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"Building Smarter: The Benefits of Investing in Resilience and Mitigation"

Before the U.S. House of Representatives
Committee on Transportation & Infrastructure's
Subcommittee on Economic Development,
Public Buildings, and Emergency Management

March 18, 2021

Members of the Subcommittee, thank you for the opportunity to speak with you today about the importance of residential resilience as we think about strengthening families, communities, and adapting 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 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 more resilient. 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.

Our research teaches that improving residential resilience can require an assortment of actions, incentives, and stakeholders. To make a home more resilient to wildfire, for example, takes individual, collective, and governmental action. The homeowner must take care of basic yard

maintenance, create a zone of defensible space around the house, use non-combustible building materials, and take steps to prevent embers from entering the home. Even those property-specific actions may not be sufficient, as the other houses, structures, and vegetation in the surrounding area must also be maintained appropriately. Community and government action, like creating fuel breaks, maintaining common spaces, and managing wildland fuel sources are also important. To protect a single home, an "all of the above" approach is necessary.

The same is true at the national level. Resilience to the natural perils we face, particularly when one considers the effects climate change has on these perils, requires an assortment of initiatives designed to strengthen American homes. These programs should seek to leverage public and private financing, data, and analytics to maximize our national competencies in the resilience space, regardless of where those competencies sit. Today, I will make the case for investments in residential resilience; provide a set of pathways that Congress can take to help make resilience more available for all Americans, regardless of their financial means; and propose several ways that resilience can be incorporated into upcoming infrastructure bills. Strengthening our resilience to natural perils and climate change is among the most pressing challenges we face as a nation, but solutions are within our reach.

THE CASE FOR RESIDENTIAL RESILIENCE

1. A Changing Climate Increases Natural Perils

If 2020 taught us anything, it is that the home is of paramount importance – and for too many, vulnerable to the forces of Mother Nature. The dangers of COVID-19 led Americans from all

fifty states to seek refuge in their homes, juggling remote work, child-rearing, and all the other necessities of life under a single roof. And yet, 2020 should also be remembered as a year of natural fury – the year that climate change affected families across the country. Last year delivered the most active Atlantic hurricane season on record, with the most named storms in history, the worst wildfire season ever, with a record-shattering 18 infernos of 100,000 acres or more across the West, and a Midwest derecho that was the most costly thunder storm in national history. According to reporting from the NOAA's National Centers for Environmental Information, 2020 set a record of 22 billion-dollar weather and climate disasters in the United States. However, we must look at 2020 in the broader context: while natural perils last year were particularly bad, they were not anomalous. 2020 was the sixth consecutive year in which ten or more billion-dollar weather and climate disaster events have occurred in the United States. Considering this trend, we must adapt by making our families, businesses, and communities more resilient to a changing climate and associated severe weather.

The Reinsurance Association of America (RAA) has developed a tool that leverages publicly available data to visualize the interplay between natural hazards, housing stock, and socio-economic vulnerabilities. Using the data pulled from, among other sources, the Federal Emergency Management Agency's National Risk Index and the U.S. Census Bureau, the RAA tool provides us with the ability to pinpoint – at the census tract, county, or Congressional district level – where natural perils, older housing stock, and disadvantaged populations converge to create zones of heightened vulnerability and risk. Exhibit A to this testimony demonstrates how this tool can be used by analyzing data for two Congressional Districts: Nevada-01 and Florida-11.

In the Chairwoman's district, Nevada's 1st District, the tool demonstrates that the most significant natural peril is earthquake, with the earthquake-related Expected Annual Loss scores ranging from relatively moderate to very high. Clark County has a low community resilience score assigned by FEMA, meaning that the county has minimal ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. At a census tract level, FEMA's social vulnerability scores for the Chairwoman's district range considerably, but many are in the top two quartiles as compared to the rest of the nation. This means that many of the people in Nevada-01 are, using FEMA's definition in its National Risk Index Primer (December 2020), susceptible "to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood" when considering "the social, economic, demographic, and housing characteristics of a community that influence its ability to prepare for, respond to, cope with, recover from, and adapt to environmental hazards." Moreover, many of the housing units in the district were built prior to 2000 and over half were built prior to 1990, demonstrating an aging housing stock that was not built to modern building codes. Put together, Nevada's 1st District is a good candidate for expanded federal mitigation aid, as it has unmet needs, a vulnerable population, an aging housing stock, and areas of heightened risk of earthquake loss.

In the Ranking Member's district – Florida's 11th District – the tool demonstrates that hurricane, high wind, and wildfire are the natural perils most contributing to Expected Annual Loss. Hurricane, the most significant peril in the district, could cause the most damage to people and property in the eastern part of the district – particularly in Lake County. In addition, the FEMA

scores for community resilience are in or near the bottom quartile of the nation in each of the counties in the district, meaning that the counties lack the resources to respond and recover from a natural disaster. Further, the FEMA social vulnerability data suggests that much of the population in this district has relatively high vulnerability as compared to the rest of the country. The age of the housing stock in Florida-11 is mixed, with more than fifty percent of housing units in the district built before 2000. This district, too, would benefit from increased investments in residential and community resilience.

These areas highlight where resilience investments are most needed. The work that RAA has done demonstrates the analytic role that the private sector – and particularly the insurance industry – can play to help policymakers at all levels of government develop resilience-strengthening policies that will respond to the deepest needs.

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 that arise during high wind and convective storms. We have developed a unique capability to replicate the density, hardness, and kinetic energy of natural hailstones to assess the durability and damageability of asphalt shingles and other products. We also have made significant, long-term investments wildfire research. Wildfire is one of the most important perils we study at the IBHS Research Center. This is the only place

beside real-world wildfire events that can expose full-size buildings and building components to realistic thermal exposure of flames and embers. Creating a realistic scenario to study building vulnerabilities to wildfire has made IBHS the epicenter of wildfire research over the past decade and has attracted other research organizations to collaborate with IBHS. In addition to work at our facility, our scientists and partners have conducted post-disaster investigations to examine the factors that contributed to the losses from these destructive fires. IBHS' best-in-class science fills knowledge gaps to achieve significant social and economic benefits across all regions and demographics of America.

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 of beyond code resilience standards, 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.

3. Build and Retrofit for a Resilient Today and Tomorrow

Due to the research conducted at IBHS, actions to strengthen the resilience of residential structures are not just knowable but known. For instance, when we think about the perils of wind and wind-driven rain, we start with the roof. 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 and deeply disrupting those who relied on their roofs for protection. It is critical 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 research shows 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. Small investments today can prevent large losses in the future—but we must find ways to get people to pay attention and act.

Strengthening resilience to wildfire poses a significant challenge. Our field observations following the worst 2017/2018 California fires indicate that understanding survivability is complex, with many different factors combining to determine whether a structure was destroyed, damaged, or relatively unscathed. Notwithstanding these complexities, research has shown there are steps that give a home a much better chance of surviving an encounter with wildfire. As with wind perils, homeowners should start with their roof, using only Class A roofing materials that provide the most fire resistance. Homeowners should also pay close attention to the five foot "ignition zone" around their home, maintaining a buffer zone free of vegetation, yard debris, structures like sheds, and other combustible materials. Similar maintenance should be maintained under existing decks, which should be constructed with non-combustible materials if possible. Additionally, using 1/8 inch or finer metal screens in openings to attics, vents, gables, and crawlspaces can prevent flying embers from entering the home. Guidance on these actions can be

found in IBHS's "Suburban Wildfire Adaptation Roadmap," which fills a critical gap in wildfire science by identifying effective and actionable ways to drive down the growing losses that occur when wildfire spreads beyond the wildland-urban interface (WUI) into dense suburban communities, as well as our *WILDFIRE READY* guide, both of which were released last year.

While some of the actions that can mitigate the risk of wildfire are low-cost or are based primarily on sweat equity, other retrofit options – such as replacing siding and windows with non-combustible alternatives – can be costly and, for some, unaffordable. Addressing the cost barrier for resilience is one place where government programs can help make resilience to natural perils a reality for more families and communities.

CONGRESSIONAL PATHWAYS FOR STRENGTHENING THE RESILIENCE OF AMERICAN HOMES

Federal legislation is an essential part of the "all of the above" approach needed to strengthen residential resilience. Through targeted policies, programs, and funding, Congress can encourage responsible decision-making at the state, local, Tribal and territorial (SLTT) level, incentivize resilience investments by homeowners, financially support resilience for disadvantaged populations, and improve existing federal pipelines for resilience funding. Collectively, these actions can help narrow the resilience gap in the United States and better prepare families and communities for severe weather and a changing climate.

1. Encourage Strong, Statewide Building Codes

Strong, and strong enforced, building codes are an important tool to improve resilience. Building codes are sets of regulations, standards, and guidelines adopted by states and local communities to promote the construction of safe and durable structures. Historically, codes focus on life safety, but through proper application, they also can reduce the disruption natural hazards have on our lives. FEMA's 2020 "Building Codes Save" study found that existing codes will result in $132 billion in losses avoided between 2000 and 2040. If all new buildings in the United States were built to modern editions of model building codes, the losses avoided would be more than $600 billion. However, adoption and enforcement of building codes are not uniform across the country, or even within some of our most hazard-prone states. In fact, the FEMA study reported that 30 percent of new construction occurs in communities with either no codes at all or codes that are more than twenty years outdated. This must change, and federal action can encourage the adoption and enforcement of strong, state-wide building codes based on the most current model codes.

- A mitigation provision in the Bipartisan Budget Act of 2018 included new Public Assistance cost-share incentives for states to invest in resilience, including an increased federal share (up to 10 percent more) for Stafford Act funding to states and territories that undertake eligible mitigation actions like adopting current building codes. Congress can amend the Stafford Act to give FEMA the flexibility to use a portion of the cost-share for all disaster relief and mitigation programs as a tool to encourage strong building codes and other pro-resilience actions by SLTTs.

- Congress can amend the Stafford Act to direct FEMA's Building Resilient Infrastructures and Communities (BRIC) program and Hazard Mitigation Grant Program (HMGP) to create set-asides to incentivize *new* state-level building code enactment, modernization, and enforcement. These funds should target the *creation and expansion* of building code activities, not simply fund what is ongoing in given jurisdiction.

2. Promote Resilient Retrofits with Financial Incentivizes

While building codes are a fundamental tool for shaping the resilience of tomorrow's homes, they do not strengthen resilience where Americans live today. Only retrofits can improve the resilience of existing houses.

Social science suggests that effectively evaluating risk – particularly high impact, low likelihood risk like natural disasters – is challenging. When it comes to natural perils, people usually feel more protected than they are. For those with the financial means to invest in resilient retrofits, government incentives can provide the additional nudge they need to act. The tax code is a place where Congress can create financial incentives that encourage homeowners to invest in their own resilience.

- Congress can revisit resilient tax credit bills from the last Congress such as H.R. 3462 (the "SHELTER Act") or H.R. 7979 (the "Disaster Savings and Resilient Construction Act of 2020"), which would have provided tax credits for eligible expenses paid by individuals and businesses for purchases that help reduce potential damage from hurricanes, flooding, and other forms of natural disaster. Tax credits for resilience

investments are most effective when they are available for sunny day resilience actions as well as those taken in the post-disaster context.

- Congress can end the federal taxation of the benefits individuals and businesses receive from state-based catastrophe-loss mitigation programs, such as 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. In the 116th Congress, H.R. 5494 – the "Catastrophe-Loss-Mitigation Incentive and Tax Parity Act of 2019" – would have eliminated tax lability for amounts received as part of certain state-funded grant programs. Passage of such legislation would allow homeowners to take maximum advantage of state resilience grants.

3. Make Resilience Available for All

Residential resilience should not be a luxury only available for those with financial means. 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. 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. This reality places an even higher priority on resilience programs that prevent avoidable damage to the places these populations live.

Providing a higher degree of financial support for the residential resilience of disadvantaged populations is not just a matter of equity and public health – although it is both – it is a

responsible investment of tax dollars. Improving resilience reduces the costs of future natural disasters and the economic disruption associated with related dislocations. In addition, providing federal funding for resilience projects spurs economic development in needy communities, as many residential resilience projects are dependent on skilled roofers, contractors, and other technicians. Congress can consider the following measures to improve the resilience of our most vulnerable populations.

- Housing for disadvantaged populations should be based on three-prong foundation of affordability, resilience, and energy-efficiency. By doing so, it is possible to create sustainable and affordable homes that reduce costs in the short term through reduced water and energy bills and avoid future loss, disruption, and displacement through resilient construction or retrofits. The convergence of affordability, resilience and energy-efficiency is already occurring in Louisiana, where an affordable housing project from the New Orleans Redevelopment Authority mandated that affordable housing be built to IBHS's FORTIFIED standard and the Energy Star Homes Version 3.0 standard.
    - Congress can support this type of sustainable housing by mandating resilience investment set-asides in all appropriations for affordable housing. In the last Congress, H.R. 5187 – the "Housing is Infrastructure Act of 2020" would have provided additional funding for public housing, rural housing, Tribal housing, supportive housing for the elderly and differently abled, and affordable housing. In each instance the bill would have reserved 10 percent of funding for activities related to energy and water efficiency. This Congress can take up a revised

version of this bill so that it includes a 20 percent set-aside for activities related to energy and water efficiency *and* resilience.

- In addition, Congress can reauthorize the Weatherization Assistance Program and expand it to provide technical support and financial assistance for resilience projects as well as energy efficiency.

- Although tax credits such as those contemplated by proposals like the SHELTER ACT can incentivize homeowners of financial means, they do not help low- and moderate-income populations who have neither adequate taxable income for the credits to be meaningful nor the resources to make resilience investments without more significant aid. Congress can explore making resilience tax credits transferable to expand their applicability for all Americans. Transferable tax credits for resilience investments could allow private and non-profit organizations to use the credits as a funding stream for residential resilience projects in the affordable housing space.

- Congress can create a Community Disaster Resilience Zones (CDRZ) and related bond program to direct public and private sector resources to address significant natural disaster risk of exposed communities with an emphasis on underserved socio-economic areas. By providing preferential treatment for investments in these zones, such a program would catalyze private sector investments in projects that strengthen residential and community resilience in at-need communities.

4. Optimize Existing Federal Pipelines for Resilience Funding

Congress already devotes significant resources to resilience, in both the pre-disaster and post-disaster contexts. In 2018, Congress made significant strides towards supporting resilience to natural perils by passing the Disaster Recovery Reform Act of 2018, which led to the creation of the BRIC program. By authorizing the President to set aside six percent of the total amount of disaster recovery grants awarded from the Disaster Relief Fund for pre-disaster resilience investments, Congress steered a powerful shift in the way the federal government prepares communities for future natural disasters. Now that the BRIC program has been implemented, we have greater insight into how Congress could further optimize this important resilience tool.

- The 25% state cost-share for BRIC funding may create a significant barrier for underserved communities with small tax bases and fewer resources in taking advantage of the program. This inherently inequitable outcome runs contrary to the purpose of the program. Congress can address this issue by allowing greater flexibility for the state cost-share of BRIC funds (i) by allowing states to buy down their share through resilience-advancing actions like smart land use and modern building codes and (ii) by allowing SLTT entities to partner with private and philanthropic sources to pay for some of the cost share. While SLTTs should always have some skin in the game, greater flexibility in putting together the state cost-share will make BRIC more meaningful for underserved communities and, thus, more equitable.

- The BRIC program could be better calibrated to fund *residential* resilience projects in two ways. First, Congress can direct FEMA to create a pilot program to help establish residential resilience grant programs. Grants are more effective tools than

reimbursements, especially for disadvantaged populations, because funding is provided up front. Second, the BRIC application process can be streamlined to make it easier for projects involving multiple structures to qualify for funding by instituting a benefit cost analysis (BCA) waiver for SLTT initiatives that fund certain kinds of residential resilience projects, such as grant programs supporting Fortified retrofits. FEMA has previously taken steps like this for other programs, such as in the Wind Retrofit Guide for Residential Buildings (P-804).

- Congress can amend the Stafford Act to make BRIC and HMGP funds interchangeable in two key respects. Successful BRIC applicants should be awarded applicable HMGP funds before BRIC funds – a change that will spend down unused HMGP funds and prevent BRIC oversubscription. Additionally, expired HMGP funds should be swept into the BRIC program to avoid wasting government funding earmarked for resilience projects. By making BRIC and HMGP funds more interchangeable, FEMA can maximize its ability to fund resilience projects.

In addition to BRIC, Congress has an opportunity to strengthen other government programs intended to build residential and community resilience both before and after natural disasters. The following opportunities could strengthen, expand, or otherwise optimize existing programs in ways that will aid residential resilience.

- The time after a natural disaster, particularly one which displaces a family, is the worst time to contend with government bureaucracy. The process by which homeowners apply for post-disaster relief from FEMA, HUD, and SBA should be simplified and

streamlined. Congress can direct these agencies and departments to develop a single application and tracking process to support Americans seeking government aid when they are most vulnerable.

- The Small Business Administration (SBA) provides post-disaster low-interest loans to business owners and homeowners, one of the primary sources of financial assistance for long-term disaster recovery. These resilience-supporting loans are only available in the disaster recovery context. Congress can direct SBA to expand its physical damage loan and mitigation assistance programs to apply in the pre-disaster context as well, helping homeowners to finance sunny-day resilience projects.

- The Department of Housing and Urban Development's Community Development Block Grants-Disaster Recovery Program (CDBG-DR) is designed to provide funds to address needs not met by other federal disaster recovery programs. Consistent with the recommendation by the House Select Committee on the Climate Crisis, Congress should permanently authorize the HUD CDBG-DR program.

PRIORITIZING RESILIENT INFRASTRUCTURE

Last month, we witnessed the devastating, cascading impacts that vulnerable infrastructure can have on the resilience of homes. When a cold snap caused power outages throughout the state of Texas, unheated pipes froze and burst – resulting in the unfamiliar sight of residents boiling

melted snow for drinking water and causing the dislocation of families and billions of dollars in losses.

As this cascading chain of damage in Texas demonstrates, the resilience of homes is intrinsically connected to the resilience of community infrastructure, especially water and energy infrastructure. As Congress works with the Biden Administration to develop an ambitious infrastructure bill, we urge this Subcommittee to champion resilience and climate change adaptation as central objectives of that legislation. The failure to make resilience to severe weather and a changing climate a central component of new infrastructure is a missed opportunity that will result in higher disaster relief costs for generations to come.

In this context, we suggest three additional policies and programs that Congress could consider that would advance the resilience of families, communities, and our Nation.

- On his first day in office, President Biden reinstated the Federal Flood Risk Management Standard (FFRMS), which requires that federally funded projects be resilient to flood hazard. The common-sense purpose of the FFRMS is to provide reasonable assurance that the American taxpayer need not pay twice for the same project. Congress should enshrine the FFRMS in statute and expand it to require that federally funded projects be designed and built for resilience to other significant natural perils, including high winds and wildfire. Above all, ensure that this Flood Standard applies to *all funds expended under any new infrastructure bill* being considered by the full Committee.

- Public buildings and facilities that are built to withstand natural perils can provide a refuge during natural disasters, contribute to the continuity of government services following the disaster, and can be affordably insured. Too often, however, they are not built with resilience in mind and are not insured, instead contributing to both the resilience gap and the insurance coverage gap. Congress should encourage and help fund the resilience of public buildings and facilities. Additionally, and as proposed by the House Select Committee on the Climate Crisis, Congress can allow SLTTs to use Stafford Act funds for the payment of insurance premiums and deductibles. Together, this can result in public buildings and facilities that are physically and financially more resilient.

- Congress can also consider putting limits on Stafford Act funding for SLTTs without appropriate insurance coverage for public buildings, so that Public Assistance is not treated as a de facto public insurance program.

In closing, I would like to thank you for the recognizing the importance of resilience 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. Meeting this pressing need will take an "all of the above" approach for which Congress plays an essential role. I appreciate the opportunity to share some of our ideas with you today.