operates a contracting business or performs exceptionally as a tradesperson that he/she will understand your written specifications or instructions. Even those who can read respond better to photos and three dimensional drawings. Standard two-dimensional architectural drawings such as floor plans and cross-sections require specific reading skills that are even more demanding than reading plain text. Before work begins review all project documents together point by point including contracts and specifications. For critical work require a demonstration of understanding by having the trades people or workers execute sample panels or sections of the actual work.

If there is a chance someone does not understand their part, go over the specifications together, verbally, point by point, to make sure everyone understands them. You must use these specifications as “tools” to create an understanding.





# Personnel – Who does the work

- Do-It-Yourself

Know your limitations. One of the main advantages of home ownership is that we can often do some of the needed maintenance ourselves. It's important to know where to draw the line. Practically anyone can shovel mud and mop a floor, but few could rebuild a cornice 40 feet off the ground.

Do you have the physical ability, skills and knowledge to do a particular project? If not, do you have the time to learn how and still complete the project? Do you have the tools and equipment to do the work? Life safety and building safety is a major concern and frequently requires additional equipment. It is far easier to get into a project than it is to get back out with success.

- Preservation Specialists

You or your staff may not be able to handle the work due to lack of special skills or the temporary heavy work loads caused by disaster. Then it's time to bring in help from the outside.

- General Contractors

When you have an extensive or complex recovery project that must be done all at once considering using a general contractor, especially if your own skills or time for project management are limited. The additional costs can be well worth it. Be sure the contractor has had experience with historic or older buildings similar to yours.

# Scheduling – When to do the Work

Effective scheduling improves the quality of the work and reduces costs. Disaster recovery projects for historic buildings often take several months to a year before work begins. Sometimes work is not completed until two or three years after the disaster has occurred.

Workers with the special skills and knowledge needed to work on historic buildings are in short supply, especially after a widespread disaster. Often trades people and specialists are scheduled for months or a year ahead. Begin talking with them as soon as you see your need for them. But don't expect them to reserve time for you until you have a specific agreement with them that includes a schedule.



Special equipment and materials may take longer to find since they are not available through regular supply channels used by general contractors. Subcontractors and trades people who use special materials will have a more direct supply line. For example, carpenters skilled in window refurbishing will know about local sources of salvaged wavy glass or which specialty glass companies to order from. A general contractor might have to spend significant amounts of time tracking down such sources.

In your planning be certain to clarify who is responsible for obtaining special materials and equipment and be sure there is enough time to get them onsite when they are needed.

Some jobs are best done during certain seasons of the year. Roofers blessed with cool winter, spring or fall weather will do a better job than in the blazing heat of mid-summer. Foundation work at a water-powered mill site may have to wait for the low-water season.

Even small projects will probably involve more than one trade and should have a written schedule or calendar that shows who will be doing what and when.

Large complex projects requiring many different trades and crews will need a schedule chart that shows how the various tasks relate to each other and to the project as a whole.

Allowing more time for drying out slowly almost always results in more satisfactory results. Plaster and wood often take at the least three or four months to dry out enough to paint. Most tongue & groove flooring will lay back down on its own accord given enough time.



## Preservation Specialists

These are the people who can assist you with any step along the path of prevention, response and recovery at your site. The following agencies and directories will have names of preservation consultants, building conservators, architects, engineers, landscape architects, archaeologists, craftspeople, contractors, trades people, construction and rehabilitation specialists, collections and document conservation professionals. These professionals can advise you on the special measures most appropriate for your site.

### Alabama

Alabama Historical Commission  
468 South Perry Street  
Montgomery, AL 36130-0900  
334-242-3184  
[www.ahc.alabama.gov](http://www.ahc.alabama.gov)

Alabama Emergency Management Agency  
5898 County 41  
PO Drawer 2160  
Clanton, AL 35046-2160  
<https://ema.alabama.gov/>

AIA Alabama American Institute of Architects  
P.O. Box 240757 / Montgomery, AL 36124  
1045 Ambassador Court / Montgomery, AL 36117  
334-264-3037  
<https://www.aia.org/alabama>

Ask for referrals to architects with historic preservation experience.

Alabama Department of Economic and Community Affairs  
PO Box 5690  
Montgomery, AL 361030-5690  
334-242-5100  
<https://adeca.alabama.gov/>  
<https://adeca.alabama.gov/cdbg-disaster-recovery/>

Ask for the number of your nearest Regional Planning Commission or its historic preservation contact person.

Local authorities are usually associated with county, city or town governments and their planning departments, engineering departments, or codes enforcement offices.



# General

FEMA Federal Emergency Management Agency  
Region IV

1371 Peachtree St., NE / Suite 700

Atlanta, GA 30309

404-853-4200

404-230-4230 (fax)

<https://www.fema.gov/assistance>

NTHP National Trust for Historic Preservation

National Trust for Historic Preservation

600 14th Street NW, Suite 500

Washington, DC 20005

202-588-6000 / 800-944-6847

<https://savingplaces.org/>

[info@savingplaces.org](mailto:info@savingplaces.org)

<https://savingplaces.org/disaster-recovery>

OHJ Old House Journal

2 Main St.

Gloucester, MA 01930

508-283-3200

Restoration Directory and bi-monthly magazine

<https://www.oldhouseonline.com/>

<https://www.oldhouseonline.com/category/old-house-directory/>

APTI Association for Preservation Technology  
International

PO Box 8178

Fredericksburg, VA 22404

703-373-1621 or 1622

Referral Service and Membership Directory

<https://www.apti.org/>

National Park Service

Preservation Briefs

<https://www.nps.gov/orgs/1739/preservation-briefs.htm>

Secretary of the Interior's Standards for the Treatment of  
Historic Properties

<https://www.nps.gov/orgs/1739/secretary-standards-treatment-historic-properties.htm>

Federal Tax Incentives for Preserving Historic Properties

<https://www.nps.gov/subjects/taxincentives/index.htm>



# Credits

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for use of material from the Practical Restoration  
Report, “Managing Maintenance.”

Sarah James, Assoc.

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Cambridge, MA

for use of material from “Safeguarding Your Historic  
Site.” in the Disaster Recovery section.



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Office of Equal Opportunity  
National Park Service  
1849 C Street, N.W.  
Washington, D.C. 20240