

Resilience 2021: Tornado Season is on the Horizon. Are You Prepared?

March 23, 2021 | Session Overview

PANEL

Dr. Anne Cope, P.E., Chief Engineer with the Insurance Institute for Building & Home Safety (IBHS)

Jana Nyette Henderson, Office of Mitigation Director, Mississippi Emergency Management Agency

MODERATOR

Sara Yerkes, Senior Vice President of Governmental Relations, International Code Council

TORNADO SEASON: OVERVIEW

The National Oceanic and Atmospheric Administration reports there were more than 1,200 tornadoes in 2020, leading to the highest tornado death rate in almost a decade. Last year, a deadly tornado outbreak affected the Southeastern United States on Easter Sunday and Monday, causing 32 fatalities. This was part of a larger severe convective storm (SCS) that affected the Plains, Midwest, and Mid-Atlantic states, and it led to at least \$3 billion in insured losses. Data shows that on August 10, the derecho that slammed the Midwest was the costliest SCS in U.S. history, causing \$11 billion in damage, according to the National Weather Service.

“Mitigation saves up to \$13 for every dollar spent on mitigation,” said NIBS President & CEO Lakisha A. Woods, referencing the [Natural Hazard Mitigation Saves report](#).

Since tornadoes and wind-heavy storms can happen anywhere at any time, it was important to share tornado and wind storm expertise with attendees of this Resilience 2021 webinar.

On March 23, 2021, the National Institute of Building Sciences hosted more than 450 registrants, who learned general tips and information about how to stay prepared in the event of a tornado or wind storm as well as wind mitigation for homes.

WE ARE NOT POWERLESS

Dr. Anne Cope, Chief Engineer with the Insurance Institute for Building & Home Safety, says homeowners and businesses are not powerless when it comes to minimizing tornado damage.

“There is a lot you can do to narrow the destructive path of a tornado,” she said. “You want to keep Mother Nature out.” First, take a closer look at your garage door, or for businesses – roll up doors. This is typically the largest door on the building and can be a vulnerability. Having a strong wind-rated garage door or roll up door is one of the best things you can do to mitigate damage by keeping Mother Nature out.

A FORTIFIED Roof goes beyond code and is also a good investment in resilience to strong winds. A key feature of the FORTIFIED Roof is the sealed roof deck, which is now required in Florida and available as an option in the I-Codes. The main purpose of the sealed roof deck is to prevent rain from getting into the house through the attic. Cope shared that the loss of roof cover, exposing the roof below is a very common initiation of damage, and that for every inch of rainwater that falls on a typically sized roof the amount that goes into the attic is equivalent to nine bathtubs of water entering your home. This is a devastating amount of water that can quadruple damages and result in lengthy and extensive repairs, difficulties that can be avoided with this mitigation technique.

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Also keeping your home thunderstorm-ready is good practice. Reduce the opportunity for flying debris by trimming branches to maintain healthy trees and bushes. On days when severe weather is predicted, pick up and bring inside (or in the garage) loose items like lightweight children's toys, lawn furniture, or other decorative items around the house.

On severe weather days, shut all interior and exterior doors. This small act will help compartmentalize your building by significantly reducing airflow. Even if debris breaks a window allowing wind and rain to enter, shut doors may keep the damage contained and prevent the uplift of the whole roof. Open the doors up again when the threat of severe weather has passed to return to normal airflow.

Lastly, if your area has a tornado warning and you need to seek shelter, grab your bike helmet and move to an enclosed area in the center of your home away from external walls and windows. Shut all the doors on your way to this safer location.

MISSISSIPPI: 96 COMMUNITY SAFEROOMS

Mississippi has experienced a lot of tornado activity, as recently as the week of March 15, 2021.

Because of the pandemic for those series of storms, citizens that used the saferoom as a safe place to go were required to wear masks and social distancing was observed as much as possible, said Jana Henderson, Office of Mitigation Director with the Mississippi Emergency Management Agency.

Many of the state's 96 hurricane and tornado saferooms are located at schools and in communities. There is still a need for more saferooms, especially in rural communities. Saferooms are designed to withstand a 250-mph wind event. Henderson said tornado saferooms are designed for high wind speeds and short-term, two-hour occupancy.

Saferooms also must be fully functional on their own. Henderson said additional requirements include self-contained and protected water supply tanks, sewer treatment system, and generators with fuel tanks.

One of the larger saferooms in Mississippi is located at Tupelo High School, and there are more under construction throughout the state.

Currently, there are no tax incentives for homeowners, who install a saferoom in their homes in Mississippi.

Most of the state's saferooms were funded through the Hazard Mitigation Grant Program of the Federal Emergency Management Agency (FEMA), she said. Local governments provided a 25 percent match.

ICC HIGH-WIND PROVISIONS

The International Code Council develops and maintains the model building codes used for design, construction, and compliance programs across the U.S. The I-Codes regulate new construction, major renovations, plumbing, sanitation, fire prevention, energy conservation, and more.

Sara Yerkes, Senior Vice President of Governmental Relations with the International Code Council, shared examples of high-wind provisions in the International Building Code for commercial buildings and high-rises and the International Residential Code for residential construction of family dwellings.

THESE PROVISIONS INCLUDE:

- Enhanced nailing patterns, with more nails and closer spacings to keep roof decks attached to roof trusses.
- Strengthened connections from the roof to the walls to the foundation to keep roofs from blowing off, walls from collapsing, or houses from sliding off their foundations.
- Glazing or coverings like shutters for windows, doors and other openings like garage doors, so wind-borne debris or other projectiles cannot break glass or push through.
- Wind resistance for roof coverings like shingles or tiles and use of proper installation methods.
- Tornado shelters in new K-12 schools and emergency response facilities in tornado-prone areas.

Yerkes also discussed ICC/NSSA 500 Standard, which was developed with the National Storm Shelter Association, for the design and construction of storm shelters and ICC 600 Standard for residential construction in high wind regions, which provides prescriptive requirements for the design and construction of residential structures in high wind regions that go beyond the requirements within the base of the residential code.

"ICC 500 is now a mandatory provision in the International Building Code," Yerkes said. "But it is up to the jurisdiction to keep it in the code when they review the code for adoption. Many times, those provisions are deleted from the code they adopt or they're just not enforced."

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If jurisdictions were to retain this provision in the model code, Yerkes said: “It would help mitigate windstorm risks everywhere. Every state is at risk of getting hit by a tornado.”

WHAT ELSE YOU CAN DO

To reduce the impact of tornadoes and wind events, IBHS’ Cope said consumers and business owners should make informed choices when it comes to replacing the garage door or roof.

“For the small business owner, when replacing roll-up doors, you’ll want something that’s proper for the wind in your area,” she said.

Something as simple as a “spot check” will go a long way. For example: Do you have the same number of fasteners on both sides of a garage door?

Many times, walls are plenty strong, but contain weak connections between the walls and to the roof.

“The connection to the building system is critical,” Cope said. Make sure you work with a quality vendor on home improvements.

When it comes to retrofitting options for nursing homes, Cope mentioned the FORTIFIED Commercial Standard, which outlines a comprehensive checklist of necessary items, including back-up generators.

REGISTER NOW FOR THE NEXT RESILIENCE 2021 WEBINAR

The next Resilience 2021 webinar is scheduled for April 20, 2021. The topic: How to Stay Safe as Lockdowns Lift and Buildings Reopen.

Many buildings have sat empty for the better part of a year. What are the possible health risks that people face with returning to these unoccupied spaces?

Our panel of experts will discuss this and how they see the building industry recalibrating itself to adjust to a post-pandemic world.

The Centers for Disease Control and Prevention (CDC) reports the temporary shutdown or reduced operation of a building and reductions in normal water use can create hazards for returning occupants. These hazards include mold, Legionella (the cause of Legionnaires’ disease), and lead and copper contamination.

The building industry must consider transformational initiatives to thrive beyond this pandemic. Our mission now is not only building resilient buildings but a resilient industry as well. In this installment of the Resilience 2021 series, we will discuss:

- Health risks unoccupied buildings pose
- Proper water and plumbing protocols
- UV light decontamination
- Intelligent buildings and the utilization of AI

Register today: https://zoom.us/webinar/register/3616159180037/WN_FEaYxfgcQcOirZLF5QsNkg