

Disaster Safety Review

20 years after

HURRICANE ANDREW

**Are we
building
stronger?**

PAGE 6

FORTIFIED

The Way Forward for Stronger Construction

AS DEVASTATING AS HURRICANE ANDREW WAS IN 1992, it also presented the design, construction, engineering and insurance industries with a unique opportunity to identify weaknesses in commercial and residential construction – and to find solutions. Twenty years later, the Insurance Institute for Business & Home Safety (IBHS) is translating what has been learned from Andrew and other storms, both large and small, into FORTIFIED, a suite of programs that offer affordable, disaster-resistant construction options for homeowners at any price point.

In some states, such as Florida, Louisiana, New Jersey and Virginia, knowledge from Andrew and more recent storms has found its way into the building code. However, a recent IBHS study of the 18 hurricane-prone states along the Gulf and Atlantic Coasts found that many lack a statewide building code, do not adequately enforce the code they have, or have weakened the wind-related provisions of the code, leaving residents and property needlessly vulnerable to high-wind events.

In contrast, FORTIFIED is a voluntary standard for both new and existing homes that requires builders and contractors to follow consistent, uniformly enforced requirements that are appropriate for the risks in that location. These standards are part of a systematic approach to superior protection against natural disasters. For example, the standards focus on the same vulnerabilities throughout hurricane-prone areas, regardless of whether they are being applied in Mississippi, the Florida Panhandle, or the Carolinas. Similarly, builders in Missouri, Tennessee, and other inland portions of

BUILDING CODES



the country follow the same FORTIFIED high wind standards appropriate for regions outside of the hurricane zone. This consistency helps builders manage costs, minimizes the need for re-training of contractors and sub-contractors; it also ensures a quality product, because all the key elements and strengthening that affect the building's vulnerability to the natural hazard are inspected.

"FORTIFIED provides a workable, effective natural hazard-focused standard for stronger, safer construction – and we are happy to see it being used in states with and without a good building code system" said IBHS President and CEO Julie Rochman.

A major distinction between FORTIFIED and building codes is FORTIFIED's broader focus on minimizing natural disaster-related damage, said Fred Malik, FORTIFIED program manager at IBHS.

"Some consumers may have a false sense of security that the code takes into account all of the vulnerabilities they could be facing," Malik added. "In reality, if the codes as written are adopted and enforced, they provide excellent life safety protection against risks such as interior fire. However, there are places, such as in the middle part of the country, where we don't feel the code goes far enough to address the threat to property and life posed by high winds."

The FORTIFIED Program is intended to empower homeowners living in coastal and inland communities by providing them with information that will help them take control of their disaster risks. For example, money spent on a re-roofing project can be leveraged even further by incorporating FORTIFIED requirements, such as sealing the roof deck, into the re-roofing project. For a few hundred dollars more, sealing the roof deck prolongs the life of the roof and minimizes future wind and water damage. Similarly, building a new home to FORTIFIED standards for high winds can add as little as \$3,500 to the overall construction costs while producing a much stronger building. To see FORTIFIED in action,

watch a video that shows how well a FORTIFIED home performs compared to a home built to conventional Midwest construction standards in a wind storm test demonstration at the IBHS Research Center at <http://disastersafety.org/video/highlights-of-research-center-inaugural-test-demonstrations-fall-2010>.

“Even if a homeowner isn’t planning to undertake a major maintenance or renovation project, there is tremendous value in having a FORTIFIED evaluation of their home. The evaluation will help a homeowner identify vulnerabilities and plan for future improvements,” Malik remarked. “By fortifying their homes, people are making them a better insurance risk, which could affect the affordability and availability of property insurance. In addition, they will be able to return to their normal lives more quickly if and when disaster strikes.”

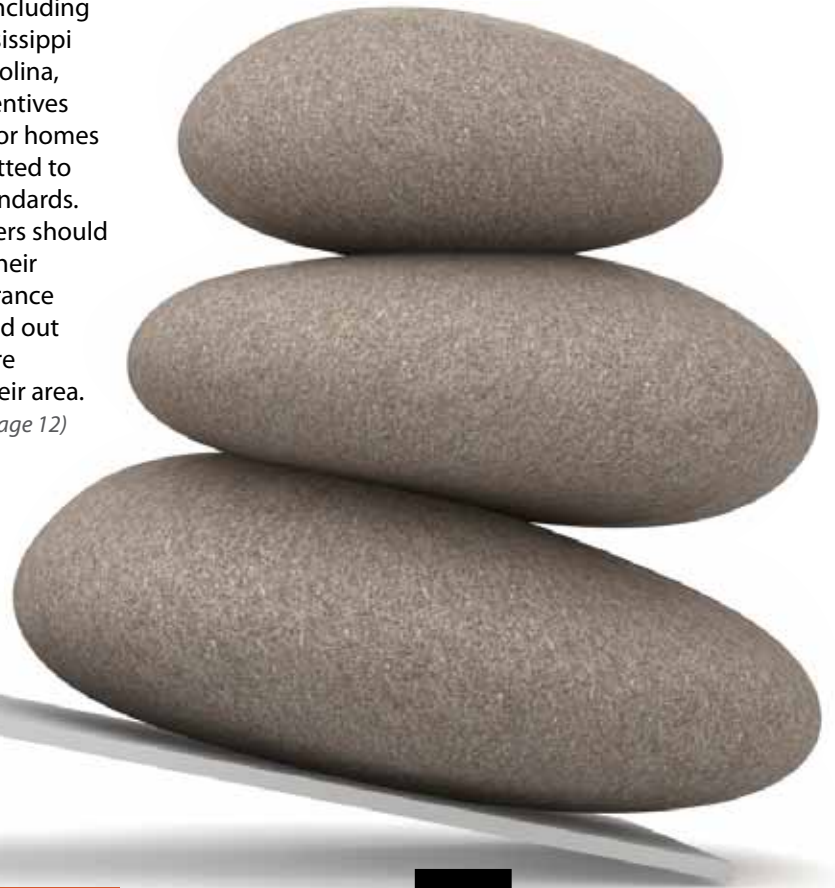
The FORTIFIED standards for new construction, retrofitting of existing homes and new businesses represent more than 20 years of experience in hurricane and other types of catastrophic damage investigations, said Dr. Tim Reinhold, P.E., who serves as IBHS’ senior vice president for research and chief engineer.

improve the way a home or business performs in a severe wind storm,” said Dr. Reinhold, who traveled to South Florida immediately after Andrew to conduct a damage investigation. “All of that knowledge has found its way into the FORTIFIED Program.”

FORTIFIED is about creating stronger, safer places to live and work, while also helping to address affordability issues, Malik said. In some states, including Alabama, Mississippi and North Carolina, insurance incentives are available for homes built or retrofitted to FORTIFIED standards. Property owners should consult with their property insurance provider to find out if incentives are available in their area.

(Continued on page 12)

BUILDING CODES + VOLUNTARY, DISASTER- RESISTANT STANDARDS



When viewing online, click on the “HEAR FROM THE EXPERTS” links for more information.

HEAR FROM THE EXPERTS 

“What we know now, that we didn’t know before Hurricane Andrew, is that it is possible to make some very affordable improvements during the design or construction process, or during renovations, that will significantly



Commercial High Wind Testing at the IBHS Research Center

\$44,769 in damages vs. **\$4,660**



IBHS demonstrates, again, that selecting the right materials, and installing those materials correctly, prevents losses.

FORTIFIED

STRONGER AND AFFORDABLE: BECAUSE EVERYONE DESERVES A SAFER HOME

By Alex Cary
Neighborhood Revitalization Director
Habitat for Humanity of Baldwin County,
Alabama

There is a common belief that building stronger, more resilient homes is expensive. When Hurricane Katrina devastated the Gulf Coast, Habitat for Humanity of Baldwin County, Alabama sought to challenge that myth – and has proven that, in fact, everyone can afford a stronger, safer home. Motivated by a desire to build more durable homes while taking advantage of legally mandated property insurance discounts, Habitat experimented with various building methods and materials. The organization now builds all of its homes to the Insurance Institute for Business & Home Safety's (IBHS) FORTIFIED Home™ Gold standard. This standard consistently costs only three percent more to follow than building a home to the latest building code – and FORTIFIED provides significantly improved performance in disasters of the type that so often strike the Gulf Coast. This three-year effort has put the Habitat affiliate in a unique position to educate other organizations about the importance and affordability of FORTIFIED construction.

The challenge began five years ago, when increased insurance premiums left nearly one-third of Baldwin County Habitat homeowners behind on their payments. For low-income families, already struggling to make ends meet, this type of increase caused some people to nearly lose their homes. Around this time Alabama legislators signed a law requiring discounted premiums for homes with FORTIFIED designations. These savings, coupled with the long-term benefits of providing safer homes for families, presented an attractive solution for the Baldwin County Habitat affiliate.

Habitat soon decided to construct three FORTIFIED for Safer Living® houses over a two-year period. Two homes were concrete and one was wood-frame; all were engineered to withstand 160 mph winds. The concrete projects cost

an average of 20 percent more to build than a standard, code-built home, but insurance savings were more than 50 percent. While 20 percent of an \$80,000 home may not seem significant, this additional amount for each home would have resulted in two fewer families served annually. Habitat began exploring other solutions, while keeping an eye on quality construction and stronger, safer building practices.

The wood-frame project produced better results, costing only six percent more and garnering 25 percent in insurance savings. Despite these benefits, the additional time and money to build each home and challenges of more complicated construction with largely by volunteer labor presented a dilemma.

The homeowners, however, were thrilled. "This is a huge difference from the trailer we lived in, where every thunderstorm scared us," said Habitat homeowner Debbie Colby. "Now, we know that if a bad storm hits, it might cause some minor damage, but we'll all still be here."

Habitat was convinced FORTIFIED provided too many benefits not to be part of their standard plans, but needed further cost cutting. As the organization was looking for solutions, a tornado severely damaged the home of low-income family in the area. Habitat and its partners made the decision to rehabilitate it using the FORTIFIED Home standard, which was introduced as a pilot program in Alabama in 2010. This standard focuses on a single hazard, such as hurricanes or high winds, and offers three levels of protections through Bronze, Silver and Gold designations. These designations offer a builder more flexibility for new construction and retrofit options for existing homes. By comparison, FORTIFIED for Safer Living program focuses on all hazards facing an area and requires a builder to complete several additional requirements. The singular focus of the FORTIFIED Home Silver standard made it possible for Habitat to embrace a sustainable model for building FORTIFIED homes going forward.

The Habitat affiliate decided to take building to the next level and constructed the next home utilizing the FORTIFIED Home Gold standard, which required improvements such as improved gable end bracing, a sealed roof deck and approved opening protection. This home was completed with just a three percent increase in costs. The homeowners saved 25 percent on insurance and got as a safer place to live.

"It's a great feeling to know that my home is safer for me and my son," said homeowner Lauren Hunter, "and the rest of my family is planning to spend the next storm at my house."

With construction costs nearing those of its code-built homes, Habitat made the decision to incorporate FORTIFIED techniques and materials into all of its new homes. "With results like we had on the Hunter house, it would've been irresponsible for us not to make these changes part of our standard building practices," said Baldwin County Habitat Executive Director Cliff Barros.

Throughout Habitat's experience with FORTIFIED there were many opportunities for educating different segments of the community. There was considerable media coverage about each of these homes, which created important dialogue throughout the region and beyond.

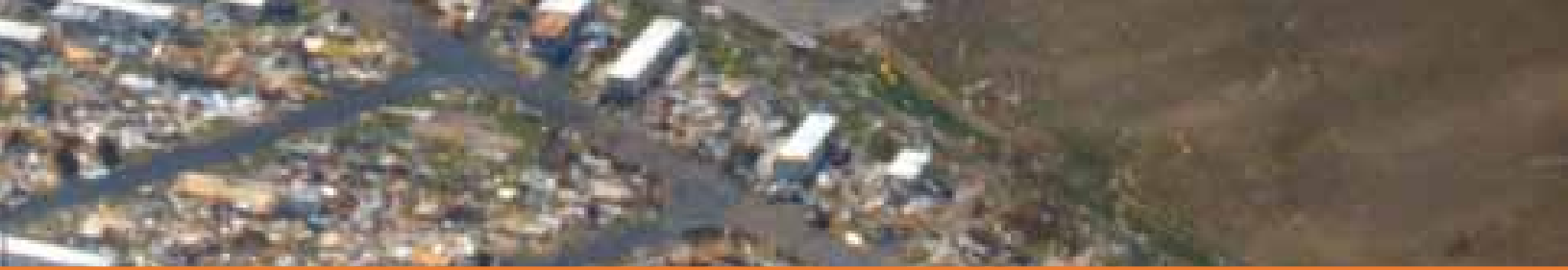
Local builders have begun to follow suit, calling for resources and recommendations. On a larger scale, Habitat International recently visited the area to learn more about Baldwin County's experience and how to implement similar practices at affiliates across the country. These developments are exciting, but the real success is—Habitat for Humanity of Baldwin County has shown that FORTIFIED building is not just for the million dollar homes on the beach, but can and should be utilized in the affordable housing market as well.

Mr. Barros concluded, "If Habitat can do it, anyone can." *DSR*

An aerial photograph of a city, likely Miami, showing a grid of streets and numerous buildings. A large blue rectangular area is overlaid on the top half of the image, containing white text. The text reads "20 years after" in a smaller font, followed by "HURRICANE ANDREW" in a very large, bold, white font with a slight drop shadow. The background image shows a mix of residential and commercial buildings, some with visible damage or debris.

20 years after

HURRICANE ANDREW



**Are we
building
stronger?**

“What if...”?

It’s a question often asked after a catastrophe, then answered with promises to emerge stronger following the recovery process. However, it is frequently the case that when media coverage fades, the focus shifts away from prevention and toward re-embracing old, often counter-productive behaviors.

This is particularly true when it comes to rebuilding devastated communities after catastrophe strikes. Effective disaster-resistant construction techniques, including modern building codes and land use planning, may be set aside in favor of cheaper, more expedient paths in a rush to return to “normalcy.” Unfortunately, this sets up a terrible cycle of repeated loss of life and property.

Julie Rochman and Dr. Tim Reinhold, now leaders at the Insurance Institute for Business & Home Safety (IBHS), have seen the disaster cycle repeated all too often in the 20 years since they stood amid the devastation left behind by Hurricane Andrew in South Florida. Looking back, they agree that the stark lessons from Andrew and the storms that have come after offer a blueprint for making the nation’s vulnerable coastal communities – and many inland communities as well – stronger and safer. Yet, they each acknowledge and appreciate that the move toward greater resilience is a slow march and often an uphill climb.

HEAR FROM THE EXPERTS

Among the lessons that Reinhold and Rochman took to heart in the aftermath of Andrew was that property owners, builders and other stakeholders have to be shown, as well as told, how

to do better going forward. IBHS has begun to clearly illustrate the value of strong construction through unique, full-scale natural hazard testing at the IBHS Research Center in South Carolina. [In addition, IBHS offers voluntary disaster-focused new construction and retrofit building standards as part of its FORTIFIED Programs.](#)

BREAKING THE CYCLE

“If we are going to break the cycle of rebuilding over and over again in the same places, in the same ways, then we must be willing to take the necessary steps to change this behavior,” says Rochman, president and CEO at IBHS. “To that end, we are working simultaneously on many fronts. We are creating affordable alternatives for building and retrofitting properties using proven solutions, while also shining a spotlight on the effectiveness of strong, well-enforced building codes.”

The recognition that the nation’s disaster cycle is untenable is not new. In a 2005 report, the National Science and Technology Council noted that the nation’s primary focus on disaster response and recovery is “an impractical and inefficient strategy for dealing with these ongoing threats ... damaged and destroyed properties are rebuilt to insufficient standards, with either the hope that a catastrophe will not hit the same area again or the expectation that the result, if a severe event does occur, will be different.”

Demanding safer building standards is something that must be driven by consumers; in this case, home buyers and business operators.

“Just as auto safety improved when people began demanding stronger, safer cars after they were educated which engineering tools and techniques actually made passenger vehicles safer, homeowners need to learn about how to improve the quality of home construction and demand stronger building techniques,” Rochman said.

Rochman recently made the case for statewide building codes and for educating consumers about the need for stronger, safer construction during a congressional hearing. The hearing focused on new federal legislation that would reward states that implement and enforce statewide building codes with four percent in additional disaster recovery funds under the Robert T. Stafford Disaster Relief and Emergency Assistance Act following a federal disaster declaration.

WHY ARE BUILDING CODES IMPORTANT?

Hurricane Andrew caused \$26 billion (2012 dollars) in insured losses, according to the Insurance Information Institute.

In 2011, there were 99 major disaster declarations in 35 states and two U.S. territories that prompted federal tax dollars to be allocated for recovery costs. In the face of increasing recovery costs throughout the country, studies by public and private agencies have repeatedly shown the positive benefit-cost ratio of rebuilding stronger and retrofitting for greater resilience in disaster-prone areas. For example, a 2007 analysis by the Congressional Budget Office found that nearly \$500 million spent in federal mitigation grant money from 2004 through mid-2007 resulted in a \$1.6 billion reduction in future disaster losses. Since 1988, \$125 billion in grants funds have been issued by the Federal Emergency Management Agency related to natural disasters. A 2012 study commissioned by the National Association of Mutual Insurance Companies found if buildings exposed to these disasters had been built to model codes, losses could have been reduced by nearly 20 percent or \$13 billion.

When viewing online, click on the “HEAR FROM THE EXPERTS” links for more information.

LESSONS FROM ANDREW

Reinhold and Rochman were both working in Washington, D.C., on separate insurance and engineering issues, when Andrew roared ashore Aug. 24, 1992, in South Florida as a Category 5 hurricane. Twenty years later, they reflect on what they saw and felt at the time.

"I was at a meeting of the American Association of Wind Engineers when Andrew was approaching Florida," remembered Reinhold, now IBHS senior vice president for research and chief engineer. "We thought, 'it won't be that bad, they have some of the best building codes in the country down there.' What we didn't know then was that the engineering design standards were weak and while specific construction requirements were strong, enforcement of the codes was lacking."

Three days later, Reinhold was in a rented Cessna flying over South Florida and taking photographs of the miles of debris that once was housing for 250,000 people and commercial operations for 82,000 businesses.

Rochman, who was working in D.C. for the Alliance of American Insurers, soon came face-to-face with hurricane victims in Kendall, Florida, while helping staff the industry's first-ever Hurricane Insurance Information Center.

"The amount of damage was staggering," Rochman recalled. "What really struck me was the breadth of the damage. And, there were no leaves on the trees, no birds singing. It was eerily quiet. There were no street signs. People spray painted the name of their insurer and their policy number on the side of their houses so claims adjusters could find them."

In the years since navigating that chaotic scene, Reinhold and Rochman have visited many other communities marked by the fingerprints of storms such as Hurricanes Charley, Ike, Ivan, and Katrina. Each time, they have come away more convinced that building stronger, safer structures and retrofitting existing properties are the keys to keeping communities intact, keeping families in

their homes, and allowing businesses to stay in business after most disasters.

"In another 20 years, hopefully we will have broken the cycle of destruction, and people will ask why we didn't do it sooner," Rochman said, "but we know this is a marathon, not a sprint."

"EACH STORM OFFERS AN OPPORTUNITY TO LOOK A LITTLE HARDER AT WHAT HAPPENED AND HOW TO FIX IT," ROCHMAN STATED.

"IT'S ALSO A CHANCE TO PROVE YOU ARE ON THE RIGHT TRACK."

Andrew paved the way for improved building code enforcement and the requirements for protecting windows and doors from windborne debris impact in South Florida. However even after a direct hit by a Category 5 hurricane, it took a decade to get a statewide building code that incorporated many of the changes adopted in South Florida. It took the rash of hurricanes in 2004 and 2005 to discover and adopt additional code improvements.

While Florida has strong building codes today – now viewed as the "gold standard" for properties with hurricane exposure – there remains a need to retrofit existing properties built prior to

1997, according to Reinhold.

"If another Category 5 hurricane came through South Florida, but hit 10 miles to 20 miles north of where Andrew made landfall, it would definitely cause significant damage to the older properties," Reinhold said. "By and large, Florida remains the biggest risk when it comes to hurricanes."

On the federal level, Andrew's widespread destruction of mobile homes led to the creation of wind zone ratings for mobile homes by the U.S. Department of Housing and Urban Development. While improvements in the wind resistance of the structural frames of manufactured homes have been a huge step forward, Reinhold said, "There are still plenty of older, vulnerable mobile homes out there with people living in them. And making sure that the homes improved with more wind-resistant structural frames are adequately anchored against wind storms continues to be a huge concern."

Immediately after a disaster, there is momentum to do "something," and in that process compromises must be made, Rochman said. In Florida, the move to adopt a statewide building code was hard fought and ultimately represented a middle ground between insurers and home builders. "In a political environment you rarely, if ever, get everything you want, so you focus on the big stuff," she recalled of the effort in Florida. "But with regard to building safety, the little stuff is important, too."

CHARLEY'S POWERFUL TEST

The importance of the "little stuff" when it comes to stronger construction was revealed when Hurricane Charley hit Florida in 2004, said Reinhold. In 1995, post-Andrew high-wind engineering-based design and construction requirements were introduced throughout most of Florida's coastal counties. Those requirements were tested when Charley struck the Punta Gorda/Port Charlotte area of Florida, *(Continued on next page)*

Hurricane Andrew

by the numbers

40 DEATHS

The most disruptive insurance event in U.S. history: 11 small insurers FAILED; other insurance resources strained

\$26 billion (2012) insured losses

Residents relocated **100,000** outside of Florida

250,000 HOMELESS

82,000 businesses damaged and destroyed

30 years worth of debris



Sources: State of Florida Emergency Management and Insurance Information Institute

bringing the highest hurricane winds to strike the U.S. mainland since Andrew.

IBHS research following Charley found that modern building codes reduced the severity of losses by 42 percent and loss frequency by 60 percent in homes built after stronger wind code provisions began being enforced in 1996.

“Each storm offers an opportunity to look a little harder at what happened and how to fix it,” Rochman stated. “It’s also a chance to prove you are on the right track.”

IT ONLY TAKES ONE STORM

Andrew was the only hurricane to make landfall on the U.S. mainland in 1992; proof that it only takes one major storm in an entire six month hurricane season to change everything. Hurricane Andrew clearly was a wake-up call for the insurance industry, which became an even more active, forceful advocate for stronger building codes and construction practices, noted Rochman. In Andrew’s aftermath, new reinsurers were created, new risk models were brought online, and there was an intense interest in more completely understanding how to manage exposure to so-called “tail” events - relatively infrequent, but very severe events.

As a result of many catastrophe risk management lessons learned from Andrew, in 2004 when Hurricane Charley and other hurricanes hit Florida, the industry was able to handle the losses when one in five Florida homeowners had to file a hurricane-related insurance claim.

Twenty years later, many hurricane-exposed, coastal states are just beginning to deal with the building code process and are likely years away from embracing stronger, safer building standards. This is particularly troubling given that nearly \$10 trillion worth of property exists along the vulnerable Gulf and Atlantic coastlines, according to AIR Worldwide.

One geographic area that appears poised for major damage should a hurricane

strike is Long Island, New York, Rochman said, "If another Long Island Express came through there, the damage would be extensive," she noted, referring to the 1938 hurricane that caused widespread damage.

Although hurricanes are always a threat to the Atlantic Coast, it had been years since a hurricane was barreling toward states north of Virginia. So in August 2011, when Hurricane Irene was on New England's doorstep, it served as a stark reminder of just how vulnerable northern properties can be. Heavy rains caused major flooding in Vermont and to a lesser degree in Pennsylvania and New Jersey.

If hurricane-force winds had been present along with rains, damage would have been much more widespread, Reinhold said, "There are many older unreinforced masonry and wood-frame buildings in cities along the Atlantic Coast that haven't been exposed to a major hurricane, yet."

RATING THE STATES

If Florida has the gold standard for codes, how does the rest of the hurricane-prone coast fare? An IBHS study that evaluated building codes in the 18 states from Texas to Maine provided some surprising answers.

The report, "Rating the States," analyzed the quality of codes, or lack thereof, and offered a roadmap for state leaders to update and improve code systems. Of the 18 states studied, only Florida, Louisiana, New Jersey and Virginia have adopted modern codes that are enforced statewide and have not been amended to weaken the wind provisions. Louisiana adopted its statewide building code following Hurricane Katrina, but continues to deal with code enforcement issues. The study also showed that Alabama, Delaware, Mississippi and Texas do not have statewide codes, while other states on the list do not require mandatory enforcement.

In New York, which has the largest concentration of vulnerable, valuable property outside Florida, the 2006

International Residential Code is enforced for all jurisdictions except New York City, which has its own code. However, despite its hurricane exposure, the state has weakened the wind provisions and does not require opening protection. When windows and doors are exposed to hurricane-force wind gusts, glass can break and doors can be forced open. This allows wind pressures to build up inside the structure and can cause it to collapse within seconds.

When asked if the nation is building stronger 20 years after Hurricane Andrew, Reinhold stated that "in some places we are." Unfortunately, he added, "there is still so much exposure at risk out there and poorly built homes and businesses are still being added in too many jurisdictions."

There is still a lot of work to be done, added Rochman, "If we don't change the way we think about the way we're putting properties together there will be plenty of opportunities to ask 'what if?' after the next major storm." DSR

(FORTIFIED: The Way Forward for Stronger Construction – Continued from page 3)

"Communities that were most affected by Hurricane Andrew have responded by making positive changes in the way homes are built, and that has resulted in a new way of thinking about construction," Malik said. "Anyone who has a home that might be subjected to high winds should look at the lessons learned from Andrew, so their communities aren't devastated and torn apart if a storm roars through. There are no road signs to tell Mother Nature to stop blowing high winds a mile from the coast. Our message really is to be proactive and don't let this happen to you."

There is no reason to expect that catastrophe losses from hurricanes and tropical storms will be any less devastating and costly in the coming years unless significant steps are taken to reduce the vulnerability of existing homes and businesses, said Dr. Reinhold. "This is due in large part to the population migration and population growth that the country has experienced toward coastal areas. At the height of the last building boom in 2004, more than 1,540 single family building permits were issued each day in coastal counties." DSR

Learn more about having a FORTIFIED new home or business or retrofitting your existing home to FORTIFIED Standards at disastersafety.org/fortified.



2012 DISASTERS

Tackling Property Losses through IBHS Research



10,542

Severe high wind reports as of Aug. 1*

4.3 Million

Residents who lost power in Midwest and Mid-Atlantic states during June derecho

22

Fatalities caused by June derecho in Midwest and Mid-Atlantic states



30

States with at least 100 wildfires as of Aug. 1

38,870

Wildfires in the U.S. as of Aug. 1

4.4 million

Acres burned by wildfires as of Aug. 1

224,596

Acres burned in Colorado from January-June; 161,167 total acres burned in 2011



48

States with large hail reports as of Aug. 1*

6,149

Large hail reports as of Aug. 1*

\$3 billion

Property damage totals after separate June hail storms in Colorado, New Mexico, Texas and Wyoming

*preliminary



HIGH WINDS - WHAT IS IBHS DOING?

In July, IBHS conducted the first-ever, full-scale commercial high wind test comparing and contrasting two buildings at the IBHS Research Center. The commercial buildings were subjected to wind gusts up to 136 mph to compare the performance of the two strip-mall type structures. One of the structures was built using common construction practices, while the other was constructed using stronger building practices.

The test clearly demonstrated the benefits of using stronger, safer building practices. It also showed that for less than 5% of the total cost of the building, business owners can achieve a stronger, more disaster-resistant building that will help them protect their investment during severe wind storms.

Also in July, IBHS voiced support for stronger building practices when President & CEO Julie Rochman testified before the Transportation and Infrastructure Subcommittee on Economic Development, Public Buildings, and Emergency Management in support of nationally recognized model building codes.



WILDFIRE - WHAT IS IBHS DOING?

IBHS researchers recently teamed with representatives from the Firewise Program, National Fire Protection Association, International Association of Fire Chiefs and the USDA Forest Service in assessing property damage caused by the destructive wildfire in the Colorado Springs area. Nearly 350 homes were destroyed by the Waldo Canyon fire. The assessment focused on determining best practices for protecting homes against flames and wind-blown embers.

The cooperative effort was initiated by the Forest Service as part of the Fire Adaptive Communities Coalition. Researchers examined about 35 homes in the area, looking for clues into why some homes survived the fire and why others were burned to ashes. While the full research report is still in progress, early observations echoed past post-wildfire assessments, including that property vulnerabilities are increased when homes are close together and that property risks increase with wind-blown ember exposure.



HAIL - WHAT IS IBHS DOING?

Groundbreaking hail research at the IBHS Research Center aims to recreate realistic hailstones in a laboratory setting in order to reduce property damage caused by hail. Future demonstrations will analyze damage caused by hailstones and determine how to better prepare homes and businesses during a hailstorm.

The IBHS hail design team has investigated various devices commercially available or available from other labs in order to accurately replicate hailstone speeds and propulsion. In addition, data collected during recent field studies by IBHS engineers has provided critical information about other characteristics of hail, including size, mass and hardness.