



## BUSINESS RESILIENCE:

### The Importance of "Going Green and Building Strong"

Many businesses across America place a priority on eco-friendly "green" practices, such as reducing energy consumption, recycling waste, and adopting sustainable building design and construction. It is admirable that these practices are intended to provide meaningful environmental benefits, but it is also important to make sure they do not inadvertently compromise a business's protections against the extreme weather that confronts them today and could become even worse in the future.

In fact, ignoring the need for disaster resistance can actually *harm* the environment since natural disasters leave mountains of debris that eventually end up in landfills. Additionally, the post-disaster rebuilding process is energy- and natural resource-intensive. Likewise, the benefits gained from green construction and energy efficiency can be negated by a single fire event, due to the carbon dioxide and other greenhouse gases generated when combustible material burns, as well as the carbon associated with the disposal of burned materials.<sup>1</sup>

#### WHAT IS "GOING GREEN AND BUILDING STRONG"?

"Going Green and Building Strong" is a way for businesses to reduce environmental impacts of their facilities without undermining their resistance to natural disasters and other causes of loss. The goal is to find the common ground through which green and disaster-resistant building can work in tandem to reduce greenhouse gas emissions, lessen air and water pollution, and avoid needless damage to buildings, contents and inventory.



This "no regrets" approach to construction is consistent with the broader recognition in society that respecting the environment and addressing potential climate change must take into account the potential for more extreme weather in the future. This is the reasoning behind the recent political and media focus on "adaptation" as an environmental strategy. Adaptation means strengthening homes, businesses and communities to lower risks associated with extreme weather—such as floods, damaging winds, and wildfires. Increasingly, adaptation is being built into government and private sector planning decisions at the federal, state and local levels.

<sup>1</sup> Christopher J. Wieczorek, "Fire Safety: An Integral Part of Sustainability," Fire Protection Engineering Magazine, October 1, 2011, <[magazine.sfpemag.com/fire-protection-design/fire-safety-integral-part-sustainability](http://magazine.sfpemag.com/fire-protection-design/fire-safety-integral-part-sustainability)>.

## HOW BUSINESSES CAN INTEGRATE STRENGTH AND SUSTAINABILITY

As society as a whole advances “going green and building strong,” businesses should take steps to assure their environmental initiatives will stand up to natural hazards today and in the future. For example, building owners should:

- Follow environmentally focused site selection criteria—such as LEED® (a well-known program for energy and environmental design) or another appropriate standard—to help reduce adverse environmental impacts and mitigate against flood and hurricane damage.
- Make sure projects include elements in each category that improve disaster resistance when working toward LEED certification.
- Understand how various green design features, such as roof gardens or solar panels, will perform in the face of the natural hazards in a particular region. From an environmental perspective, green roofs may improve air quality and reduce energy consumption, but they also can become fuel for a wildfire or windborne projectiles during a hurricane or tornado.
- Design and install green features in a hazard-appropriate manner (e.g., proper bracing and the attachment of lightweight insulation, such as foam sheathing, in parts of the building that may face wildfire risk or have to withstand high winds).
- Inspect for energy efficiency improvements that offer the opportunity to identify disaster resistance gaps as well. For example, sealing energy leaks that are found through an inspection can help make a building both more airtight (hence more energy efficient) and more watertight (thus eliminating or reducing water intrusion). Similarly, it is easy and cost-effective to choose new windows and doors that are both energy efficient and disaster resistant.

## THE LESSONS OF HURRICANE SANDY

Hurricane Sandy is a case study illustrating the need for environmentally conscious businesses to plan for potential disasters. One of the hardest hit areas (and most densely developed business corridors) was Lower Manhattan, which also was among the most recently redeveloped and “greenest”

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sections of New York. However, it was rebuilt to be sustainable, not disaster resistant. According to Jonathan Rose, an urban planner and developer, “After 9/11, Lower Manhattan contained the largest collection of LEED-certified, green buildings in the world ... but that was answering only part of the problem. The buildings were designed to generate lower environmental impacts, but not to respond to the impacts of the environment.”<sup>2</sup> As a result of major flooding and massive power outages, almost 33 percent of the 101 million square feet of Lower Manhattan office space was out of operation for more than two weeks after the storm.<sup>3</sup> A year later, 9 out of 10 small businesses in the wider Sandy-affected zone reported persisting financing needs to cover operating expenses or to reposition their business.<sup>4</sup>

However, progress has been made to reduce the region’s vulnerability without undermining environmental integrity. According to a report written four months after Hurricane Sandy by New York’s Downtown Alliance, forward-thinking property owners and utility companies learned the importance of resilience and began the process of investing hundreds of millions of dollars to mitigate the damage and disruption that could come from future storms.<sup>5</sup> The storm also launched broader regional resilience initiatives, such as the U.S. Department of Housing and Urban Development’s “Rebuild by Design” competition, which generated innovative research and design ideas to help Sandy-affected businesses, policymakers, and local groups to be both environmentally healthy and disaster resistant—the essence of “going green and building strong.”

<sup>2</sup> Andrew Zolli, “Learning to Bounce Back,” New York Times, November 2, 2012, <[www.nytimes.com/2012/11/03/opinion/forget-sustainability-its-about-resilience.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2012/11/03/opinion/forget-sustainability-its-about-resilience.html?pagewanted=all&_r=0)>.

<sup>3</sup> Bloomberg News, “Lower Manhattan Quiet as Sandy Shuts One-Third of Offices,” November 9, 2012, <[www.bloomberg.com/news/articles/2012-11-09/lower-manhattan-quiet-as-sandy-shuts-one-third-of-offices](http://www.bloomberg.com/news/articles/2012-11-09/lower-manhattan-quiet-as-sandy-shuts-one-third-of-offices)>.

<sup>4</sup> Federal Reserve Bank of New York, Fall 2013 Small Business Credit Survey, April 21, 2014, <[www.newyorkfed.org/newsevents/news/regional\\_outreach/2014/an140421.html](http://www.newyorkfed.org/newsevents/news/regional_outreach/2014/an140421.html)>.

<sup>5</sup> Downtown Alliance, “Back to Business: The State of Lower Manhattan Four Months After Hurricane Sandy,” <[www.downtownny.com/sites/default/files/Back%20to%20Business-State%20of%20LM-Report\\_2013\\_Final\\_Reduced1\\_0.pdf](http://www.downtownny.com/sites/default/files/Back%20to%20Business-State%20of%20LM-Report_2013_Final_Reduced1_0.pdf)>.

## PROMOTING COMMUNITY RESILIENCE

Outside of their own walls, businesses from Main Street to Wall Street have an important role to play in community resilience, especially since a community's economy and vitality as it recovers from a disaster is important to its corporate citizens. In addition, damage from natural disasters is likely to affect homes of employees and community infrastructure, posing challenges for employees who are torn between fulfilling their employment responsibilities and taking care of personal obligations related to recovery in days or weeks following an extreme event. One way for businesses to avoid downtime is to help assure their employees are living in homes that can survive hazards posing the greatest threats to their communities.

In addition to concerns about employee homes, if local schools are closed, roads are impassable, or power is out for a long period of time, employees and customers may be stranded or preoccupied with non-work-related recovery concerns. That is why it makes sense for businesses to participate in planning and zoning activities to help assure disaster resistance is considered in the construction and maintenance of community infrastructure, such as roads, schools, electrical systems and hospitals. As is the case with their own facilities and operations, businesses promoting community resilience should stress the importance of "going green and building strong," and share their own experience, financial and management expertise, and logistical know-how to help achieve this goal. Balancing strength and sustainability throughout the community will make better places for people to live and work, and for businesses to survive and thrive.

## BUILDING RESILIENT COMMUNITIES

Damage to the homes of employees can have significant impacts on a business. However, employees can build stronger, safer homes using FORTIFIED Home™ building standards. Whether building a new single-family home or updating the strength of an existing home, FORTIFIED Home standards will make any home more resilient and durable during a disaster.

For more information, please visit [www.DisasterSafety.org/FORTIFIED](http://www.DisasterSafety.org/FORTIFIED).

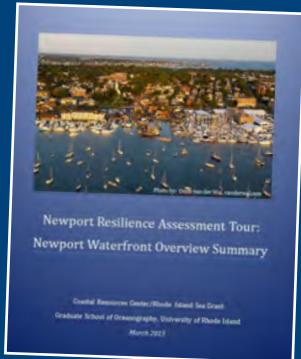


IBHS is a non-profit applied research and communications organization dedicated to reducing property losses due to natural and man-made disasters by building stronger, more resilient communities.

## CASE STUDY: "GOING GREEN AND BUILDING STRONG" FOR WATERFRONT BUSINESSES

Newport, Rhode Island is a popular tourist and boating destination whose economy is heavily dependent on its waterfront. However, many of the businesses that rely on proximity to the water also face risks due to flooding and storm surge, plus hurricanes, tropical

storms and nor'easters—problems that may get worse due to an increase in extreme weather events. The city of Newport and the state of Rhode Island, as well as the University of Rhode Island, have all been proactive in addressing these problems. In 2014, the Coastal Resources Center and Rhode Island Sea Grant at the University of Rhode Island's Graduate School of Oceanography brought together an expert team of architects, engineers, emergency managers and others for a "Newport Resilience Assessment Tour." The purpose was to evaluate the vulnerabilities of the city's waterfront businesses and identify opportunities to increase their resilience—specifically, to identify adaptation measures that are needed to make sure local businesses remain intact and operational following a major storm. As the building experts on the team, IBHS played an important role in this assessment.



Although the exercise and [resulting public report](#) recognized there is not one solution or set of actions that will work for all businesses and all sites in the city, it underscored that it is possible to identify a range of best practices for managing risk, from which individual businesses can choose, depending on their specific needs and requirements. These include building retrofits, maintenance and inspection, storm- and waste-water management, and preparation for power outages. In all areas, "going green and building strong" means being ready for the risks businesses face today, and preparing for future extreme weather events.

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