

The scale of wildfire damages in America is worsening, and this trend must change. In 2018, wildfires caused more loss of life and property damage than any other weather-driven peril in the U.S.—with the most tragic and expensive wildfires occurring in California. Much can be done to reduce property damage during these events.

IBHS science-based research demonstrates that wildfire resilience is possible, but home and business owners, together with local, state, and federal leaders, among others, must all play a role in creating necessary changes. An “all-of-the-above” or team sport approach is required to advance wildfire resilience.

As California works to curb its worsening wildfire risk, IBHS has been asked how our research can help public policymakers meet this challenge. Our ideas are grounded in scientific understanding of wildfire risk and building science and focus on what matters most: ***Start with the Home***, which involves creating defensible space, public education, and retrofitting; and ***Protect the Community***, which involves building code enhancements.

START WITH THE HOME

1. Establish and Enforce Defensible Space Requirements

Wind-borne embers can blow miles ahead of a wildfire and account for up to 90 percent of home ignitions during these events. A critical buffer from this “ember storm” is the creation of defensible space. The simple, common-sense step of eliminating potential fuel on and around the home is an effective fire protection measure. Yet, persuading more homeowners to clear dead plant debris out of their gutters, off their roof, and away from the perimeter of their home is difficult, in part because these steps are a matter of ongoing maintenance, and not set-it-and-forget-it activities.

Since 2005, California law has required building owners in State Responsibility Areas (SRAs) to establish and maintain 100 feet

of defensible space. While Cal Fire has some defensible space inspection authority, neither the frequency of inspections nor the consequences of violations are clear.

DISCUSSION POINTS/SUGGESTIONS

- Enforce defensible space requirements on a community-wide basis, not solely in SRAs.
- Clarify inspection authority.
- Clarify consequences.
- Conduct a meaningful survey (like the Building Code Effectiveness Grading Schedule [BCEGS]) to educate the public on community actions to reduce wildfire risk through defensible space and to identify best practices for maintenance and enforcement.

2. Memorialize the Science and Engage the Next Generation

Millions participate in the annual Great ShakeOut Earthquake Drills, which began as a community preparation exercise in Southern California focused on personal protection and the need for earthquake awareness and preparation. We believe this model could be replicated for wildfire with equal success.

DISCUSSION POINTS/SUGGESTIONS

- Build on NFPA’s National Wildfire Preparedness Day (<https://www.nfpa.org/Public-Education/Campaigns/National-Wildfire-Community-Preparedness-Day>), sponsored by State Farm, to create a well recognized and widely practiced “Remember the Ember” campaign (name TBD). A potential program might teach middle schoolers about science-based IBHS wildfire mitigation steps they can take at home focused on defensible space. The campaign would advance simple but important preparation messages through repetition and practice. Partnerships with youth organizations and schools seem reasonable to expect, and images would lend themselves well to traditional and social media venues, and government-sponsored awards and recognition.
- As with the Great Shake Out, FEMA is a potential funding source.

PROTECT THE COMMUNITY

3. Retrofit Incentives and Resources

A 2018 Headwaters Economics study in partnership with IBHS found that a new home can be built to wildfire-resistant codes for roughly the same cost as a typical home. On existing homes, costs vary for retrofitting to wildfire-resistant standards, depending on the component being repaired or replaced. Much can be done for minimal expense, and larger projects can be prioritized into smaller parts and completed over time. According to *Mitigation Saves*, a new report by the National Institute of Building Sciences, federally funded grants supporting projects such as these in the wildland-urban interface are cost-effective, with an average benefit-cost savings of 3:1. Yet, even with these obvious safety and economic benefits, encouraging these investments often involves incentives that either: (1) lower the upfront out-of-pocket costs for the homeowner, or (2) provide savings upon completion such as refunding permit fees, or providing tax incentives. IBHS believes several funding sources could be tapped for such incentives.

DISCUSSION POINTS/SUGGESTIONS

Potential federal funding sources include:

- The Bipartisan Budget Act of 2018
- The Disaster Recovery Reform Act (DRRA) of 2018
- FEMA's Pre-Disaster Mitigation Fund
- HUD Community Development Block Grant – Disaster Recovery (CDBG-DR) program

At the state level, several California government agencies and nonprofit/foundation groups administer wildfire prevention grant programs (e.g., http://calfire.ca.gov/fire_prevention, <http://cafiresafecouncil.org>). These programs share the challenge of allocating sufficient resources among homeowners to fund meaningful retrofit projects.

No- or low-interest loans may also encourage wildfire retrofits. For example, CA AB 38 would create the Fire Hardened Homes Revolving Loan Fund to help homeowners retrofit for wildfire.

IBHS encourages a comprehensive approach to retrofitting involving: (a) public education on the importance of retrofitting and cost-effective approaches, (b) comprehensive analysis of specific federal/state programs to provide retrofit resources to homeowners and small businesses, and (c) creation of a Department of Insurance or other state-sponsored programs specifically to provide homeowner retrofit grants.

4. Extend wildfire building code requirements so that all homes in an at-risk community are better protected, and make science-based improvements to these codes

Ember-storm resilience must be universally embraced. A vulnerable home acts as an available fuel, whose ignition exposes surrounding homes to radiation/direct flame contact and the entire community to ember exposure. This tragic reality resulted in widespread community devastation from the Tubbs, Camp, and other recent wildfires—every home and business in the community was at risk regardless of whether it was in an area subject to California Building Code Chapter 7A requirements.

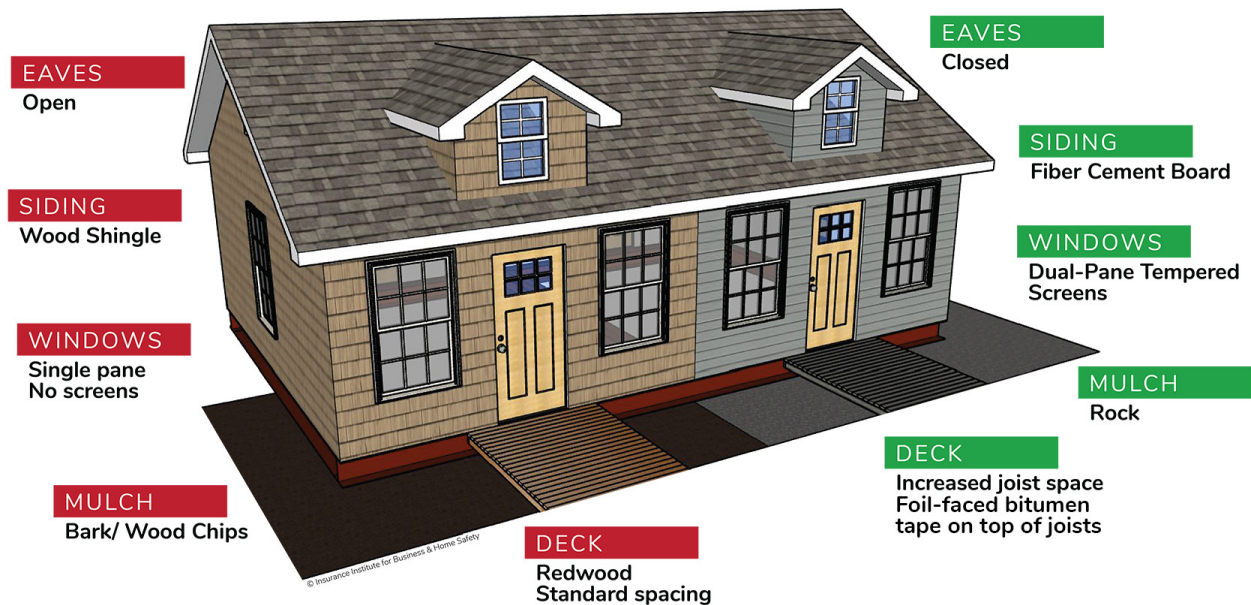
Chapter 7A sets safety standards for new buildings in designated SRAs. The standards offer critical life safety and property protections, but their application is too narrow. IBHS urges both science-based code improvements and expansion of the areas to which Chapter 7A applies.

DISCUSSION POINTS/SUGGESTIONS

- If any portion of a community is subject to Chapter 7A, all new homes and businesses should be built to its requirements.

*The Insurance Institute for Business & Home Safety (IBHS) is a 501(c)(3) organization, supported by the property (re)insurance industry. For over a decade, IBHS has conducted objective, scientific research to identify and promote effective actions to protect homes and businesses against wildfires and other natural disasters. Our science includes simulating real-world wildfires at the IBHS Research Center, as well as post-disaster evaluations and data analyses.

Wildfire-Resistance: Make the “RIGHT” Choices



5. Science-Based Code Improvements

Building codes are not static and should reflect the latest understanding of hazards and vulnerability. IBHS has identified the following areas where Chapter 7A (2016 edition) should be improved:

Vegetation Management (701.A.5): Should address near-building combustibles including restrictions within the 0–5 foot zone. IBHS research has shown the effectiveness of this “noncombustible zone” to reduce ignition potential from embers.

Roof Eaves (702A): As currently defined, roof eaves can be “open” or “closed.” Research shows that (en)closed eaves are less vulnerable to flame and ember entry.

Roof Gutters (705A.4): Vinyl gutters can ignite and melt creating a burning plastics fire on the ground near an exterior wall. IBHS research has shown the importance of noncombustible gutters in addition to regular maintenance to remove debris. A metal drip edge at the roof edge provides some resistance to flame if debris does ignite.

Exterior Walls (707A.3): Embers accumulate at the base of the wall. IBHS recommends a vertical noncombustible zone of 6 inches between the ground and the siding. In addition, the requirement does not address all modes of flame spread. IBHS recommends addressing all flame spread directions (vertical, lateral, and flame penetration).

Decking Surfaces (709A.3): Combustible materials are allowed but remain vulnerable to ignition from embers and under-deck fires. In addition to steps that must be taken to bring chosen deck materials into compliance, IBHS recommends increased joist spacing and foil-faced bitumen tape on top of joists.