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Building a Wildfire-Resistant Home: Codes and Costs

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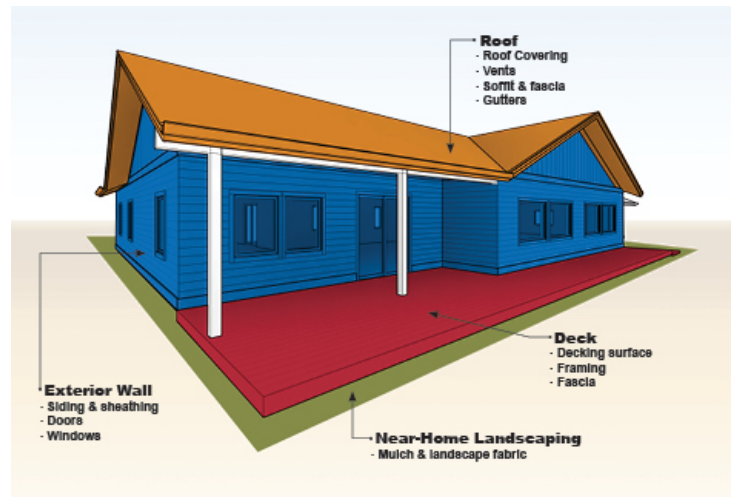
A new home built to wildfire-resistant codes can be constructed for roughly the same cost as a typical home.

- Wildfire disasters will be more common if unmitigated home development continues in the wildland-urban interface.
- A new home built to wildfire-resistant codes can be constructed for roughly the same cost as a typical home.
- Costs vary for retrofitting an existing home to be wildfire-resistant, with some components such as the roof and walls having significant expense. Some of these costs can be divided and prioritized into smaller projects.
- Technology and standards exist today that will make communities safer. Cities, counties, and other jurisdictions can implement wildfire-resistant building codes to reduce their vulnerability to wildfire.

Introduction

This [study finds negligible cost differences](#) between a typical home and a home constructed using wildfire-resistant materials and design features. Decades of research and post-fire assessments have provided clear evidence that building materials and design, coupled with landscaping on the property, are the most important factors influencing home survivability during a wildfire.

Today, [one-third of all U.S. homes](#) are in the wildland-urban interface, the area where flammable vegetation and homes meet or intermingle. And with [more than 35,000 structures lost](#) to wildfire in the last decade, more communities should consider adopting building codes that require new home construction to meet wildfire-resistant standards.



While codes and standards have been developed for building in wildfire-prone lands, the perceived cost of implementing such regulations is a commonly cited barrier to consideration and adoption by some communities. However, little research has previously examined how much it would actually cost the homeowner or builder to comply with such regulations.

For this research, a [full report](#), an [executive summary](#), and [appendix \(Excel\)](#) are available. The work was completed in partnership with [The Insurance Institute for Business & Home Safety \(IBHS\)](#) and was prepared at the request of Park County, Montana, as part of the [Community Planning Assistance for Wildfire \(CPAW\)](#) program. CPAW is a program of Headwaters Economics and is funded by the U.S. Forest Service, the LOR Foundation, and other private foundations.

Wildfire-Resistant Codes and Standards

While certain jurisdictional codes have been established, three existing statewide or national building codes and standards guide wildfire-resistant construction. They are:

- the International Code Council’s [International Wildland Urban Interface Code \(IWUIC\)](#),
- the National Fire Protection Association’s Standard for Reducing Structure Ignition Hazards from Wildland Fire ([Standard 1144](#)), and
- the California Building Code [Chapter 7A](#)—Materials and Construction Methods for Exterior Wildfire Exposure.

These three documents address construction requirements of the home by component parts (e.g., roof, walls, etc.) and often provide multiple options for complying with the provision. Many of the requirements in these documents are based on standard laboratory testing methods that evaluate the ability of a material or assembly to resist ignition or fire spread. California is one of only a few states to have adopted a wildfire-related building code at the state level for areas of high hazard, but many cities and counties have adopted portions of the IWUIC or other wildfire-related codes. In some communities, the inaccurately assumed cost of constructing a home to comply with a wildfire-resistant building code is a barrier to implementing such codes.

Wildfire-Resistant Construction Costs Are Similar to Typical Costs

To identify whether the cost of constructing to a wildfire-resistant building code differs from typical construction, this study priced new construction and retrofitting expenses for a three-bedroom, 2,500-square-foot, single-story, single-family home representative of wildland-urban interface building styles in southwest Montana, one of the fastest-growing regions in the country.

New Construction Cost Comparison

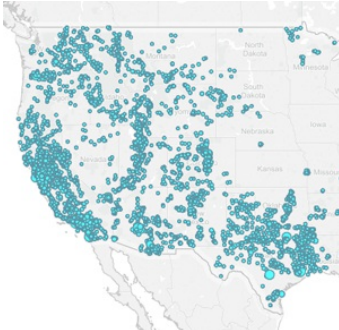


The typical home was assumed to have an asphalt shingle roof, wood siding, dual-pane windows, and a wood deck. Wildfire-resistant materials were selected for similar aesthetics but also comply with wildfire-resistant building codes. Costs were primarily derived from [RSMMeans](#), a database that averages material and labor pricing from hundreds of U.S. cities and includes materials, labor, and contractor overhead and profit.

We examined costs in four vulnerable components of the home: the roof (including gutters, vents, and eaves), exterior walls (including windows and doors), decks, and near-home landscaping. Overall, the wildfire-resistant construction cost 2% less than the typical construction, with the greatest cost savings resulting from using wildfire-resistant fiber cement siding on exterior walls, in lieu of typical cedar plank siding. While cedar plank siding is typical in the wildland-urban interface of western Montana, fiber cement siding is already a common choice in many regions because of its relative


affordability, durability and low maintenance needs. Wildfire-resistant changes to the roof resulted in the largest cost increase, with a 27% increase in gutters, vents, and soffits. The following sections describe the wildfire-resistant mitigations for each component.


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
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RESOURCES

 [Report: Building a Wildfire Resistant Home](#)

 [Summary: Building a Wildfire-Resistant Home](#)

 [News Release](#)

 [Appendix and Tables \(Excel\)](#)

 [Austin Wildfire and Vulnerable Populations Tool](#)

 [Report: Full Community Costs of Wildfire](#)

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 [Wildfire Summary Slideshow Presentation](#)

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