



SUBURBAN WILDFIRE ADAPTATION ROADMAPS

Executive Summary

Updated November 2021

Wildland fire is a natural phenomenon and is necessary for the health of some ecosystems. However, when these fires get out of control and threaten communities, they become a serious hazard. Defending against wildfire involves understanding that despite best efforts to reduce the risk, it will continue to be a threat.

The key to preventing wildfires from becoming disasters is to keep them from entering and spreading into the built environment. IBHS has identified key vulnerabilities for suburban neighborhoods; these insights build on findings published by the fire protection community and the best experimental and field research to date. The Suburban Wildfire Adaptation Roadmaps provide decision trees that show the range of possibilities and what to avoid. When put into action by homeowners, business owners, and ultimately whole communities, the risk curve can be bent downward and limit the catastrophic reach of wildfires.

The Suburban Wildfire Adaptation Roadmaps inform the Wildfire Ready guides for both homes and businesses. The roadmaps detail the risk for various building features and show the options for moving to a lower risk category. The guide will provide details about projects owners can perform that will reduce their wildfire risk.



Figure 1. Aerial view of a neighborhood severely damaged during the Waldo Canyon Fire in Colorado in 2008.

Key Takeaways

- Nearly all aspects of wildfire mitigation strategies fall into one of two correlated categories:
 - Hardening the structure by using fire-resistant materials
 - Reducing the intensity of a potential fire around the structure

IBHS identified the critical lanes across the elements of a suburban home, light commercial buildings, and its surroundings that can increase or decrease the chance a structure survives a wildfire.

- Fuel management
- Fences
- Decks
- Building shape
- Walls
- Roofs (Steep-slope and low-slope)
- Vents

- Eave overhangs
- Roof mounted equipment
- In communities with closely spaced structures, the survivability of one structure depends on the surrounding buildings and the fuel they provide for a fire to grow and spread.
- There are a set of required actions that must be addressed before any other mitigation action can effectively reduce a home's vulnerability. These include:
 - Replacing unrated roof materials or unmaintained Class C roofs
 - Ensuring a vertical noncombustible zone, including siding/cladding, sheathing, and structural framing, extends at least 6 in. above grade
 - Keeping the area under decks free of combustibles
 - Covering vents with 1/8-in. or finer metal mesh
 - Removing combustible mulch and vegetation not recommended by CalFire as well as boats, RVs, sheds, and other large combustibles from the 0–5 ft zone around the home or business (noncombustible zone)
- Fuel management is one of the best ways to lower the risk to structures in the path of wildland fires. Managing and reducing available fuels surrounding a home or business can help defend against the three ignition mechanisms (ember exposure, direct flame contact, and radiant heat from flame).
- Of the areas around a home or commercial building, the zone that extends outward 5 ft from exterior walls is critical. The best practice is to avoid anything that can burn, but when used with gravel or rock ground cover/mulch, fire-resistant plants can help slow fire from spreading or reduce the intensity of fire in the 0–5 ft noncombustible zone.

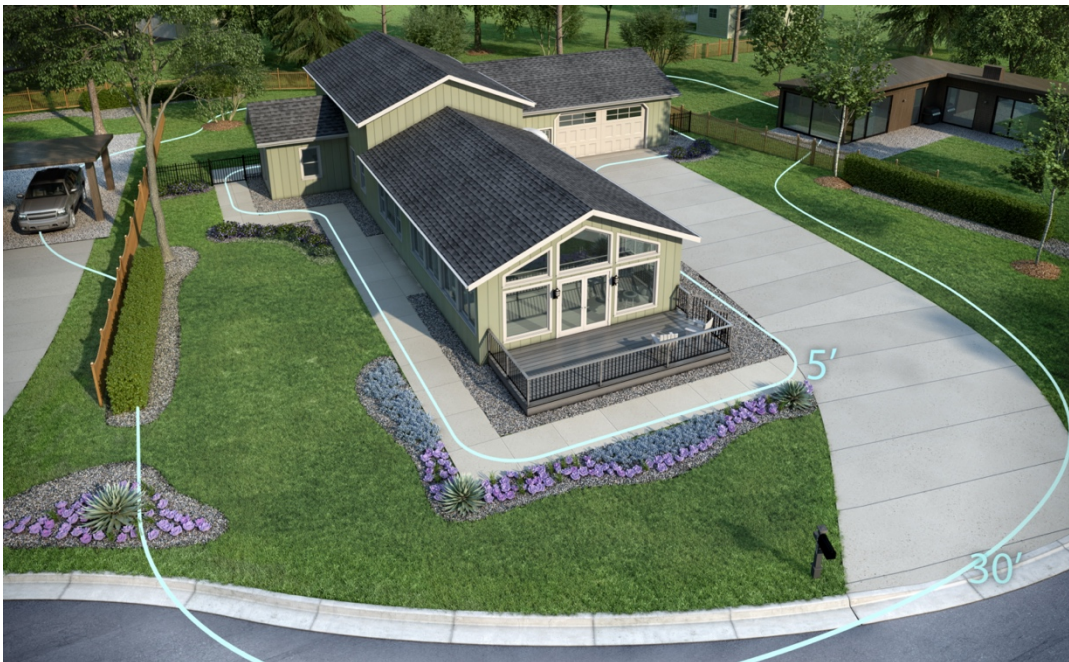


Figure 1. View of a typical suburban home highlighting the 0–5 ft noncombustible zone and the next 30' area.

- A structure that is properly maintained for wildfire should be free from debris accumulation in gutters and vents, on roofs and decks, and the below-deck area of decks less than 4 ft off the ground. Maintenance also includes trimming tree branches, removing dead vegetation, and sealing gaps in the structure's exterior to prevent ember entry.

- Community planning at the county, city, or even homeowners association level, that helps reduce the use of combustible materials, increases the spacing between structures, and requires preventive maintenance can further reduce the risk of a wildfire igniting a home and spreading to others.
- Homeowners associations can play a large role in helping accelerate mitigation actions across a community by encouraging involvement and developing covenants that are in alignment with the steps necessary to reduce a neighborhood's vulnerability to fire. These actions can help reduce the need for firefighter intervention and help free up critical resources.



Figure 3. Aerial view of a typical suburban strip mall highlighting the 0–5 ft noncombustible zone.

- In modern suburban settings, businesses are frequently near homes to provide convenient services to residents. Businesses and homes collectively form a community. Commercial structures with a low-slope roof, require impeccable maintenance to keep debris from accumulating against roof mounted equipment, making it vulnerable to embers.