

## **Building Back Safer & Smarter**

Hurricane Sandy was an awful, horrible event. Our hearts go out to all our neighbors who have suffered losses and continue to suffer now.

Beyond the loss of life and property, the impacts of Hurricane Sandy can be measured in misery and disruption to individuals, communities and our entire nation. Residents and local officials in the areas hit by Hurricane Sandy are working full time to preserve what they can and start rebuilding their damaged homes and businesses so their lives can get back to normal as soon as possible. The problem with getting back to “normal” is that while we don’t know when and we don’t know how badly, the areas flooded by Sandy will inevitably be hit again, quite possibly by much larger floods, stronger hurricanes, winter Nor’easters, or even subjected to another foreseeable natural hazard.

Mayor Bloomberg had the foresight to challenge all of us to “build back smarter.” The Natural Hazard Mitigation Association recommends that affected residents and communities throughout the Northeast take steps now, while they have the opportunity to build back safer, smarter, and in a manner designed to reduce misery for future generations. We can and should rebuild so the danger and damage from the next disaster will be lessened.

In some cases following the devastation wrought by hurricanes and floods, community leaders did not rush to return to normal. **They stopped and thought about a smarter course.** They developed plans to mitigate the effects of future hazard events. Lively discussions are now taking place about how to develop built solutions to floods for portions of New York and New Jersey. Surely, these solutions are billions of dollars and years of design and construction from achieving any sort of protection from a storm of Sandy’s magnitude; to say nothing of a foreseeable more intense storm. This is but one of the many strategies that need to be employed for long term, sustainability and resiliency in the communities affected by Sandy.

Meanwhile, this paper offers nine simple steps which can be taken now, to begin a process of building back smarter through hazard mitigation. More details on some of these steps can be found on NHMA’s website, <http://nhma.info/Sandy/>.

**Step 1: Know the rules.** Most communities have adopted building codes that require reconstruction to meet certain standards, including standards that protect from wind, water, earthquakes, and other natural forces. These codes cannot be ignored and must be enforced to protect people from the next disaster.

Most floodprone communities participate in the National Flood Insurance Program. As a condition of receiving Federally-backed flood insurance, these communities are committed to properly regulate reconstruction in floodplains. The most important regulation is that if a building is substantially damaged by whatever cause (flood, wind, fire, etc.), it must be rebuilt and protected from flooding to the same standards as a new building in the floodplain. “Substantially damaged” means that the cost to repair is 50% or more than the value of the building before it was damaged.

The substantial damage rule means that every damaged building in the floodplain must be assessed before it can be rebuilt. It also means that some mitigation measures will be implemented during reconstruction. But will those measures be enough? Even if the rules allow reconstruction, would it be smarter to relocate buildings away from the more dangerous hazard areas? How long will it take local officials to assess all the buildings when their owners want to get back in as quickly as possible? The rest of these steps help communities answer these questions.

**Step 2: Adopt higher standards for redevelopment and future development.** It's long been recognized that the development criteria of the National Flood Insurance Program are minimums and those minimums may not be adequate for your community or your home or business. Severe floods have prompted state and local legislatures to enact higher standards, such as prohibiting residences or other buildings from high hazard areas, requiring "freeboard" that is, building more safely by developing with additional elevation or floodproofing beyond federal minimum standards, or a higher level of protection, and zoning areas to limit development to those uses that are compatible with the hazards.

The current standards should be regarded as an absolute minimum which should be exceeded at a time when people have just suffered from the foreseeable forces of Nature. Higher standards are even more important now that we have recognized that the climate is changing and disasters are becoming more frequent and more severe. We should not build to protect our homes, schools, and neighborhoods from the last flood when we know that future floods will likely be higher.

Each community should review safer alternatives and not rely on minimum nation-wide standards to determine what is adequate to protect future development from their local hazards. FEMA, by the way, recognizes that higher standards save money, and has several mechanisms to provide lower insurance premiums for properties and communities that use them.

**Step 3: Commit to mitigate.** Community leaders need to publicly commit to making their communities safer in the future. This could be in the form of a resolution or announcement to indicate that for the sake of future generations, this generation will commit to doing a smart job of redevelopment. Everyone should be told about the rules and be reassured that steps are being taken to make people, homes and neighborhoods less vulnerable to hazards. Everyone should be advised that those steps will take some time and that people in the worst hit areas should not plan to move back in until a recovery and mitigation plan is developed that will determine how areas can best be safely redeveloped.

**Step 4: Triage the damaged areas.** It is important to quickly determine where people can make repairs and where reconstruction needs to account for mitigation opportunities. Where large areas are affected or the time is tight, an aerial or rapid building condition assessment can collect some preliminary data needed to help set priorities. The assessment should categorize properties into one of three categories:

*A - Apparently safe:* No exterior signs of structural damage. People can be allowed back in, but they will need building permits for repairs.

*B - Building obviously substantially damaged:* The building is gone, it has collapsed, or it is missing one or more walls. The building cannot be reoccupied without major structural work.

*C - Could be substantially damaged:* The building may be substantially damaged, but such damage is not obvious. More time and a closer assessment is needed to determine its condition.

**Step 5: Identify target areas.** Areas with a good number of category B and C buildings should be considered for an area-specific mitigation or redevelopment plan. The possibility of not rebuilding the area needs to be seriously considered, along with the costs and benefits to public health, safety, and natural floodplain functions of clearing the area versus allowing it to be rebuilt. Preparing such a plan will likely take several weeks. Meanwhile residents and businesses in those areas should be advised that they can clean up their buildings and salvage what they can, but they should not put money into reconstruction until the mitigation plan is finished and decisions are made.

**Step 6: Involve those affected in the planning.** Whether a building is repaired, improved, or demolished is not something that should be left solely to government bureaucrats or outside consultants. The residents and businesses must be involved in the process that determines the future of their homes, businesses, and neighborhoods. A participatory planning process is needed to ensure that all locally important factors are considered when decisions are made about whether a building or block is repaired or replaced. Factors such as the structure's historic value, the desires of the owners, and people's ties to others in the neighborhood are best understood by the people who live in the community.

The result should be neighborhood redevelopment plans that identify which areas have buildings appropriate for restoration, which areas have buildings that should be demolished and rebuilt, and which areas should be cleared and redeveloped or maintained as open space.

**Step 7: Keep the public informed.** Citizens need to understand why they cannot immediately move back into their homes and businesses. They need to know about the substantial damage rule. They need to follow the community's efforts and the area mitigation planning and be offered opportunities to participate.

The community must help residents understand safety precautions, mitigation measures, and insurance – active outreach will be necessary. These efforts need to instill in each person that they are responsible for their own safety and the protection of their own property from future losses.

**Step 8: Ensure full repairs and reconstruction.** Should there be structures that can be repaired, local permit officials must make certain that they are made safe and sanitary before anyone reoccupies them. Everything that can absorb water or grow mold, especially insulation and wallboard, must be removed in buildings that got wet. Wood frames must be thoroughly cleaned and dried, and must be tested for bacteria and moisture before they are salvaged. There should be no shortcuts to restoring what can be preserved.

Concurrently, substantial damage determinations are needed using more accurate procedures than a rapid “windshield” survey. FEMA has software to do this and offers training programs to local officials after disasters. Property owners need to know how they can provide additional information and/or appeal a determination.

**Step 9: Mitigate to the extent feasible.** Properties in those areas that will not be cleared will not have 100% protection against all possible future hazards. But they can be “mitigated,” i.e., rebuilt in ways that *reduce* the long term risk to life and property.

Measures appropriate for different building types and different hazards should be explained, especially to applicants for permits to repair. Before restoration and reconstruction are initiated, appropriate and feasible mitigation measures should be incorporated into each building.

Examples include:

- Buildings on crawlspaces or with damaged foundations can be elevated above flood levels on new, stronger, foundations.
- Hurricane shutters can be installed.
- Damaged furnaces, air conditioners, and water heaters can be replaced with new ones on platforms above the flood level.
- When the walls and ceilings have been opened for cleaning, structural ties can be added for wind protection and insulation can be installed to reduce the effects of heat waves and winter storms.
- When a roof is replaced, impact resistant roofing for hail protection should be used.

In cases of substantially damaged buildings in a floodplain that had flood insurance policies, a provision known as Increased Cost of Compliance can help finance code required mitigation measures, such as elevating the structure.

Communities hit by Hurricane Sandy will inevitably get hit again, possibly with a storm of higher magnitude and intensity than Sandy; but, if communities follow the steps outlined above, damages, misery and loss of life will be reduced.

**These steps have been proven to work.** Communities that took the time to take these steps, and to develop a long-term redevelopment plan that incorporates mitigation standards for the hardest hit areas, have rebuilt in a way that makes them more resilient to the next hazard event. These communities know they can get hit again someday, but they have built back smarter so as to significantly reduce losses from foreseeable natural events. Learn more about a safe and sustainable recovery through: *Planning and Building Livable, Safe & Sustainable Communities: The Patchwork Quilt Approach*, available at: [www.nhma.info/Sandy/](http://www.nhma.info/Sandy/).