



## MITIGATION LESSONS FROM SANDY: How to Protect Your Business from the

On October 29, 2012, the weather event known as Sandy made landfall near Atlantic City, New Jersey. At that time, estimated maximum sustained winds were 80 mph, with a very large wind field; the storm became more complex when Sandy interacted with another storm system from the west. There were high tides, which happened to coincide with the astronomical maximum tide associated with the lunar cycle and worsened the storm surge and resulting coastal floods. These weather characteristics – as well as the fact that Sandy struck one of the most densely populated regions of the United States – have combined to make Sandy a disaster of historic proportions. While Sandy's characteristics are unique, the resulting wind damage and flooding are quite similar to damage caused by less recent tropical and convective storms that more frequently impact many regions of the country.

With the public's attention focused on Sandy recovery, now is the time to embrace important business protection actions highlighted by this disaster. In this article, IBHS summarizes 10 business protection lessons from Sandy, which echo those from other major storms. IBHS urges business owners and managers to heed Sandy's mitigation lessons and learn what to do before, during and after a disaster to ensure properties and operations are better able to withstand the next major weather event.



### 1. EVERY STORM IS DIFFERENT.

Many people in the Mid-Atlantic region, who had commercial and residential structures that survived Hurricane Irene in 2011, believed they would be fine during Hurricane Sandy, so they failed to take necessary precautions. This is a very common mistake that can cost lives and livelihoods. Even if weather warnings are similar, every major storm has unique meteorological, geographic, and timing attributes that influence how it affects businesses and homes.

While the majority of damage caused by Sandy was water-related, the next storm could very well bring high winds. Home and business owners in Sandy's path may have had the common misconception that because this particular storm had relatively low wind speeds damage would not be significant. That, of course, was not the case. A slow-moving Category 1 hurricane or less intense windstorm with a large wind field diameter can result in coastal storm surge and inundation that is as significant as that from a fast-moving Saffir-Simpson Category 2 or 3 hurricane with a smaller wind field. This means that home and business owners in hurricane-prone areas must prepare their buildings to better withstand both high winds and flooding.

### 2. BUSINESS CONTINUITY PLANNING PRESERVES JOBS AND LOCAL TAX BASE.

Sadly, one in four businesses forced to close for at least 24 hours by a disaster never reopens. This is a big lesson from Sandy, where power outages were widespread and many businesses had to shut down for multiple days or weeks. The most effective way to prevent a lengthy disruption for your business is to plan for the possibility that your facility may be damaged, experience a lengthy power outage, or be located in an area that is not accessible due to road closures or other infrastructure problems. If that occurs, having the ability to resume functions in another location or through telecommuting methods may allow you to restore your critical business operations quickly and maintain important customer relationships. [Open for Business®](#) is a free, easy-to-use business continuity toolkit for small- and medium-sized businesses developed by IBHS and field-tested following real disasters.

### 3. EMPLOYERS AND EMPLOYEES SHOULD WORK TOGETHER TO MAKE COMMUNITIES MORE DISASTER RESISTANT AND RESILIENT.

As important as it is for businesses to have continuity plans in place, it is equally important for them to encourage employees to have emergency preparedness plans for their families and to educate them about how to protect and strengthen their homes to withstand natural hazards to which they are exposed. Business owners and managers should understand that

employees will consider their families as their first priority in time of a crisis or disaster. Employees also will be unlikely to return to work unless they feel their families are safe and their homes are intact. Both your business and your community will be better protected if you take these steps.

#### **4. COMMUNICATE BEFORE, DURING AND AFTER A STORM.**

Employees want to know, “What do you expect of me?” Educate your employees about your business continuity plan and train them in their areas of responsibility. Seize opportunities, such as during staff meetings, to periodically remind them about the plan and your expectations. When severe weather is threatening, make sure all employees have information about their role in keeping your business open.

After the storm, use multiple communications channels such as phone trees, social media and Intranet site postings to let employees know where and when to report to work, where employees should direct questions, and when and where more details about the incident will be available. Also, provide capability for employees to update their status, availability and needs. Once your facility has completed its recovery period, implement a feedback process for all employees to provide input and experiences to improve on your plan. Read more at [http://disastersafety.org/commercial\\_maintenance/work-together-to-get-prepared](http://disastersafety.org/commercial_maintenance/work-together-to-get-prepared).

#### **5. GET THE ROOF RIGHT, AND KEEP IT STRONG.**

The roof is your business’ first line of defense against hurricanes and other disasters, but is also its greatest vulnerability. Every day, the roof is exposed to weather and other elements that may contribute to decay and deterioration, which increase the risk of damage in an event like Sandy. Getting the roof right starts with choosing the right type of design, selecting the right materials, and following proper installation practices at the time of construction or when remodeling.

It is equally important to implement a regular program of roof inspection, maintenance, and repair – activities that should be part of your operational planning in order to prolong the useful life of your roof and make sure it does its job in protecting your business from weather damage. For example, it is important and relatively inexpensive to ensure roof elements are securely anchored to the roof deck, particularly around the perimeter, and that flashing is robust and well attached. Read more about protecting your roof at [http://disastersafety.org/commercial\\_maintenance/protection-from-the-top-the-importance-of-commercial-roof-cover-maintenance-and-repair](http://disastersafety.org/commercial_maintenance/protection-from-the-top-the-importance-of-commercial-roof-cover-maintenance-and-repair).



*Regular roof inspection, maintenance, and repair will help prolong the life of your roof and make sure it is providing necessary protection.*

#### **6. USE THE RIGHT PRODUCTS & INSTALL THEM CORRECTLY TO ACHIEVE OPTIMAL RESULTS IN HIGH WINDS.**

Small business owners who want to stay in business and quickly recover from catastrophes like Sandy should lease, buy, or build stronger, safer structures. Carefully following high-wind construction guidance and choosing slightly more expensive products and systems can produce significantly stronger, safer buildings. Examples of “stronger” wind-resistant construction details and installation techniques include additional steel rods and better detailing of the reinforcing in the masonry walls, enhanced perimeter anchorage of roof membrane and flashing, anchorage of roof-top equipment, and wind locks on roll-up doors. See what a difference the right products and installation methods can make at [http://disastersafety.org/high\\_winds/commercial-high-wind-test-resources](http://disastersafety.org/high_winds/commercial-high-wind-test-resources).

#### **7. PROPER ELEVATION IS EFFECTIVE FOR FLOOD MITIGATION.**

Proximity to water is the top risk factor for flooding. This includes coastal storm surge such as that caused by Sandy; rising river waters as occurred during Hurricane Irene; and overtopping, breaching or opening of dams, levees, and other flood control mechanisms as was the case during Hurricane Katrina. It is always a best practice to locate property far away from bodies of water, but if your business must be near water, the building must be elevated. Business owners whose facilities were destroyed by Sandy should use the rebuilding opportunity to elevate buildings above the minimum base flood elevation standards established by the Federal Emergency Management Agency (FEMA) and used in the National Flood Insurance Program (NFIP). FEMA recently issued revised advisory base flood elevation maps. It is important to note that FEMA recommendations are not the law. Towns still must incorporate the guidance into local zoning and building ordinances.

IBHS strongly recommends that municipalities in areas at high risk of flooding adopt the FEMA standards as the minimum level of protection. Elevating at least three feet above the base flood elevation or FEMA advisory base flood elevation standards would be optimum. Read more about the importance of elevation at [http://disastersafety.org/commercial\\_maintenance/the-power-of-water-how-to-prepare-and-protect-your-business-from-floods](http://disastersafety.org/commercial_maintenance/the-power-of-water-how-to-prepare-and-protect-your-business-from-floods).

## **8. GENERATORS ARE AN INTEGRAL PART OF ANY BUSINESS PREPAREDNESS PLAN.**

Power outages from an event like Sandy can last many days, or even weeks. A generator can enable you to continue operating some or all of your electronic equipment and lights, preserve perishables, and make conditions more comfortable for your employees – all of which minimizes business interruption. However, in order to assure safe, effective operation, generators must be properly selected, correctly installed including the consideration of potential flood heights, well maintained and appropriately used. During operation, proper ventilation is a critical element for reducing the risk of carbon monoxide poisoning from a generator's engine exhaust.

The time to purchase, install and maintain a generator is well before a major storm or disaster strikes. In the days following such an event, professional assistance may be unavailable, power lines may be down, and access roads may be blocked. In addition, when using a gasoline-powered generator, make sure you have adequate, fresh fuel for the period of expected power outage, as gasoline also may be in short supply following a disaster. This is a trend seen after Sandy and other storms.



*A generator can keep the lights on and make things more comfortable following a storm like Sandy. Purchase a generator for your needs now to prevent any delays when a storm strikes.*

## **9. MOVE EQUIPMENT, INVENTORY, RECORDS AND PEOPLE AWAY FROM POTENTIAL HARM DUE TO WIND OR WATER.**

Heed weather reports and take action to protect your property and your employees. This includes installing shutters, plywood, or panels within 24 hours of an impending storm. Ensure the necessary materials, tools and labor power are on site in order to do so. If heavy rains are expected, you may be able to correct some problems outside your building to reduce the likelihood of basement flooding. Make sure gutters are running freely and extend and redirect downspouts. Move electronics, documents and inventory from any crawlspace or basement, where flooding is possible.

Most importantly, heed weather warnings and follow local official's evacuation notifications. For disasters like Sandy, where warnings are available, it is likely that many businesses will close their doors and send employees home well in advance of the most severe weather. However, disasters can occur without warning. In addition, some situations will require certain essential employees to remain onsite. In that case, have a system to account for each person still at work, and make sure to provide emergency supplies for employees who must stay on the premises, including first aid kit, bedding, non-perishable food items and bottled water.

## **10. TEST AND RETEST PLANS AND PREPARATIONS.**

Practice makes perfect, or at a minimum, increases the odds that planning will work as expected during a real disaster. Actively involve employees in evacuation drills and periodic tests of your business continuity plan, ranging from table top to full scale exercises. This will help you determine what works, what needs to be fixed, and what needs to be updated. Without practice, employees may panic, which would be harmful to their safety and possibly that of others.

Similarly, generators and other stand-by equipment need to be tested to make sure they are in good working order. Most emergency generator failures are caused by poor testing and maintenance practices, including the lack of fresh gasoline. Make sure you know how to install window protection and have practiced the other property protection measures described above.

## **WHAT'S NEXT?**

The mitigation steps outlined above are intended to help prevent or reduce damage to your business from major disasters or routine weather events. The final thing to remember is, if you find that your building is damaged by wind or water, take immediate steps to reduce further damage. This will shorten business interruption and minimize financial hardship. Take steps to tarp the roof and cover other gaps in the building's envelope, clean up flood waters, and dry out inventory and equipment that can be salvaged. As is the case with preparation before a storm, the most important post-disaster activity is to stay safe and keep your employees out of harm's way. For more information, please visit [disastersafety.org](http://disastersafety.org).