Tool 5. Managing Reconstruction After a Disaster

This tool is more in the realm of the floodplain manager than the previous four. The floodplain manager should be the lead in ensuring that damaged properties are repaired and rebuilt to the community's flood protection standards and that mitigation opportunities are pursued. In this tool, the emergency manager is more in the supporting role, but can be most helpful with the public information aspects, damage assessment, and prepping elected officials to ensure a smooth transition from disaster response to recovery and reconstruction.

Tool 5 is not limited to floods. Floodplain buildings can be destroyed or damaged by a hurricane, earthquake, explosion, fire, or any other destructive force. If it happened in the floodplain, the floodplain manager needs to be involved before reconstruction starts.

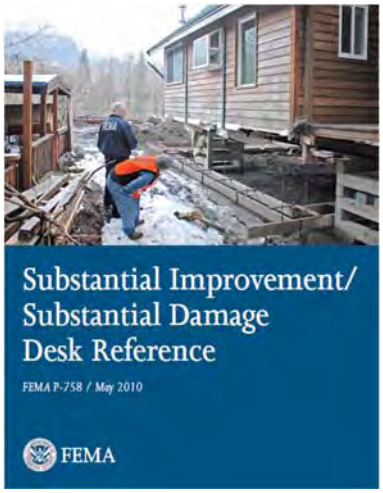
Disasters bring many challenges, but also the opportunity for change. The floodplain manager needs to be ready for both. The challenges include working with many property owners at once, determining if their buildings are substantially damaged, and helping them decide what to do next: repair, mitigate, or demolish. There will be pressure to speed up the review process and maybe even to lighten up on the reconstruction requirements.

The opportunity for change can be significant depending on the degree of damage. If a lot of homes were destroyed, should the community take advantage and buy up and clear out the hazardous area? The main challenge is to maximize the amount of mitigation possible within your community's regulatory authority and budget.

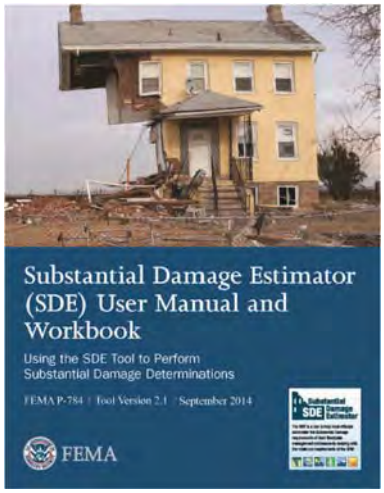
Substantial Damage Determinations

The hardest and most important job of the floodplain manager after a disaster is to determine if a building is substantially damaged. This is one of a community's minimum requirements under the NFIP. There are several excellent references and sources of assistance for this task that are mentioned in this section.

It is assumed the community will fulfill its obligation to the NFIP to make accurate substantial damage determinations. This section therefore focuses on the other NAI aspects of what should be done after a disaster.



This FEMA guide (FEMA P-758) is the floodplain manager's basic reference during repairs and reconstruction after a disaster. It is available at www.fema.gov/media-library/assets/documents/18562



The Substantial Damage Estimator (FEMA P-784) is a software tool that provides data to help the permit official make determinations. It is free at https://www.fema.gov/media-library/assets/documents/18692

How to: Manage reconstruction after a disaster

Repairs and reconstruction occur during the recovery phase of a disaster. However, they are not the only thing that should be addressed during this phase. Reconstruction should be considered a part of the overall recovery and redevelopment effort and should be coordinated with concurrent larger-scale planning efforts for the future of the damaged area and the community as a whole.

Planning during the recovery phase is discussed in *NAI How-to Guide for Planning*, Tool 3 Post-Disaster Planning. Therefore, this section does not go into recovery planning, but does note important times when coordination with the planners is needed.

Step 1. Prepare in advance

The post-disaster time frame can be fast moving. People will want to clean up and return to their homes right away. Businesses and employers will need to reopen as soon as possible. Meanwhile, you have a regulatory obligation to ensure that all reconstruction will be done in accordance with your floodplain management ordinance.

Here are some things you can do before you face the post-disaster time crunch:

1. Stock up on the latest reference material:

- → Unit 8 of FEMA 480, the Floodplain Management Desk Reference provides a basic introduction, but does not have the latest guidance. It can be downloaded at http://floods.org/index.asp?menuid=388&firstlevelmenuid=180&siteid=1
- → The Substantial Improvement/Substantial Damage Desk Reference, FEMA P-758, is a must (see previous page).
- → Check out the optional Substantial Damage Estimator reference and download the software (see previous page).
- → See if your state NFIP Coordinating office has any rules or recommendations.

2. Take a class: FEMA's Emergency Management Institute offers three options: resident classes in Emmitsburg, Maryland ("E" classes), field deployed versions ("L" classes), and independent study ("IS" classes).

- → There is an independent study course on the Substantial Damage Estimator (IS-284) (www.training.fema.gov/is/courseoverview.aspx?code=IS-284)
- → E194, Advanced Floodplain Management Concepts, has a full day module on Preparing for Post-Disaster Responsibilities.
- → E284 Advanced Floodplain Management Concepts III has a full day module on Substantial Improvement and Substantial Damage.
- → Course schedules for "E" classes are posted at http://training.fema.gov/emicourses. Field deployed "L" classes are scheduled and publicized by the state emergency management agency.

→ Ask your state association to have a session on post-disaster operations and/or substantial damage determinations at your next conference.

Attending Emergency Management Institute classes or their equivalents is credited under Activity 430 (Higher Regulatory Standards), RA1 - Regulations Administration.

3. Review your regulations: Make sure your ordinance language is clear.

→ How is the cost to repair determined?

→ How is a building's market value determined?

→ Do you track improvements and damage cumulatively? If so, do you have good records?

→ Do you have language for higher standards so you will be ready if there is a desire to adopt them quickly after a disaster? See also Step 4 in this Tool.

4, Coordinate with those who can help: Identify the following key personnel in your community and meet with them, just so you know each other. Talk over the likely scenarios after different types of disasters.

→ Emergency manager: The emergency manager will be in charge during and immediately after a flood.

- Are you expected to be in the Emergency Operating Center or can you leave to manage reconstruction?
- Will the emergency manager be able to help you with preliminary damage assessment information? When will that information be available?

→ Permit office: If the permit office is separate from the floodplain manager's office:

- Are there plans for public information efforts to remind people to get a permit before they start repairs?
- Is there a coordinated approach to ensure that people don't get a building permit before the substantial damage determination is made?
- Are there procedures to ensure that utilities are not turned on or a house will not be reoccupied before a final inspection is made?
- Will plan reviewers look for or talk to applicants about mitigation opportunities during repairs?

→ Attorney:

- Does the attorney's office understand the substantial damage rule?
- Do the legal staff agree that the ordinance is clear and defensible?
- Can you use the Substantial Damage Estimator as an alternative to estimating the market value and the cost to repair?
- Can permit staff go on private property to inspect or red tag a building before the owner has returned?

→ Planners: If the damage is widespread and severe enough, the planners will be key to planning for redevelopment and seeking financial assistance.

- Provide the planners with copies of *NAI How-to Guide for Planning* where Tool 3. Post-Disaster Planning and the Hillsborough County and Conway case studies can familiarize them with what they can do.
- Advise them of the American Planning Association's Hazard Mitigation and Disaster Recovery Planning Division – www.planning.org/divisions/hazardmitigation/
- Advise them of the American Planning Association's Hazards Planning Center, which has a wealth of information – www.planning.org/nationalcenters/hazards/
- Are there areas slated for clearance where you should not be helping people rebuild?
- See if there are any neighborhood or redevelopment plans for areas in the floodplain. Are there already efforts underway to clear out or redevelop some areas?

→ Public information office:

- What are their procedures during and after a disaster?
- Are they willing to support the "stop and think" message (see box)?
- Will they help you with outreach to damaged property owners?

→ Elected officials: If you are able to talk to your elected officials:

- Brief them on what can happen after a disaster and the community's obligation to enforce the NFIP requirements. It may be easiest to start with one or two council members from a floodprone district. They do not want to be surprised when their constituents complain that the community will not allow them to move back into their homes.
- Are they willing to support the "stop and think" message (see box)?

"Stop and Thnk"

"Stop and think – you don't want to go through this again"

This is a message that should be repeated during and right after a flood or other disaster that is likely to hit the same area again some day. It is designed to catch people's attention during the rush to rebuild and encourage them to think about mitigating instead of immediately going back to "normal," i.e., their pre-disaster condition where they are still exposed to repeated damage.

The message will not be very useful unless the community has additional information on mitigation and retrofitting for people to consider.

The Natural Hazards Mitigation Association has a website on "Build Back Safer and Smarter" that uses the "Stop and Think" message: http://recovery.stormsmart.org/

Step 2. Prepare needed materials

Things will move fast after the disaster, so it's good to have as much ready as possible. You may not need to reproduce hundreds of copies, but you should have masters ready for the following.

1. Regulatory materials:

- → Checklists for preliminary damage assessments during a windshield survey. The emergency manager may have these already, but check to see if they have key information needed for the triage in Step 3, such as how deep the water was over the first floor.
- → Detailed inspection checklists. If you're going to use the SDE, review the User Manual and determine if you can record your site visit information on a laptop or tablet as you work or use paper and transfer the information into the software later.
- → Substantial damage notice to the property owner. There is an example in Appendix D of the *SI/SD Desk Reference*.
- → Increased Cost of Compliance template letter. If a building is substantially damaged by a flood and the owner has flood insurance, the insurance policy may provide an additional payment toward the cost of meeting the code requirement. The policy holder will need a letter from the community for the insurance adjuster. See also Section 7.6 in the *SI/SD Desk Reference* and example letters in Appendix C of *Increased Cost of Compliance: Guidance for State and Local Officials*, FEMA 301, found at www.fema.gov/media-library/assets/documents/1973?id=1532.

2. Public information materials: Here are some topics for handouts and news releases. Your emergency manager may have some materials on these. You can find additional information in the references listed earlier in this section and the Red Cross' *Repairing Your Flooded Home* – www.redcross.org/images/MEDIA_CustomProductCatalog/m4340135_file_cont333_lang0_150.pdf.

- → The permit rules (and that permits are needed for work done by volunteers)
- → Initial clean up steps that don't need a permit
- → The substantial damage requirement and procedures
- → How to process an Increased Cost of Compliance claim
- → Other possible sources of mitigation assistance
- → The need to use licensed contractors

Preparing a post-disaster public information program in advance is credited under the Flood Response Preparations element (FRP) in Activity 330 (Outreach Projects)

Public information Handouts

Handouts can be illustrated or simple. FEMA and the Red Cross have downloadable materials. The middle example has step-by-step instructions for flooded property owners in Conway, SC, after Hurricane Floyd (see the case study in the NAI How-to Guide for Planning and Step 7 at the Stop and Think website, http://recovery.stormsmart.org)


Initial Restoration for Flooded Buildings

FEMA

HURRICANE KATRINA RECOVERY ADVISORY

www.fema.gov/pdf/rebuild/mat/initial_restoration.pdf


City of Conway

Advice to Flooded Property Owners

1. Read through the book *Repairing Your Flooded Home*. Copies are available free at City Hall and Fire Station #2 on Country Club Drive.
2. Read through the City of Conway handout, *Repairing Flooded Buildings*, October 5. This lists all the rules for cleaning out, repairing and rebuilding flooded homes and businesses.
3. If your building was damaged and you have not had a building inspector look at it, call the Building Department at 248-1760.
4. You can proceed with cleaning up, even if an inspector has not been by. To clean up, do the following:

4.1. Remove and throw away the following items if they got wet:

- sheetrock
- carpeting and carpet pads
- sheetrock
- insulation
- particle board, pressboard, Masonite, and similar wood composition products
- wallpaper over plaster
- all electrical outlets and switches that are below the high water line

4.2. Hose out the crawlspace and other flooded areas; building to remove the mud as explained on pages 9 - 10 of *Repairing Your Flooded Home*. Clean all exposed surfaces with a disinfectant (see Step 6 of *Repairing Your Flooded Home*).

4.3. Allow air to flow around the bare studs and joists so they can dry out. You will not be able to install floor covering, insulation or sheetrock until the wood is sufficiently dry. The City building inspector will have a meter that will test whether the wood is dry enough. It must have a less than 19% moisture reading. A dehumidifier can help this process if you have a generator or other outside source of electricity.

5. If you have had an inspector by, he left a colored placard on your building. Three kinds of placards were used:

5.1. If you have a red placard, it says "unsafe structure." This means that:

1. The electricity must be turned off and kept off until the electrical, heating and air conditioning systems are repaired. You will need to apply for a building permit for this work.
2. You cannot move back into the building, but the building inspector may allow you to proceed with cleanup.


Be Red Cross Ready

Returning Home After a Hurricane or Flood

www.redcross.org/images/MEDIA_CustomProductCatalog/m14240163_ReturningHomeChecklist.pdf

3. Reconstruction moratorium: The floodplain manager and building department staff will need time to inspect all damaged buildings and the planners will need time to evaluate options on whether an area should be redeveloped or cleared. One way to buy time is with an action by the governing body to hold up on rebuilding in areas that appear to have a lot of substantially damaged buildings and/or have been slated for redevelopment.

Guidance on a moratorium resolution is in *NAI How-to Guide for Planning*, Tool 3. Post-Disaster Planning. Having a draft ready and already reviewed by the attorney will speed things up when time is of the essence. There is example language in APA's Appendix A, Section 9.5, of *Planning for Post-Disaster Recovery: Next Generation* – www.planning.org/research/postdisaster

Step 3. Conduct a damage assessment

If the affected area has more damaged buildings than your office can handle, an assessment is needed to triage blocks, areas, or neighborhoods into one of three categories:

1. Areas obviously substantially damaged (e.g., water was three feet or more over the first floor). As soon as these areas are identified, the planners should start reviewing the options for redevelopment plans and acquisition projects.

2. Areas with minimal damage (e.g., < no water over the first floor). It is unlikely that a major NAI project would be warranted here. The sooner these residents are advised of this, the sooner they can clean up and move back in.

3. Areas needing further review (e.g., up to three feet of water over the first floor). It will likely take more time to determine whether the buildings are substantially damaged and to identify appropriate retrofitting or redevelopment alternatives than in the other two types of areas.

This process is called a "building condition survey" in FEMA 480 *Desk Reference*. Unit 10 has a sample checklist. It's called "rapid evaluation" in Chapter 7. Substantial Damage in the Disaster Recovery Environment in *SI/SD Desk Reference*, FEMA P-758.

This damage assessment is not a building inspection and the damage assessor likely makes the assessment from the street. When it is conducted and who does it needs to be closely coordinated with the emergency manager. Hopefully, one team can drive through the flooded area and collect the information needed by the emergency manager, floodplain manager, and all other interested parties. It is vital to do this quickly, before people have started to go back to clean up and repair.

Three other triage approaches are noted in the Depth Damage Field Estimate discussion, below, in the Nashville case study (page 65) and the Oklahoma Disaster Response Team case study on page 77.

Depth Damage Field Estimate

DATE OF INSPECTION	DATE OF CONSTRUCTION	FIRM PANEL	INITIAL FIRM DATE	SOURCE OF DAMAGE	DURATION OF FLOODING	TIME OF INSPECTION
/ /	/ /		/ /	Flood		M.

		TYPE OF STRUCTURE :	ONE STORY		TWO OR MORE		SPLIT LEVEL		MANUFACTURED HOME	
		Circle whether the structure has a Basement.	Yes	No	Yes	No	Yes	No	Yes	No
		Circle number on the right that matches the *Type of Structure* with the figure on reverse.	1	1 4	2	2 4	3	3 4	na	na 4
TRIAGE GROUP 3 Damages ≥ 50% require the use of Post-FIRM flood safety standards.	Depth in feet from high watermark to Lowest Adjacent Grade (LAG)	9	78%	71%	61%	52%	62%	56%	The 3' level is an estimate of the Manufactured Home's lowest floor when on its wheels. **Adjust as needed.**	
		8	74%	67%	56%	**49%**	58%	**49%**		
TRIAGE GROUP 2 Damages between 40% & 50% require further information to determine which flood safety standards apply.		7	70%	63%	52%	**45%**	54%	**42%**		
		6	65%	59%	**47%**	**41%**	**49%**	36%		
		5	59%	53%	**42%**	36%	**44%**	29%		
		4	52%	**47%**	37%	31%	39%	23%	**SD**	**SD**
TRIAGE GROUP 1 Damages < 50% use of Post-FIRM flood safety standards *optional*.		3	**46%**	**40%**	32%	26%	33%	17%		
		2	39%	32%	27%	21%	28%	13%		

Several state have assessment guidance documents. Some of them recommend a "depth damage field estimate" which was based on standard depth damage curves from the Corps of Engineers. The above excerpt is from an abbreviated version developed by the Ohio Department of Natural Resources.

Long Beach Township's Assessment

Long Beach Township is on a barrier island north of Atlantic City, New Jersey. Floodplain development is managed by the Construction and Zoning Department. In 2010, JoAnne Tallon, Zoning Officer and CRS Coordinator, and Jon Dane Sprague, Construction Official, had become Certified Floodplain Managers. Knowing that someday the big one would hit, they collected reference materials and wrote the protocols for the damage assessment annex of the Township's Emergency Management Plan.

In October 2012, Superstorm Sandy hit with high winds and storm surge that left the island under up to four feet of sand in some places. Governor Christie issued a mandatory evacuation order that lasted 13 days. This gave staff time to make initial assessments before people went back and started repairs.

An example of a home damaged by Sandy. Is it substantially damaged when most of the structure was above the flood level?

– FEMA photo by Liz Roll

After evacuating and after the Emergency Management Coordinator deemed it safe to proceed with property damage assessment, JoAnne called other key staff members and activated the damage assessment teams. They assembled on the mainland and were transported to the island by National Guard troops.

Following state guidance, they looked for buildings with water lines three feet or higher over the first floor. These were assumed to be substantially damaged until proven otherwise.

Within 48 hours, the teams were able to identify areas where people could readily repair (mostly on the north end) and areas with destroyed and likely substantially damaged buildings (mostly on the south end). This helped staff focus attention on the most heavily damaged areas. The Township subsequently adopted a higher base flood elevation on the oceanfront (VE Zone) and adopted a minimum base flood in the remaining AE Zones.

Long Beach Township's Lessons Learned:

→ Prepare in advance. Know what's in your damage assessment annex. Recruit and train the volunteers who are on your damage assessment team before an event.

→ Work closely with the emergency management coordinator.

→ Get help from other sources. They found local contractors and claims adjusters very helpful. FEMA, through the State, also provided damage assessment teams from a FEMA standby contractor.

→ Make sure your mayor understands what is needed. It helps if he has a background in coastal construction.

→ Don't skimp on the public information and public meetings. The Township website was updated regularly with information on repairs, mitigation, permitting, and grant information. Open house meetings offered opportunities to encourage mitigation where buildings were not substantially damaged.

→ It helps to be a CFM when dealing with others about floodplain regulations.

The results of the assessment include:

→ Which areas and buildings can be re-entered and repaired without a permit or further delay

→ Which buildings need a permit before they can be worked on

→ Which buildings look so damaged that they should be inspected before anyone goes back inside.

→ Which buildings are likely to be substantially damaged so the planners can review alternative redevelopment ideas

→ What areas should be subject to a moratorium on reconstruction until redevelopment plans are drafted and decisions are made

A building is "red tagged" when it has been determined that it is unsafe to reoccupy. FEMA photo by Leif Skoogfors

Owners should be given the assessment results, such as the checklists used. The community should also post notices on the building's fronts so staff can see their status and take action if, for example, someone is working on a building that has been "red tagged."

Step 4. Verify reconstruction standards

While you have regulatory standards on the books, they may need to be revised to better fit this post-disaster situation. This is also an opportunity to raise the bar for your community's flood protection standards and incorporate some NAI regulatory criteria. Here are some things to check:

→ Clarify what can be done without a permit. Normally minor repairs are allowed to prevent further damage. For example, an owner should be allowed to cover broken windows and holes in the roof.

→ Should permit fees be reduced or waived? This should not be confused with waiving permits altogether, which would be a violation of the community's agreement with the National Flood Insurance Program.

→ Should there be a safety inspection before a resident is allowed back in the building?

→ If there were severely polluted floodwaters, should there be testing before people can re-enter their buildings?

→ If there was a lot of sediment, should ductwork be cleaned before furnaces or central air conditioners can be turned on?

→ Should inspectors and owners pay special attention to anything? For example, after Katrina there was much more mold than experienced after past floods. Walls and ceilings well above the water line needed to be stripped and sanitized.

→ Clarify what other code requirements come into effect for a substantially damaged building. For instance, there's usually a requirement to upgrade the electrical service when there's a major project on an older building.

→ Determine the flood protection elevation, especially if the flood was higher than the base flood. There's no sense requiring substantially damaged buildings to be protected to the BFE if, they were flooded one or two feet higher. This may require an emergency meeting and vote of the governing body.

→ Many communities voluntarily base their post-flood protection standard on high water marks or other elevation higher than the base flood elevation on their FIRM. Examples include

- Long Beach Township (see page 47),
- Pensacola Beach, Florida (see box, right), and
- Conway, South Carolina (see Tool 1 in the NAI How-to Guide for Mapping).

→ Do you need regulatory standards for temporary housing, which may be trailers parked in front yards?

In 2004, Hurricane Ivan swept over Pensacola Beach, Florida, substantially damaging many buildings elevated to code. Before reconstruction was allowed, the Board of Directors adopted a freeboard protection standard of three feet above the BFE on the FIRM.

– Photo by G. McCracken, Pensacola News Journal

NFIP/CRS Requiring reconstruction and new construction to be protected to a flood level higher than the base flood elevation is credited under the element New Study (NS) in Activity 410 (Floodplain Mapping). Setting a higher freeboard is credited under the Freeboard element (FRB) in Activity 430 (Higher Regulatory Standards).

Step 5. Get support

1. Political support: Your work will be much easier if you have the understanding (and even support) of the flooded property owners and your bosses. No one wants to be flooded again, so right after the flood can be the best time to talk about preparing for the next one.

Your community leaders, department heads, and elected officials need to understand two messages:

1. Your community is obligated to enforce the floodplain management ordinance under its agreement with the National Flood Insurance Program.
2. You have an opportunity for rebuilding in a way that will reduce damage from the next flood.

You will likely find the emergency manager will support these messages, which can be very helpful because the emergency manager will be talking to department heads and elected officials and issuing public statements often during and after a disaster. Remind that office before the water goes down.

Brief your bosses and, if possible, their bosses and the elected officials:

→ Tell them they will be getting pressure to let people back in their homes, but that you are legally bound to make sure their homes meet code requirements first.

→ Tell them what is required in terms of inspections and substantial damage determinations.

→ Show them how the assessment and triage of areas will speed things up.

2. Public support: Use the public information materials developed in Step 2. Get the handouts out, release the news releases, and make sure the website and social media are carrying the key messages about permit requirements and mitigation opportunities.

Many communities have held public meetings in or near the affected neighborhoods to explain the rules, the timetable for planning and permitting, and recommended mitigation measures that can be taken during reconstruction. Some have set up tables with permit inspectors, insurance agents, and others who can answer questions.

More information on these meetings can be found under Tool 2 Open Houses, in the *NAI How-to Guide for Education and Outreach*. This participatory approach can go a long way to gain needed support and understanding.

FEMA staff (left) provide support to a flood recovery open house in Binghamton, NY, 2012.

– FEMA Photo by Hans Pennink

Key messages for the public include:

→ When and why a permit is needed before a home can be reoccupied

→ The different kinds of inspections that may be held (e.g., an inspection by a permit official vs. one by FEMA disaster assistance staff or the insurance adjuster)

→ What being substantially damaged means and the benefits of Increased Cost of Compliance

→ Don't start repairs or spend the insurance claim until you get your permit and you know what you can do to the building

→ The need to strip the walls and floors to ensure that all areas are fully cleaned and dried out (right)

→ Mitigation actions that can be taken during repairs, such as elevating a furnace and wet floodproofing a garage

Property owners need to understand what is involved in cleaning a flooded house so it is safe to live in. Big Lake, MO, 2007.

– FEMA Photo by Marvin Nauman

3. Staffing support: As noted above, the emergency manager can help with coordination with other offices and organizations and has ready access to elected officials and the media. The public information office and offices that work with community groups and neighborhood associations can help convey the messages about reconstruction rules and mitigation opportunities.

If the flood or disaster affected many properties, you may need helpers for the big job of inspecting buildings, making substantial damage determinations, and offering mitigation ideas. Here are some possible sources of help:

→ People in your department may have time available or can quickly learn some of the basic tasks. Nashville was able to do this, as noted on page 65.

→ Your community may have mutual aid agreements with other communities that weren't affected.

→ Your county emergency manager may have contacts with other communities.

→ The Ohio Emergency Management Agency, Department of Natural Resources, and the Ohio Building Officials Association have trained a network of building officials on substantial damage determinations.

→ The International Code Council's Disaster Response Network maintains a list of volunteers who can help with "building damage assessment, building inspections and other code-related functions in your community." See www.iccsafe.org/about-icc/safety/icc-disaster-response-network.

→ The Emergency Management Assistance Compact (EMAC) is an interstate mutual aid agreement that enables states to share staff resources during a disaster. EMAC is administered by the National Emergency Management Association: www.emacweb.org.

→ Sometimes FEMA can provide staff support after a Presidential disaster declaration.

→ Talk to local engineering firms and consultants who may want to help the community they live and work in.

Help After Hurricane Floyd

In 1999, Hurricane Floyd's impact in South Carolina was felt primarily in the northeastern corner. Communities in the rest of the state knew they had been lucky. Local officials wanted to be prepared for the next big one, so they let their building department staff volunteer through the Building Officials Association of South Carolina.

Volunteers from a dozen cities and counties helped Conway. They attended Substantial Damage Estimator training conducted by FEMA and then rotated for several days at a time. As a result, Conway had a "staff" of five times its normal size that conducted all the inspections within a week and the participating communities had trained personnel, ready for the next flood.

By having these inspections done so quickly, the City had the data it needed to identify areas appropriate for acquisition, elevation, and other flood protection measures. An interim mitigation plan was presented to the public within two weeks of the flood, as explained in the case study in the *NAI How-to Guide for Planning.*

→ One problem with the above approaches is that some work calls for a local certification or someone with special skills and experience. One solution to this is an arrangement managed by your floodplain management association. The Oklahoma, Louisiana, and Illinois Chapters have disaster response teams to help fellow communities. Oklahoma's is explained in the Case Study on page 75.

It helps to get all staff (and helpers) working on the same page and following the same set of rules. A class or refresher training on the procedures, the *SI/SD Desk Reference*, and the Substantial Damage Estimator (if used) can be helpful. FEMA has conducted such training after a disaster declaration and can help review the initial findings from the inspections.

4. Funding support: Enforcing the substantial damage requirement on someone who has just been flooded can be very difficult for both the permit office and the property owner. The job is greatly eased if there are funds to help pay for the code requirements and voluntary and involuntary mitigation actions. Here are some ideas:

→ Every NFIP flood insurance policy holder is entitled to the Increase Cost of Compliance (ICC) claim payment if (1) the building was damaged by a flood, (2) it is located in the regulatory floodplain, and (3) the permit office declares, in writing, that it has been substantially damaged. An alternative to (2) and (3) is if the building qualifies as a repetitive loss structure. Your state NFIP Coordinator and FEMA Regional Office can provide repetitive loss data.

- A brochure on ICC can be found at https://www.fema.gov/media-library/assets/documents/12170.
- See the flow of actions in the graphic on the next page.
- Publicize ICC as early as possible. There have been numerous instances of people asking to be declared substantially damaged in order to qualify for the funds that will help protect them from future damage.

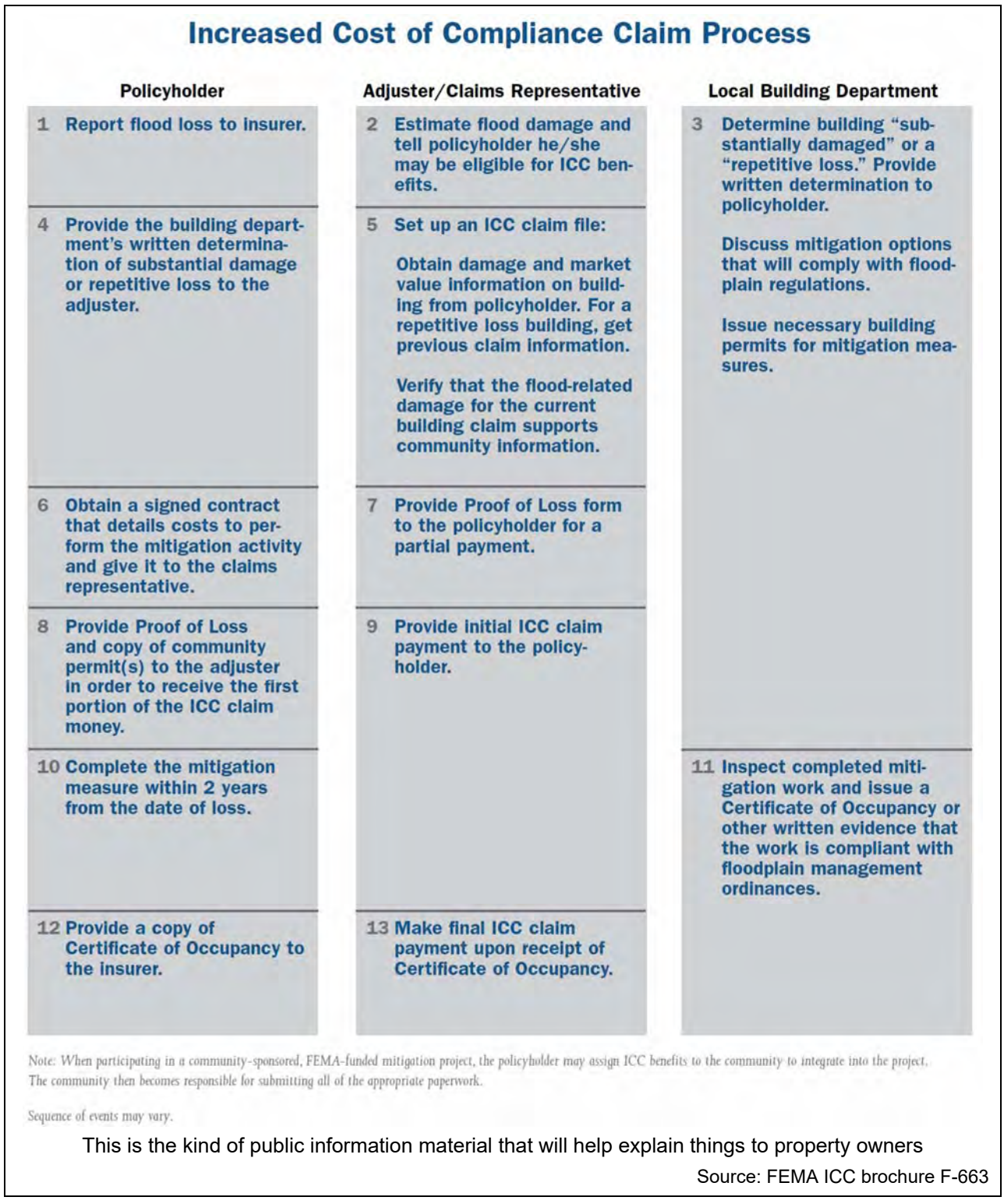
→ Work with the emergency managers and planners. These offices will be the first to learn about what forms of assistance may be provided if there is a disaster declaration, such as:

- Small Business Administration disaster loan. The loan can be increased by up to 20% above the cost of repairs if the owner makes "improvements that help prevent the risk of future property damage caused by a similar disaster." See www.sba.gov/loans-grants/see-what-sba-offers/sba-loan-programs/disaster/types-disaster-loans.
- Hazard Mitigation Grant Program. HMGP can fund eligible projects (primarily elevation, acquisition, or relocation). Usually up to 25% of the cost of the project is borne by the property owner, but many times the state or community will fund all or part of the non-FEMA share. https://www.fema.gov/hazard-mitigation-grant-program.
- Certain public and non-profit agencies can qualify for Public Assistance, which has its own criteria for funding mitigation projects as part of repairing damage properties.
- There may also be repair or mitigation funds available through the Community Development Block Grant program.

→ Money may not always be needed. Organizations like Habitat for Humanity and church groups may be in the area to help people repair.

National Voluntary Organizations Active in Disaster

- Talk to them about mitigation measures that can be incorporated during those repairs, especially minor voluntary projects like replacing a damaged furnace with one above the flood level.



This is the kind of public information material that will help explain things to property owners

Source: FEMA ICC brochure F-663

- Make sure they understand when their work will need a permit, too.
- More information on these groups can be found at www.nvoad.org

→ It will help your work to have summary information about these programs both as handouts and on your website.

NFIP/CRS Activity 520 (Acquisition and Relocation) credits clearing buildings out of the floodplain and Activity 530 (Flood Protection) credits elevating or otherwise retrofitting floodprone buildings.

Step 6. Inspect and assist

This step will be the most time consuming, depending on the number of buildings triaged into the two groups that need inspections. While the permit office will know how to conduct regular inspections, there are few things to consider during post-disaster inspections:

→ Time is of the essence, as people need to get back into their homes as soon as possible.

→ Take safety precautions – floors may be unsafe, nails may be exposed, soaked ceilings may fall.

→ Fully explain to the owner what needs to be done.

→ Provide appropriate information on financial assistance possibilities.

→ Offer suggestions on small mitigation projects that the owner might want to do voluntarily.

→ Keep good records. You can expect FEMA or the state to conduct a Community Assistance Visit of the permit office within a year or so after the disaster.

→ Make sure all staff are aware of the above items so everyone is treated the same.

NFIP/CRS Making site visits and providing this level of technical advice year round is credited in Activity 360 (Flood Protection Assistance).

This house in Conway, SC, was outside the regulatory floodplain, but was still flooded in the crawlspace. It was not substantially damaged, but all the ductwork and the furnace had to be discarded and replaced. The owner was convinced that it made sense to move everything into the attic, well above any flood level. This type of voluntary retrofitting can provide mitigation without adding a large expense to the cost of repairs.

– Photos by French Wetmore

Step 7. Document and evaluate

Because disasters are, by definition, infrequent, there should be a formal record and evaluation of what was done and what could be improved. The documentation can provide data needed to help make decisions on regulatory standards and funding support and in case decisions are challenged later.

Evaluations are standard practice for emergency managers. What went right? What should be improved? Who can help? Should any regulatory standards or provisions be revised?

The end product is a set of procedures, forms, public information materials, and contact names that were proven to work and have been revised to reflect the lessons learned. Next time, you won't have to start from scratch.

And help your fellow floodplain managers by sharing your experiences and lessons learned at the next conference or in your association's newsletter.