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"Solving the Climate Crisis: Cleaner, Stronger Buildings"

Before the U.S. House of Representatives
Select Committee on the Climate Crisis

October 17, 2019

Members of the Select Committee, thank you for the opportunity to speak with you today about the importance of the built environment as we think about ways to adapt to the adverse effects of future climate conditions. My name is Roy Wright, and I am President & CEO of the Insurance Institute for Business & Home Safety (IBHS). IBHS is a 501(c)(3) organization, enabled by the property insurance industry's investment, to fund building safety research that leads to real-world solutions for home and business owners, helping to create more resilient communities.

Severe weather disrupts lives, displaces families, and drives financial loss. IBHS delivers top-tier science and translates it into action so we can prevent avoidable suffering, strengthen our homes and businesses, inform the insurance industry, and support thriving communities.

The forces of Mother Nature will not be constrained, yet much of the damage caused by severe weather is avoidable. If the devastating hurricanes, wildfires, and other disasters of 2017 made the case for resilience, those of 2018 underscored the urgency of IBHS' mission and the importance of these questions to the Nation.

The perils we study at IBHS are part of the natural world in which we live, but social and economic disasters occur when these perils meet human populations that live or work in harm's way. In order to break the cycle of destruction, it is essential to address all aspects of the building performance chain: where you build, how you design and construct, and how well you maintain and repair. As a building science institute, IBHS focuses on the ways that weather behaves, what makes homes and businesses vulnerable, and how our buildings can be better protected. We exist to help ensure that the places where people live, learn, work, worship, and gather are safe, stable and as strong as the best science can equip them to be.

The Importance of Adaptation

The goal of climate change adaptation is to take actions *today* to reduce losses *tomorrow*. Recognizing that we can't predict specific weather events next month, much less over the next several decades, IBHS knows that putting proven building science solutions in place now will reduce disaster losses in the future. Given its important societal and economic benefits, adaptation is a sound fiscal strategy, public health objective, and humanitarian obligation. It touches both fiscal economics and economic justice.

Moreover, the same actions that protect buildings also protect the environment, by reducing the massive amounts of post-disaster debris that can overwhelm landfills and lessening the release of carbon dioxide and other greenhouse gases generated when buildings burn.

Adaptation: From Research to Action

In order to prioritize our efforts on the initiatives that best advance our mission, IBHS thinks about adaptation through three lenses: Lead with the Roof; Solve with Research on Vulnerability and Loss; and Prevent Avoidable Damage.

1. Lead with the Roof

When you think about a home, "having a roof over your head" is the most basic level of need. Yet this protection can be threatened by severe weather. When roofs fail, they can kick-start a cascade of failures such as water infiltration, projectile damage, and destruction of rooftop equipment, resulting in as much as 70-90 percent of insured residential losses from some disasters. As startling as these insurance statistics may be, they fail to capture the broader human consequences resulting from roof failures—damaged homes and businesses that disrupt daily life, break up families, derail careers, and destroy financial security.

To end this path of destruction and dislocation, IBHS's highest priority is to understand what makes roof systems vulnerable and how roofing materials, their supply chain, and installation methods can be improved to reduce roof-related damage. Our studies show one easy way to achieve this is by applying tape over the roof deck's joints before the underlayment is applied (this is called a "sealed roof deck"). The process costs only several hundred dollars for a typical roofing installation but can save tens of thousands of dollars in the event the roof cover is blown off during a high or prolonged wind event. The sealed roof deck is the most cost-effective and accessible component of the FORTIFIED Home building standard developed by IBHS to provide design and construction specifications for home- and business owners who wish to improve their resilience beyond the mandatory levels outlined in state and local building codes. IBHS also believes that standard model building codes would be improved by incorporating a cost-effective sealed roof deck requirement. Similarly, wildfire codes should reflect best practices to resist ignition through the roof system.

From a communications perspective, it is important to educate home and business owners to pay more attention to their roof and to understand how to extend its life and reduce the likelihood of storm-related damage. IBHS knows that small investments today can prevent large losses in the future—but we have to find ways to get people to pay attention and take action.

2. Solve with Research

The core perils studied at the IBHS Research Center are wind, wind-driven rain, hail, and wildfire, all relevant to today's hearing because they could become more frequent and destructive with a changing climate. The design of our Research Center—with 105 fans capable of generating wind speeds approximating the gusts of a Category 3 Hurricane—provides unique

capabilities to replicate real world weather conditions. We also have made significant, long-term investments in equipment that allows us to create the ember showers that are the leading cause of home ignitions from destructive wildfires. And, we have developed a unique capability to replicate the density, hardness, and kinetic energy of natural hailstones in order to assess the durability and damageability of asphalt shingles and other products. IBHS' best-in-class science fills knowledge gaps to achieve significant social and economic benefits across all regions and demographics of America.

IBHS brings the ability—through experimental testing, field research, and analytics—to understand the pathology behind the damage caused by our core perils and identify where building protection strategies can have a real-world impact. To reduce damage, we need to understand it. In this regard, observing damaged homes and businesses—whether during post-event field investigations or through other external data sources such as aerial imagery—helps IBHS to identify vulnerabilities and design experimental testing to more fully understand the sequence of events that leads to damage. Results captured in the lab are coupled with data gathered in the field to understand and demonstrate what makes buildings vulnerable, cost-effective ways to prevent damage, and how to reduce loss when damage cannot be fully avoided.

In choosing specific research projects, we are driven by our mission of translating our research into action. That means that we choose science that can shape building codes and standards, evolve our FORTIFIED program, influence building professionals and products, improve consumer choices, and advance sound public policy solutions. At a fundamental level, consumers deserve to have confidence that the time and financial investments they make in resilience will live up to their reasonable expectations. Our research demonstrates that home and business resilience is available at a range of price points, and that poor choices or inaction can result in damage or destruction when severe weather strikes. Over the longer term, understanding the importance of resilience as part of climate change adaptation will amplify our research for future generations.

3. Prevent Avoidable Damage: Public Policy Levers

At IBHS, we call this "narrowing the path of damage." For example, in a Cat 4 hurricane, the zone of the strongest winds will cause destruction, yet the damage caused by bands of 100, 110, or even120 mph winds can be significantly reduced. Similarly, the strongest areas of EF3, EF4, and EF5 tornadoes will see destruction, yet damage in the outer bands with winds equal to EF0, EF1, and EF2 can be reduced by building better.

Building codes are an important part of this focus. Historically, codes focus on life safety, but through proper application, they also can reduce the disruption natural hazards have on our lives. Yet, adoption and enforcement are not uniform across the country, or even in some of our most hazard-prone states.

Last year, Congress enacted two pieces of legislation to advance that recognize the need for long-term investments to reduce the severity of disasters and the amount of taxpayer funds directed toward recovery:

- The Bipartisan Budget Act of 2018 included new cost-share incentives for states to invest in resilience. Prior to the new law being passed, the Stafford Act generally provided a 75% federal share for state assistance and reimbursement. The new mitigation provision amends the Stafford Act to provide an increased federal share (up to 10 percent more) to states and territories that undertake eligible mitigation actions, such as: adopting current building codes, developing an approved mitigation plan, investing in insurance, participating in the Community Rating System, and/or providing financial incentives for mitigation projects like tax breaks or credits. The increased federal cost-share incentive will be implemented using a sliding scale.

- The Disaster Recovery Reform Act (DRRA) of 2018 creates several new mitigation policies, such as:
  - Allowing states and local governments to use FEMA Pre-Disaster Mitigation (PDM) grants to facilitate the adoption and enforcement of building codes.
  - Incentivizing states and local governments to adopt the latest model code.
  - Authorizing the President to set aside six percent of the total amount of disaster recovery grants awarded from the Disaster Relief Fund, for deposit into FEMA's PDM fund. The new funds represent a *fundamental shift* in the way the federal government prepares communities for future storm events.

As important as these federal measures are, they will not advance adaptation unless states understand how these funds can be applied to make homes, businesses, and communities less vulnerable to the severe weather scenarios that play out at the IBHS Research Center. It is critical to connect the dots between these new federal grant opportunities and bricks and mortar state programs that can strengthen the built environment for the future. We have partnered with the BuildStrong Coalition to provide technical assistance in making these connections.

The DRRA, once fully implemented, will deliver the largest investment by the Federal government to buy down the risk of natural disasters now and in the future. While the advancement, enactment, implementation, and oversight of the DRRA are ably handled by the House Committee on Transportation and Infrastructure, this Select Committee can highlight the importance of projects to strengthen home and businesses and protect communities from climate change.

While DRRA represents a new era in disaster mitigation policy at the federal level, there are additional steps Congress can take to assist homeowners and small businessowners with disaster preparedness. One idea is to remove the tax penalty for individuals and businesses that benefit from state-based catastrophe-loss mitigation programs. H.R. 2053 the "Catastrophe-Loss-Mitigation Incentive and Tax Parity Act of 2019" would eliminate tax lability for amounts received as part of certain state-funded grant programs. Several states sponsor these types of successful mitigation programs, including the California Bolt + Brace program for strengthening buildings located in earthquake prone areas, and the Strengthen Alabama Homes program, which provides grants funds to upgrade to a FORTIFIED Roof. On the individual side, bipartisan legislation pending in both the House and Senate, known as the SHELTER Act, would provide up to a 25% tax credit for eligible expenses paid by individuals and businesses for purchases that help reduce potential damage from hurricanes, flooding, and other forms of natural disaster.

These types of proposals empower and reward states and individuals who take action into their own hands - ultimately contributing to overall community resilience.

4. Vulnerable Populations

In making these investments, it is critical to protect our nation's most vulnerable populations. According to sociological research, disabled, elderly, low income, and other disadvantaged people are less likely to prepare for disasters, evacuate safely, avoid physical or psychological trauma, or recover quickly and fully. This reality places an even higher priority on adaptation measures that prevent avoidable damage to the places they live and work.

Despite media images of lavish beachfront mansions, low income residents account for a meaningful percentage of the population in many coastal communities and other areas that face climate risk, often in the most vulnerable housing. Those who live in rental units are dependent on landlords or public housing agencies for structural loss prevention measures. And, low-income homeowners are more likely to take a "do-it-yourself" approach to maintenance or rely on neighborhood handymen to keep costs down. These local contractors may be unlicensed, undertake work without obtaining building permits, and be unaware of science-based loss prevention measures.

This is one of the reasons IBHS supports strong and up-to-date building codes. These codes are regulatory requirements that establish the minimum acceptable construction standards necessary to protect people and property from natural hazards, interior fires, and other causes of loss. They are particularly important for low-income homeowners and tenants, who may lack the clout to require a builder or landlord to take loss prevention into account. Building codes also provide consistency in building standards and trigger processes, such as public inspections, that help ensure that the structural elements of a building are up to current standards. It is critical to make sure that strong building codes not only are enacted but also enforced.

One place where the congruence of policy initiatives, strengthened building codes, and grassroots education has led to large-scale homeowner action is in south Alabama, where more than 12,000 homes have received a FORTIFIED designation. The progress in mitigation began in the wake Hurricanes Ivan and Katrina (which hit the Gulf Coast in 2004 and 2005 respectively) and has surged with several key innovations. The State of Alabama enacted legislation which provided benefits to homeowners who built or retrofitted their homes to the FORTIFIED standard and later expanded the applicability of those benefits. The state's coastal communities understand their particular risk and regularly update their building codes - many have even adopted an additional "coastal supplement" which brings their code up to the FORTIFIED level. Public/private partnerships paired with a grassroots educational campaign helped to educate homeowners, legislators, and builders on the importance of resilient construction.

In 2016, the State launched Strengthen Alabama Homes, a State-funded program that provides grants to help homeowners retrofit their roofs to the FORTIFIED standard. So far, over 1,600 homeowners have received the grant, and over 3,000 more are on the waiting list. The attention generated by the grant program, coupled with grassroots education and stronger codes created an

environment in which mitigating your home against hurricanes is becoming common practice, and the real estate market has taken note. A collaborative study led by the University of Alabama shows homes with a FORTIFIED designation are, on average, valued 7% higher than homes without the FORTIFIED proof of resilience. This shows innovative building science standards and techniques can not only provide protection but can also add value.

Interestingly, the first significant step in Alabama's path to resilience was taken by a local Habitat for Humanity© affiliate. The organization built one of the state's first FORTIFIED homes and worked closely with another nonprofit, Smart Home America, to promote the idea that that resilience wasn't only smart; it was affordable too. This helped to dispel the common misconception that mitigation and resilient construction are cost prohibitive to working families.

As we consider mitigating buildings against severe weather caused by shifting climate risks, it is important to note that we are also protecting homeowners from a costly disruption of their daily lives. Understanding this, Habitat for Humanity, at the national level, created the Habitat Strong program, which mirrors the FORTIFIED Home standards. They have partnered with several IBHS member companies and universities to help homeowners achieve these stronger protections and have seen some of their homes tested by severe weather. We are particularly proud of the performance of the five Habitat Strong homes in Panama City, Florida, which stood strong against the fierce winds of Hurricane Michael in 2018 - the only reported damage to any of the homes being a single piece of loose siding.

Other national nonprofits such, as Team Rubicon and SBP, see the importance of protecting the homes and financial stability of low to moderate income homeowners and are also incorporating FORTIFIED's protections into their building designs. Another group, My Strong Home, is an innovative benefit corporation which provides lending solutions to help coastal residents become more resilient. They require homes to meet the FORTIFIED standard to ensure the company's investment is protected, and in turn provide homeowners with construction, financing, and insurance options that are designed with affordability and long-term protection in mind.

While a FORTIFIED home offers great protection, we, at IBHS recognize not all coastal residents can upgrade their homes to this level, in the near term. So, we designed a user-friendly "hurricane ready" guide, which details different actions homeowners can take, at a variety of price points. On the high end, impact resistant doors and windows add a level of protection and eliminate the need for a homeowner to install hurricane shutters before each storm. More modestly, as I said earlier, a few hundred dollars can provide a sealed roof deck, which can prevent very costly damage caused by water-intrusion. The guide also includes tasks as simple as cleaning gutters or securing outdoor furniture, which both can help residents reduce the risk of damage in an easy and accessible manner. One of the most successful hurricane-preparedness campaigns IBHS ever launched showed people how to potentially save their home without spending a penny. It simply encouraged people to shut their interior doors during a hurricane. This one simple task could save a home by isolating pressure if the building envelope were breached (the message went virial before Hurricane Irma in 2017). So, as you can see there are a variety of stages of resilience that together can help homeowners be better protected today and adapt to climate change. IBHS is committed to studying and promoting each of these, in an effort to help homeowners and communities across the country to better weather the storm.

In closing, I would like to thank you for the recognizing the importance of climate adaptation and the critical role IBHS research plays to help strengthen the built environment. Americans are not powerless against severe weather—it *is* possible to reduce the damage inflicted today and in the future. We know it is practical, affordable, and just plain good sense to construct and retrofit buildings to be strong enough to defend against these threats. I appreciate the opportunity to share some of our ideas with you today.