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“State of Emergency: Examining the Impact of Growing Wildfire Risk on the Insurance Market”

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Committee on Financial Services
Subcommittee on Housing, Community Development and Insurance**

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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 wildfires across the American landscape. 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. 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.

Wildfires have long been part of the American landscape. However, in recent years they have become more frequent and intense, often spreading into densely populated suburban neighborhoods where the economic losses and human suffering are significant. For instance, the 2020 wildfires burned 10.27 million acres and caused \$16.5 billion in damage, destructive but still less costly than 2017 (\$24 billion) and 2018 (\$22 billion). And yet, we understand how to reduce the risk of ignition for these homes — how to make our families and communities stronger and safer when smoke fills the air.

Today, I would like to speak to you about what we know about wildfire risk and resilience: where the science is now and what we have yet to learn, as well as the resilience solutions that can help homeowners—right now—to meaningfully reduce the chance that their homes will burn. To start, I want to highlight three key points:

1. We must address the resilience of the built environment as a fundamental part of federal, state, and local wildfire public policy—and the heaviest lifting will occur at the state and local level.
2. We are not powerless. More than a decade of research, at IBHS and elsewhere, contribute to a scientific understanding of the mitigation actions, when undertaken collectively, that are most essential to reducing wildfire losses for individual properties.
3. Actions undertaken in California can serve as a model for other states looking for ways to protect their residents from wildfires. Much like the collective set of mitigation actions necessary to protect a given home, effective public policy must also be system of mutually supportive actions at the individual, collective, and government level.

None of this is free. We cannot in one breath say “the climate is changing and making wildfires worse,” and in the next breath say “I want the costs of building and insurance to be cheaper.” The changing climate has a cost, and yet let me underscore my second point: we are not powerless. Strengthening our resilience to wildfire is among the most pressing challenges faced by too many American families, but solutions are within our reach.

The State of Wildfire Science

Wildfire is one of the most important perils we study at the IBHS Research Center. Our facility 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. Our researchers meticulously recreate realistic wildfire scenarios to better understand the interaction of embers, wind, and the built environment. This lab-based work is then extended through field-based, post-event investigations. IBHS not only funds and leads these research endeavors, IBHS also partners with other wildfire science leaders – the California Department of Forestry and Fire Protection (CAL FIRE), the USFS’s Rocky Mountain Research Station/Missoula Fire Sciences Laboratory, and NIST’s Fire Research Division. In the last decade, our research has covered topics including ember characteristics, decking, vents, fire-retardant coatings and gels, and the home ignition (0-5 foot) zone around structures. *It’s about solutions, not just studying the problem.*

Based on this research, we now understand the behavior of wildfire around the built environment far better than we did ten years ago. Generally, wildfire causes damage to homes through three channels: flames, radiant heat, and embers. While the images of flames on nightly news reports gain the most attention, it is the embers that cause the vast majority of damage to homes and communities. Embers — smoldering pieces the size of a hand — can be carried aloft by wind for a half mile or more, bringing a wildfire well outside the predictable path of the flames. These embers are responsible for the vast majority of home ignitions caused by wildfires. And once a home ignites, it will be a complete loss 90 percent of the time. These findings have taught us that wildfires are essentially a home ignition problem, and that embers are the primary driver of these ignitions. By finding ways to reduce the likelihood that an ember ignites a home, we can meaningfully reduce that home’s wildfire risk.

These findings are important and necessary, but they are not sufficient to fully understand and mitigate wildfire risk. We know that managing and mitigating wildfire risk requires actions undertaken at the property level to both the structure and the defensible space, and actions undertaken at the community level.

To date, the scientific understanding of community wildfire resilience is not as advanced as our understanding of mitigation at the individual home level. Understanding community resilience to wildfire is challenging because of the multiplicity of variables that contribute to – or reduce – it. These variables include topography, wind, vegetation management, seasonal drought conditions, neighborhood density, nature-based solutions (like fire breaks and buffers), the percentage of homes in a neighborhood that have undertaken meaningful property-level mitigation actions, and community-wide engagement through programs like Firewise. Understanding which of these variables are most important to community resilience, the availability of data for each of these variables, and how these variables interact are subjects of ongoing research for IBHS and others in the wildfire science space. I am confident that we will solve for this problem—and more work must be done to do so.

The Criticality of a Wildfire Resilient Built Environment

In California and beyond, more communities than ever are at risk of wildfires. Per a recent FEMA [report](#), nearly 99 million Americans, one-third of our nation, live in areas considered the Wildland Urban Interface – the area where homes and communities intermingle with the undeveloped wildlands and vegetative fuels of the natural environment. Think about that: nearly one-third of all Americans now live in areas that we know to be of heightened wildfire risk. In fact, a [study](#) from

2020 found that approximately 60 million homes in the U.S. are within an area that has already burned or are within a kilometer of previous fire. In light of the wildfires that have occurred in the last two years, including more than 7 million acres burned in 2021, this figure is surely higher today.

These startling statistics do not even fully capture the actual risk wildfire poses to people's homes and communities, given what we know about the behavior of wildfire. As I referenced earlier, embers — which cause the vast majority of building ignitions during wildfires — can fly a half mile or further ahead of the flames of a wildfire. As these embers land and ignite, they create more embers that winds carry even further ahead. What this means: more Americans than ever are moving into areas of known high wildfire risk, while wildfire risk encroaches outward.

Unlike any other natural peril, wildfires are strengthened when they reach the built environment. Buildings are literally fuel for the fire, meaning that our homes are not just at risk from wildfire, they contribute to its spread. In our post-disaster investigation of Colorado's December 2021 Marshall Fire, we saw a grassland fire turn into a suburban conflagration when it reached neighborhoods: it was flames and embers from burning homes — not from grasslands — that caused much of the destruction. What this means: investing in a built environment is not only about protecting the vulnerable — it is about controlling the severity and scope of wildfires.

Given these two unique facets of wildfire, our policy response must include making the built environment more resilient to wildfire. Wildfire resilience requires policy responses that recognize the complex interaction of the built environment and the natural environment. The federal government invests considerable resources into wildfire response and recovery — and most of these funds go to wildfire response and forest management. We also need to take action where people live.

We Know How to Make Homes Safer from Wildfires

In response to this critical need, IBHS developed Wildfire Prepared Home™ — a wildfire resilience standard and designation program incorporating available wildfire science, building performance characteristics, data analytics insights, and contributions from a diverse group of wildfire leaders — to provide homeowners, insurers, and policymakers with a risk reduction tool to prevent avoidable suffering, harden homes, and support thriving communities. In its initial phase, a Wildfire Prepared Home designation is available for single-family, site-built homes in California that meet the technical requirements in the standard. We anticipate scaling the program to other states in the future — but there is no reason why the mitigation actions included in Wildfire Prepared Home cannot be adopted by homeowners and communities outside of California right now.

Wildfire Prepared Home is grounded in research identifying core mitigation actions that, when taken together, significantly reduce a given property's wildfire risk. These mitigation actions reduce the risk of ignition when embers reach suburban properties and, should ignition occur, remove pathways leading flames to the home. Our decade of wildfire research instructs that wildfire resilience requires a systems-based approach to mitigation actions—meaning that homeowners must undertake and maintain all the requisite mitigation actions to drive down their risk. Once achieved, the Wildfire Prepared Home designation signals that the wildfire risk to the designated home can be meaningfully distinguished from unmitigated or partially mitigated properties. The requisite mitigations actions included in Wildfire Prepared Home, which are achievable for both new construction and existing homes, focus on the roof, building features, and defensible space.

Roof. The Wildfire Prepared Home standard requires a Class A roof and non-combustible gutters and downspouts. The good news is that many homes throughout the American West already have this in place.

Building Features. The Wildfire Prepared Home standard has two requirements relating to building features. First, homeowners must have ember-resistant vents to prevent embers from intruding into a structure. In addition, homeowners must have a six-inch vertical noncombustible zone around the base of the house, an area in which wildfire embers are known to collect.

Defensible Space. While all mitigation actions included in the Wildfire Prepared Home program are necessary, perhaps none are as important as the defensible space requirements. First and foremost, homeowners must have *and maintain* an impeccable five feet, completely free of combustibles, around the entire base of their home (this area has also been called the “home ignition zone”, the “ember-resistant zone”, or “Zone 0”). This area must be free of vegetation, sheds, hoses, boats, propane tanks, or any other materials that could burn. Roofs and decks must also be kept clear of combustible material. Time and again, our research has demonstrated that embers collect in the five-foot area around a home, and those embers will ruthlessly seek out combustible material to ignite. A home that does not remove all combustibles from this area are at risk.

In addition, homeowners must trim trees and branches away from the five-foot zone around the house, including those located above the roof. Also, yards must be well-maintained and clear of debris, such as fallen branches, leaves, and other combustible materials. The program also requires that for homes with decks, underdeck areas must be cleared of combustibles and well-maintained, and underdeck areas four feet or less in height must be enclosed to reduce debris accumulation and resist embers. For homes with fences, any fencing attached to a home must be noncombustible.

In addition to the requisite mitigation actions required by the Wildfire Prepared Home standard, IBHS also has identified six additional mitigation actions that even more substantially reduce risk and qualify a home for a Wildfire Prepared Home + Plus™ designation:

- All fencing on the parcel must be single line and not back-to-back with neighboring parcels to reduce debris accumulation.
- Non-combustible siding materials are used on the exterior envelope of the home.
- Enclosed eaves.
- Enclosed the space under bay windows.
- Homes with decks use upgraded wildfire resistant deck materials.
- Windows are wildfire resistant or exterior shutters can be deployed.

These actions are achievable and effective, and a recent study of the California market by IBHS and Headwaters Economics demonstrates that they are reasonably affordable as well. The study, which compares the construction costs of three versions of a wildfire-resistant home in California, found that for a small additional investment of as little as \$3,000 homeowners can mitigate vulnerable areas of the home to further reduce wildfire risk. The study found building an enhanced wildfire-resistant home in California adds only 2-8 percent to the total construction cost. Bringing a typical new home up to an optimum wildfire resistant level adds 4-13 percent to the total construction cost of a new home in California.

Moreover, this mitigation approach should have salutary effect on the insurance system in California and, once the program grows, other states as well. Following the launch of the Wildfire Prepared

Home program in June of this year, the American Property Casualty Insurance Association recognized the powerful effect that the program could have on the California insurance market:

Insurers look forward to leveraging Wildfire Prepared Home™ as effectively as they have used IBHS's FORTIFIED Home™ program in hurricane-prone regions to identify properties that have received meaningful mitigation measures. Wildfire Prepared Home™ may be a game changer for consumers and insurers in the wildfire space.... As more homes are hardened and more communities follow Paradise's lead, California should see a meaningful decrease in losses, which should positively impact availability and affordability of insurance in the state.

Mitigating wildfire risk is essential for the safety of families and communities and for reducing the damage, disruption, and dislocation all too often associated with wildfire conflagrations; and its positive effect on the insurance system should be neither understated nor overstated.

Pulling Together: Federal, State and Local Actions to Reduce Wildfire Risk

Just as the mitigation actions to reduce property level wildfire risk must be undertaken collectively, so too must the actions of federal, state, and local policymakers to assist homeowners to achieve a higher degree of resilience. Three essential public policy lanes for reducing wildfire risk are:

- **Stronger codes and standards** for building and defensible space;
- **Appropriately tailored financial incentives and support mechanisms** to help homeowners invest in meaningful wildfire resilience; and
- **Public education and consistent messaging** about wildfire risk reduction – especially critical mitigation actions like a combustible-free home ignition zone in the five feet around the home.

It is important to note that while the federal government can play a supporting role in each of these policy lanes, the role of state and local governments is more direct and essential than that of the federal departments and agencies. In the building code space, the Biden-Harris Administration is providing strong leadership through the National Initiative to Advance Building Codes. Even so, building codes are within the jurisdiction of, ideally, states, or local governments if the state fails to act; the federal governments can only do so much in this context. Likewise, financial incentives and financial support programs, like grants, are best planned and administered at the state and local level. And while public education and messaging from federal sources is important, most homeowners will be more receptive to voices in their own community — highlighting the crucial role of the fire services in providing good information on wildfire resilience.

Stronger codes and standards.

A recent study found that homes that meet wildfire codes [were 40% less likely to be destroyed](#), compared to older homes. Unfortunately, while codes and standards for wildfire resilience have existed and evolved through regular code updates for decades, the adoption rates for existing wildfire codes and standards are even lower than the shamefully low adoption rates for modern versions of the International Residential Code, and far more sporadic in their usage. To strengthen the resilience of vulnerable homes and communities, adoption and enforcement of wildfire codes and standards must increase.

One key model for wildfire standards comes from the consensus process of the International Code Council (ICC) which, in 2003, published the first model wildfire code, the International Wildland-Urban Interface Code (IWUIC) – a process to which IBHS continues to contribute. Another example can be found in California, which adopted Chapter 7A of its Building Code, a wildfire-specific section titled “Materials and Construction Methods for Exterior Wildfire Exposure,” in 2008. IBHS has also played a role in contributing technical assistance toward the development of Chapter 7A. Other states should follow California’s lead by enacting statewide wildfire building codes. In doing so, states should not leave out strong requirements around defensible space, particularly in suburban environments, so that embers do not find fertile ground to ignite in and around houses.

In the absence of state action, or in addition to it, local governments can also use town and county ordinances to enact and enforce wildfire resilience measures. For example, the Town of Paradise — which is already subject to the requirements of California’s Chapter 7A — has enacted new town ordinances bringing the town’s requirements into alignment with the mitigation actions required by Wildfire Prepared Home. This will put all newly constructed homes in the town in an excellent position to achieve designations from this program.

Appropriately tailored financial incentives and support mechanisms.

For existing homes, homeowners must invest in retrofits to improve the resilience of their home and property. As with other natural perils, financial incentives can help provide needed nudges to encourage wildfire resilience investments, and more significant financial mechanisms may be necessary to help low- and moderate-income homeowners mitigate their risk. Actions at the federal, state and local level can provide these financial mechanisms to spur resilience-enhancing actions by homeowners.

Many people have difficulty effectively evaluating risk, particularly high impact, low likelihood risk like wildfire disasters. When it comes to natural perils like wildfires, people usually feel more protected than they are. This complacency can be an obstacle to people investing in their own resilience. This complacency is a place where Congress can play a role — by providing financial incentives, such as tax credits, can provide the additional nudge homeowners may need to invest in their own resilience.

However, some people need more than a nudge — they need financial support to undertake mitigation actions that they cannot otherwise afford. For these individuals, mitigation grant programs can mean the difference between resilience and ignition when embers fly through the air. California again serves as a model in this lane of wildfire resilience policy. Through the California Office of Emergency Services and CAL FIRE, the California state government has stood up a mitigation program that will help homeowners take necessary structural and defensible space actions on their properties. In addition, county governments — such as Sonoma County — are standing up grant programs to help residents strengthen their resilience. Federal money through FEMA’s grant programs can be used to leverage programs like these to expand their reach to even more homeowners. At both the state and local level, policymakers have leaned on IBHS science and resources to ensure that the mitigation programs are grounded in science and aligned to the mitigation actions that the insurance industry cares about most. As other states and localities develop similar programs, we urge them to use IBHS as a resource so that public dollars are used for mitigation actions that will actually bend down the wildfire risk curve.

Public education and consistent messaging.

As more states and communities confront wildfire risk, a multitude of public, non-profit, and for-profit programs have sprung up in response. In any given community, a homeowner may hear messaging about wildfire from the local fire department, a wildfire prevention authority, town and county leaders, a neighborhood Firewise community, a local Fire Safe Council, their insurance company, nightly news reports, and advertisements from wildfire mitigation services companies. Even with the best of intentions, the signal can be lost in all this noise, particularly when the messages from these sources emphasize different things.

IBHS always strives to translate our research into action so we can prevent avoidable suffering, strengthen our homes and businesses, inform the insurance industry, and support thriving communities. Risk communications is an important tool for doing so, because we understand that our science is only as good as people's ability to understand it and put into action. We strongly encourage federal, state, and local policymakers to coalesce around a science-driven set of recommendations for wildfire resilience and the actions that will mitigate such risk. A common message across multiple stakeholders will simplify and amplify the signal to homeowners, hopefully giving them clear guidance as well as a measure of hope. The newly formed Wildland Fire Mitigation and Management Commission — with its membership from federal, state, local, academic, non-profit, and private sector representatives — may be well-placed to contribute to such an initiative.

In closing, I would like to thank you for recognizing the importance of wildfire mitigation for both resilient communities and healthy insurance markets, and the critical role IBHS research plays to help strengthen the built environment. Americans are not powerless against wildfire resilience — it *is* possible to take actions today to meaningfully reduce the risk that one's home will ignite and burn. I appreciate the opportunity to share some of our ideas with you today.