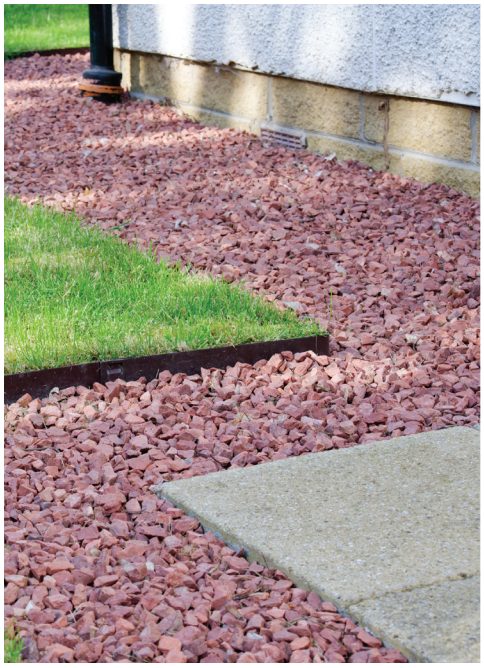

Construction Costs for Wildfire-Resistant Homes

A comparison between California Wildland-Urban Interface Code (CWUIC) Part 7, IBHS Wildfire Prepared Home Base, and IBHS Wildfire Prepared Home Plus

Fall 2025

Insurance Institute for Business & Home Safety®

HEADWATERS ECONOMICS

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This report was produced by Headwaters Economics with generous support from the USDA Forest Service and private foundations. This organization is an equal opportunity provider. The recommendations in this document are general suggestions aimed at reducing the risk of wildfire damage to a single-family home. Implementing these suggestions does not guarantee the prevention of damage. Every property and situation is unique, and we recommend consulting with local fire authorities or professionals for advice tailored to specific conditions. The organizations that produced this report are not liable for any damages or losses that may occur by following these recommendations.

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Executive Summary

In January 2025 the County and City of Los Angeles was devastated by catastrophic wildfires that destroyed more than 16,000 structures. As rebuilding efforts begin, constructing homes to wildfire-resistant standards is essential to strengthening long-term community resilience and reducing future wildfire losses.

California, a leader in wildfire mitigation, enforces some of the nation's most comprehensive building regulations through its Building Code Chapter 7A (Materials and Construction Methods for Exterior Wildfire Exposure), which outlines materials and construction methods for exterior wildfire exposure in the higher wildfire hazard areas of the state. Homeowners and builders can comply through prescriptive or performance-based approaches, offering flexibility in achieving wildfire resistance. On January 1, 2026, Chapter 7A will become Part 7 (Title 24) of the California Wildland-Urban Interface Code (CWUIC).

Complementing state efforts, the Insurance Institute for Business & Home Safety (IBHS) has developed the Wildfire Prepared Home (WFPH) program—along with its enhanced Wildfire Prepared Home Plus (WFPH Plus) designation—to standardize mitigation practices nationwide. The IBHS Wildfire Prepared program provides a systems-based approach to wildfire risk reduction through mitigations to the structure and defensible space that reduces the risk of home ignition from embers (WFPH Base) and flames/radiant heat (WFPH Plus). This study provides detailed wildfire-resistant building material cost estimates for constructing homes that meet these standards, with specific pricing for key components such as roofing, eaves, siding, windows/doors, decks, and landscaping within the critical 0-5 foot noncombustible zone. The three different wildfire-resistant scenarios are compared to building material costs for a home constructed with "traditional" non-wildfire resistant building materials.

Analyzing the costs for wildfire-resistant measures beyond five feet from the home, such as the surrounding defensible space, and the space between homes was beyond the scope of this project. However, these areas also require attention. Reducing fuels between homes, including vegetation, outlying buildings, and fencing, disrupts pathways for fire and embers to spread between neighbors. Ultimately, home and property wildfire mitigation strategies are most effective when every home in the neighborhood participates.

Outcomes from this analysis suggest that wildfire-resistant building material costs for a one-story, 1,750-square-foot, single-family home (with an estimated total construction cost value of $500,000) do not significantly increase the costs relative to traditional non-wildfire-resistant home construction (i.e., homes not subject to CWUIC Part 7). Key findings from this analysis include:

- **Building to IBHS WFPH Base standards yields a potential savings of more than $4,000** compared to CWUIC Part 7 due to no gutter guard requirement, open eave building material considerations, and non-tempered windows.
- **Building to WFPH Plus adds approximately $2,000** in wildfire-resistant materials over CWUIC Part 7. For a 1,750 SF single-level home, added features include enclosed eaves, noncombustible soffits, and double-tempered windows.
- **Building to CWUIC Part 7 adds about $13,000 over traditional construction costs** due to features like flame- and ember-resistant vents, open eave building material considerations, metal gutter systems, fire-rated wallboard for exterior walls, dual-paned single tempered windows, and a 0-5 foot noncombustible zone (rock mulch and metal fence).

Rebuilding Altadena in the Post-Disaster Context

Following publication of this report, local organizations involved in the rebuilding of Altadena homes reported total rebuilding costs of $450-$650/square foot, rather than the $285/square foot used for this analysis. Using these figures, the mid-range, 1750 square foot home in Altadena envisioned in this report would cost between $787,000 and $1.14 million—a meaningful increase over the $500,000 figure assumed in this report.

As set forth in the Cost and Material Tables in the Appendix, the pricing used in this report is primarily from RSMeans, a national database of construction materials, labor, and contractor overhead and profit (O&P) costs, and supplemented where necessary by local suppliers. RSMeans, which is updated quarterly, uses average construction cost indices from more than 970 cities and the latest negotiated labor costs for average wages in 30 major cities. In other words, it determines costs using national averages rather than local prices.

Particularly in a post-disaster context, labor and contractor O&P costs can greatly exceed material costs. This is particularly true in Los Angeles, where labor shortages are hampering the recovery and significantly inflating rebuilding costs.

To test whether the increased price/square foot is driven by material costs or labor and overhead, we compared the material costs assumed by RSMeans against current material prices available locally to contractors through Home Depot.

This additional analysis demonstrates that material costs are not driving drastic increases in rebuilding costs in Altadena. Using the same specifications and dimensions as in the overall report, current material costs associated with WFPH+ requirements are $2,418 less than the assumptions made in the report.

Material Cost Comparison of RSMeans to Current Home Depot Prices

Item	RSMeans Cost Breakout	Current Material Cost	Difference in Cost (RSMeans – Current)
Clay Roof Covering	$14,355	$15,009	($654)
Roof Underlayment	$978	$576	$402
Ridge Vent	$705	$384	$321
Clay End-caps	$1,427	$1,083	$344
Metal Gutters	$371	$138	$233
Aluminum Gutter Guards	$290	$141	$149
Aluminum Drip Edge	$107	$95	$12
Eave Soffit Enclosure	$20	$36	($16)
19 Eave Flame/Ember- Resistant Vents	$2,318	$3,800	($1,482)
Fiber Cement Siding	$2,669	$1,972	$697
Weather Barrier Wrap	$374	$289	$85
Fire-rated Panelized Gypsum Wallboard	$663	$799	($136)
Fiber Cement Trim	$452	$348	$104
12 Flame/Ember-Resistant Foundation Vents	$735	$563	$172
Metal Dryer Vent w/Galvanized Metal Flap	$28	$22	$6
10 Double-pane, both tempered, 36”x48” Windows	$6,500	$3,520	$2,980
2 Solid core wood doors (¾")	$794	$790	$4
1 Sliding glass door	$2,100	$2,238	($138)
1 Garage door	$1,737	$2,198	($461)
Gravel for 5’ Noncombustible Zone	$2,924	$3,128	($204)
Metal Fence	$760	$760	$0
TOTAL	**$40,307**	**$37,889**	**$2,418**

Given this updated insight into material costs, it is clear that the increased costs of rebuilding Altadena are driven by significant increases in labor costs and contractor overhead. Notably, rebuilding an Altadena home with wildfire resilience should not increase the labor (time and individuals) above rebuilding an Altadena home to the traditional code. For example, the labor necessary to install a wood door (traditional code) is the same as the labor installing a solid core wood door (WFPH+). Thus, increased labor costs should affect both traditional code and WFPH+ equally. (The one exception is the cost of enclosing eaves, a mitigation action not required by the traditional code.)

The increased construction cost of rebuilding in Los Angeles poses a financial challenge for surviving families and a public policy challenge for local and state policymakers. However, these increased costs do not meaningfully change the cost of rebuilding with greater wildfire resilience.

When constructing a new home, many wildfire-resistant building material costs are comparable to non-wildfire resistant material costs. As indicated with previous studies, some of the most effective strategies to reduce structure vulnerability to wildfire are relatively affordable. Risk-reduction strategies such as removing flammable materials from on top of and under the deck, clearing gutter systems, removing vegetation and debris from the roof, ensuring a 0-5 foot noncombustible zone, and relocating flammable materials from underneath the home are critical maintenance tasks with little to no cost to the homeowner.

Analysis from this study is explicit to wildfire-resistant building materials and did not capture the full building

material costs for constructing an entire home. Values are based on a representative home in Altadena, California with a total estimated construction cost of around $500,000. In other words, there are many other additional components and assemblies within a home that are not required for wildfire-resistant construction and are therefore not included in this analysis.

Similarly, there are building materials indicative of home construction preferences in Altadena, California that were assumed in this analysis. For example, common building material assemblies and design practices for this area in southern California include a tiled roof covering, fiber-cement siding, and concrete pour-on-grade patio. Additionally, since the model home was a pour-on-grade foundation, no foundation vents are included in the analysis.

The estimated costs for constructing a wildfire-resistant home are derived from a detailed analysis of a specific model home (see Methods& Assumptions section), which provides a clear, standardized baseline for evaluating material and design upgrades. While these figures are highly tailored to the size, layout, and features of that model home, findings from this research offer valuable insights into the broader cost implications of adopting wildfire-resistant practices for a variety of structure types. Differences in individual home components – for example, open eave construction versus enclosed eave construction – will influence associated cost considerations. Many of the expenses for improved wildfire resistant construction, such as wildfire resistant roofs, gutter systems, siding, venting, and a noncombustible zone—can be reasonably extrapolated to larger or more complex homes, though actual costs will vary depending on scale, architectural complexity, site-specific conditions, and materials selected.

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Roof	**Subtotal:**	**$25,321**	**$26,311**	**$26,311**	**$26,311**
Eaves	**Subtotal:**	**$1,900**	**$4,284**	**$3,681**	**$5,253**
Exterior Walls	**Subtotal:**	**$11,461**	**$13,569**	**$13,578**	**$13,591**
Windows/ Doors	**Subtotal:**	**$8,431**	**$11,391**	**$8,431**	**$12,241**
Deck	**Subtotal:**	**$1,968**	**$1,968**	**$1,968**	**$1,968**
Zone 0	**Subtotal:**	**$1,106**	**$3,742**	**$3,742**	**$3,742**
	TOTAL (+18% inflation):	**$59,223**	**$72,293**	**$68,099**	**$74,465**
	Comparison to Traditional	$-	$13,070	$8,876	$15,242
	Comparison to CWUIC Part 7	$-	$-	$(4,194)	$2,172

Methods & Assumptions

Reducing home ignitions from wildfire requires understanding the different types of fire exposures a home might face. Homes burn down in three ways:

- Wind-blown embers traveling ahead of a wildfire can land on combustible material and ignite spot fires. Direct and indirect ember ignition scenarios are the most common cause of ignitions.
- Radiant heat from a nearby fire can ignite combustible materials. The effect of radiant heat depends upon the duration of the exposure, distance, and the intensity of the heat.
- Direct flame contact occurs when flames spread to touch a building or combustible material.

The three standards used in this analysis address one or more of the three types of fire exposure. While IBHS WFPH Base primarily addresses ember exposure, CWUIC Part 7 and IBHS WFPH Plus are intended to reduce vulnerability from all three types of ignition exposure.

The cost analysis for this study was based on a representative typical one-story, 1,750-square-foot, single-family home (footprint specifications measuring approximately 35 feet by 50 feet) in Altadena, California. Estimated costs are provided for constructing the home's roof, under-eave area, exterior walls, windows and doors, deck, and near-home landscaping (also known as Zone 0 or the 0-5 foot noncombustible zone) to wildfire-resistant standards. Suggested building materials considered southern California-specific housing trends, general homeowner material and design preferences, and structure and property characteristics. Mitigation measures for broader property management at the parcel level and minimizing fuels between homes, while critical in reducing wildfire risk to the primary structure, were beyond the scope of this project. These measures include maintaining defensible space and modifying sheds, outlying buildings, and other potential vulnerabilities.[1]

Findings are adapted from results originally published in Headwaters Economics' report, *Construction Costs for a Wildfire-Resistant Home: California Edition* (2022) and *Building to Wildfire-Retrofitting a Home for Wildfire Resistance: Costs and Considerations* (2024).[2]

Building materials were selected based on their local availability and when possible, costs were verified with a national database (RS Means, 2023) for standard construction costs. Construction costs for building materials were calculated as a per-unit value. For instance, costs to replace individual windows, including glass and frame, were calculated and reported separately from the cost of an exterior wall. An inflation adjustment of 18% was added to total costs for each scenario to account for building material cost data collected in 2023.

Because of extensive variability in site conditions, composition, design, and building materials of home construction, it is difficult to assign an explicit cost for a single structure or group of structures. This research is therefore intended to provide an estimate of building materials for improved wildfire resistance.

The subsequent sections of this report provide an overview of the primary exterior home components most vulnerable to fire exposure and estimated costs for related wildfire-resistant building materials. It is important to note the estimates do not include contractor markup costs such as labor, overhead, and profit, which can significantly increase baseline building material costs. Residents and homeowners should consult local contractors for accurate, place-based construction costs.

1 Insurance Institute for Business & Home Safety. (2023). IBHS Early Insights: Lahaina Fire – 2023. Retrieved from https://ibhs.org/wp-content/uploads/IBHSEarlyInsights-LahainaFire.pdf

2 Barrett K and Quarles SL. (2024). Retrofitting a Home for Wildfire Resistance: Costs and Considerations. Headwaters Economics. Retrieved from https://headwaterseconomics.org/natural-hazards/retrofitting-home-wildfire-resistance/

Building Material Costs

Roof

Roofs are highly vulnerable to ignition due to their relatively large horizontal surface area. Many Class A fire-rated roof covering options are available with the most common being asphalt fiberglass composition shingled roof. Two vulnerable features of the roof edge can affect the vulnerability of the roof to ignition. These include roof covering profiles where a gap exists between the roof covering and roof sheathing (i.e., the roof deck) and gutters at the roof edge where vegetative debris can accumulate.

For this analysis, a tiled roof was assumed for all four scenarios and is the preferred roof covering for Altadena, CA. For the wildfire-resistant homes (CWUIC, WFPH Base, WFPH Plus), flame- and ember-resistant vents, metal flashing for roof valleys, and a fire-resistant underlayment were included in the cost analysis.

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Roof	Roof covering	Tile	Tile	Tile	Tile
	Flashing	None	Metal	Metal	Metal
	Underlayment	Felt	Synthetic/Fire-resistant	Synthetic/Fire-resistant	Synthetic/Fire-resistant
	Roof gaps/openings	Bird stopping	Bird stopping	Bird stopping	Bird stopping
	Roof vents (ridge)	Plastic	Flame/ember-resistant vents	Flame/ember-resistant vents	Flame/ember-resistant vents
	Subtotal:	**$25,321**	**$26,311**	**$26,311**	**$26,311**

Under-Eave Area

Eaves play an important role for building design but they also create vulnerabilities and pathways for the building to ignite. Embers can travel through vents in the eave into the attic or accumulate in gaps between blocking and rafters in open-eave construction. Should flames reach the under-eave area, open eaves can also trap heat. Once there is an ignition in the under-eave area, fire will spread laterally more quickly.

Vents in the under-eave area allow air to enter the attic space. During a wildfire, vent openings can allow the entry of wind-blown embers into the interior attic space. If combustible materials in the attic ignite, the house can burn from the inside out. Newer vents have been designed to resist the intrusion of flames and embers.

Best practices for ignition resistance of an under-eave area are to enclose the eave with noncombustible soffit material and install flame- and ember-resistant vents ("WUI" vents). For this analysis, an enclosed eave was assumed for WFPH Plus construction, including a continuous linear flame- and ember-resistant vent. For the other home scenarios, an open eave design was assumed with applicable building materials considerations for vents and soffit.

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Eaves	Design	Open	Open	Open	Enclosed
	Exposed roof deck	Wood	Noncombustible - fiber cement	Wood	N/A
	Soffit	None	None	None	Noncombustible - fiber cement
	Soffit vents	Circular - resin	Circular flame/ember-resistant	Circular flame/ember-resistant	Linear flame/ember-resistant
	Gaps/openings (vents)	None	Fire-rated caulk	Fire-rated caulk	Fire-rated caulk
	Gutters	Vinyl	Metal	Metal	Metal
	Gutter guard	None	Metal	None	Metal
	Drip edge	None	Metal	Metal	Metal
	Subtotal:	**$1,900**	**$4,284**	**$3,681**	**$5,253**

Exterior Walls

Exterior walls and components in the wall assembly can be vulnerable if exposed to embers, flames, or prolonged radiant heat from burning items located close to the home. These exposures can ignite combustible siding and the resulting flames can spread vertically and laterally to other wall components such as windows and the under-eave area. Additional considerations for the exterior wall include exterior wall vents such as gable, forced air, and foundation vents.

For this analysis, fiber-cement siding and trim were assumed for all four home scenarios and based on common building material preferences for Altadena, CA. Since the model home is a pour-on-grade foundation, no foundation vents were included in this analysis.

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Ext Walls	Siding	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement
	Trim	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement
	Wallboard	None	Gypsum	Gypsum	Gypsum
	Forced Air vents	Vinyl	Vinyl	Vinyl w/ louver	Metal w/ louver
	Subtotal:	**$11,461**	**$13,569**	**$13,578**	**$13,591**

Windows and Doors

The glass of the window is vulnerable to breaking from exposure to radiant heat or direct flame contact. When glass in a window breaks, the combustible materials inside the home can be more easily ignited from the flames and/or embers that enter into the home. Wood- and vinyl-framed windows can burn or melt when exposed to radiant heat or flames, allowing the glass to fall out of the frame and flames and/or embers into the home.

Doors, including window glass set in doors, and door frames can fail for the same reasons as windows. Embers can accumulate in the small gaps between the door and frame, resulting in ignition of the door-framing and weather-sealing material including garage, pedestrian, and front doors.

A variety of different windows were assumed for this analysis and based on assumptions of traditional home construction compared to wildfire-resistant (and energy efficiency) requirements. For both the traditional home and WFPH Base, a vinyl-framed, single hung, dual-paned window with non-tempered (annealed) glass was assumed. For compliance with CWUIC Part 7 and energy efficiency standards, a dual-paned, single-tempered casement vinyl-framed window was analyzed. For the highest wildfire-resistance to prolonged radiant heat (WFPH Plus), a dual-paned, double-tempered metal-clad casement window was priced out.

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Windows	Sliding glass window (48" x 36")	Vinyl framed; dual-paned, non-tempered annealed glass (single hung)	Vinyl framed; dual-paned, single tempered (casement)	Vinyl framed; dual-paned, non-tempered annealed glass (single hung)	Dual paned double tempered metal-clad glass window (casement)
Doors	Pedestrian	Wood	Wood - solid core	Wood - solid core	Wood - solid core
	Side door	Wood	Wood - solid core	Wood - solid core	Wood - solid core
	Sliding glass patio	Vinyl	Vinyl	Vinyl	Vinyl
	Garage	Aluminium	Aluminium	Aluminium	Aluminium
	Subtotal:	**$8,431**	**$11,391**	**$8,431**	**$12,241**

Attached Deck

Similar to a roof, a deck has a large horizontal surface area and can be vulnerable to embers and under-deck flames. A burning deck can expose the side of the house to extended radiant heat and/or direct flame contact. The deck walking surface and structural support members, as well as what is stored on or below the deck, are therefore important considerations. Enclosing the under-deck area with metal mesh screening can minimize the accumulation of vegetative debris, vegetation, and other combustible materials.

Most commonly used deck board products (including wood and plastic composite boards) are combustible. Decks with noncombustible walking surfaces include lightweight concrete or a flagstone product. Regardless of the walking surface, decks are typically supported by solid wood joists, beams, and columns that will be vulnerable to ignition if nearby combustible materials ignite.

For purposes of this study and based on homeowner preferences for the Altadena area in southern California, a concrete pour-on-grade patio was assumed for all four home scenarios. A pour-on-grade patio eliminates consideration of a structural support system including joists, beams, and columns that are required for an elevated decking assembly and are not included in this analysis.

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Deck	Decking surface	Concrete pour-on-slab patio	Concrete pour-on-slab patio	Concrete pour-on-slab patio	Concrete pour-on-slab patio
	Subtotal:	**$1,968**	**$1,968**	**$1,968**	**$1,968**

Zone 0 (0-5 foot noncombustible zone)

Landscaping makes the home vulnerable when it ignites and allows fire to burn directly to the home. Ignition of near-home combustible materials (e.g., mulch, plants, fencing, vegetative debris and other combustible materials) from embers allows flames to touch the home regardless of how well broader vegetation management (defensible space) has been implemented and maintained.

Eliminating fuels within five feet of the home is an important mitigation strategy. The type of vegetation, mulch, and other near-home landscaping features and combustible materials in this zone including fencing, will affect the home's vulnerability to ember ignitions and the potential for radiant heat and direct flame contact.

This analysis considers mulch and fencing in the material selection within the 0-5 foot noncombustible zone. For the traditional home, bark mulch and a wood fence (including posts) were evaluated. For the three wildfire-resistant home scenarios, rock (pea gravel) mulch and a metal fence were analyzed. While there are many types of fencing, materials included in this study were for privacy fencing (versus a boundary fence such as wrought iron).

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Zone 0	Mulch	Cedar bark	Gravel	Gravel	Gravel
	Fencing	Wood	Metal	Metal	Metal
	Subtotal:	**$1,106**	**$3,742**	**$3,742**	**$3,742**

Conclusion

In conclusion, this analysis reinforces that incorporating wildfire-resistant building materials—whether through California Wildland-Urban Interface Code (CWUIC) or the IBHS Wildfire Prepared Home (WFPH) standards—can be achieved at a relatively modest increase in cost compared to traditional construction. For a one-story, 1,750-square-foot mid-range home valued at $500,000, building to WFPH Base increases total construction costs by 2% over a traditional home (and by 3% for WFPH Plus).

The estimated costs for building a wildfire-resistant home are based on a detailed assessment of a specific model home, providing a standardized baseline for evaluating material and design upgrades. Although tailored to that home's unique size and features, the findings offer broader insight into the potential costs of adopting wildfire-resistant construction across different types of homes. Variations in design elements—such as open versus enclosed eaves—affect overall expenses. Many fire-resistant upgrades, including roofing, siding, vents, gutters, and a 0-5 foot noncombustible zone, can be extrapolated to larger or more complex homes, though actual costs will vary with scale, design complexity, site-specific conditions, and building materials.

These investments provide meaningful protection against wildfire risks, especially when paired with simple, low-cost maintenance actions like clearing debris and maintaining a noncombustible zone. While this study focused on building materials, it also highlights the broader importance of community-wide mitigation, including managing defensible space and reducing fuel continuity between neighboring properties. As wildfire threats intensify across the West, the findings here suggest that building wildfire-resistant homes is both feasible and financially practical—an essential step toward safeguarding communities in high-risk areas.

Appendix: Cost and Materials Tables

Wildfire-Resistant Construction & Costs (2025)
Data Tables
Cost Estimates 2023-2024

ABOUT THE DATA

Pricing is from local suppliers and RSMeans,a national database of construction materials, labor, and contractor O&P costs. Findings are adapted from results originally published in Headwaters Economics' report, Construction Costs for a Wildfire-Resistant Home: California Edition (2022) and Building to Wildfire-Retrofitting a Home for Wildfire Resistance: Costs and Considerations (2024).

RSMeans is updated quarterly, includes average construction cost indices from more than 970 cities, and uses the latest negotiated labor costs for average wages in 30 major cities. Prices include the cost of material as installed (i.e., material plus estimated labor and contractor overhead and profit costs). In some cases, pricing was not available through *RSMeans* and costs were derived from building subject matter expert, supplier, or local distributors.

Pricing includes analyzed building material costs available locally (e.g., at Home Depot and Lowes) and when possible, verified costs with a national database for standard construction costs. In most cases, demolition, labor, and contractor overhead are not included in building material costs.

COLUMN DEFINITIONS

Assembly: major groupings, or systems, of features such as roof, eaves, exterior walls, windows/doors, and deck.

Component: describes the part of the assembly that was priced.

Traditional: building materials conventionally used in a non-wildfire-resistant home

CWUIC Part 7: California Wildland-Urban Interface Code (CWUIC), Title 24 Part 7 for wildfire-resistant home construction

IBHS WFPH Base: Minimum criteria to meet IBHS Wildfire Prepared Home designation, such as creating the 0–5 Foot Noncombustible Zone, upgrading building features, and maintaining the defensible space surrounding the parcel to 30 feet.

IBHS WFPH Plus: Additional protective measures beyond the WFPH Base for key building features of the home, and to achieve enhanced wildfire-resistance to flame and radiant heat.

ABOUT HEADWATERS ECONOMICS

Headwaters Economics is an independent, nonprofit research group. Our mission is to improve community development and land management decisions.

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Table 1: Building materials costs for wildfire-resistant standards

Assembly	Component	Traditional	CWUIC Part 7	IBHS WFPH Base	IBHS WFPH Plus
Roof	Roof covering	Tile	Tile	Tile	Tile
	Flashing	None	Metal	Metal	Metal
	Underlayment	Felt	Synthetic/Fire-resistant	Synthetic/Fire-resistant	Synthetic/Fire-resistant
	Roof gaps/openings	Bird stopping	Bird stopping	Bird stopping	Bird stopping
	Roof vents (ridge)	Plastic	Flame/ember-resistant vents	Flame/ember-resistant vents	Flame/ember-resistant vents
	Subtotal:	**$25,321**	**$26,311**	**$26,311**	**$26,311**
Eaves	Design	Open	Open	Open	Enclosed
	Exposed roof deck	Wood	Noncombustible - fiber cement	Wood	N/A
	Soffit	None	None	None	Noncombustible - fiber cement
	Soffit vents	Circular - resin	Circular flame/ember-resistant	Circular flame/ember-resistant	Linear flame/ember-resistant
	Gaps/openings (vents)	None	Fire-rated caulk	Fire-rated caulk	Fire-rated caulk
	Gutters	Vinyl	Metal	Metal	Metal
	Gutter guard	None	Metal	None	Metal
	Drip edge	None	Metal	Metal	Metal
	Subtotal:	**$1,900**	**$4,284**	**$3,681**	**$5,253**
Exterior Walls	Siding	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement
	Trim	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement	Noncombustible - fiber cement
	Wallboard	None	Gypsum	Gypsum	Gypsum
	Forced Air vents	Plastic	Plastic	Vinyl w/ louver	Metal w/ louver
	Subtotal:	**$11,431**	**$13,569**	**$13,578**	**$13,591**
Windows	Sliding glass window (48" x 36")	Vinyl framed; single-paned, non-tempered annealed glass (single hung)	Vinyl framed; dual-paned, single tempered (casement)	Vinyl framed; single-paned, non-tempered annealed glass (single hung)	Dual paned double tempered metal-clad glass window (casement)
Doors	Pedestrian	Wood	Wood - solid core	Wood - solid core	Wood - solid core
	Side door	Wood	Wood - solid core	Wood - solid core	Wood - solid core
	Sliding glass patio	Vinyl	Vinyl	Vinyl	Vinyl
	Garage	Aluminium	Aluminium	Aluminium	Aluminium
	Subtotal:	**$8,431**	**$11,391**	**$8,431**	**$12,241**
Deck	Decking surface	Concrete pour-on-slab patio	Concrete pour-on-slab patio	Concrete pour-on-slab patio	Concrete pour-on-slab patio
	Subtotal:	**$1,968**	**$1,968**	**$1,968**	**$1,968**
Zone 0	Mulch	Cedar bark	Gravel	Gravel	Gravel
	Fencing	Wood	Metal	Metal	Metal
	Subtotal:	**$1,106**	**$3,742**	**$3,742**	**$3,742**
	TOTAL (+18% inflation):	**$59,223**	**$72,293**	**$68,099**	**$74,465**
	Comparison to Traditional	$-	$13,070	$8,876	$15,242
	Comparison to CWUIC Part 7	$-	$-	$(4,194)	$2,172

Table 2: Minimum criteria to meet wildfire-resistant standards

Component	CWUIC Part 7	IBHS WFPH	IBHS WFPH+
Roof covering and underlayment	Requires a Class A fire-rated roof covering. Plug gaps at ends (i.e., bird-stopped, fire-stopped). A minimum 36-inch-wide mineral-surfaced asphalt fiberglass composition cap sheet must be installed under metal valley flashing. Where the roof profile results in a gap between the covering and the roof deck, a mineral-surfaced asphalt fiberglass composition cap sheet must be installed over the roof surface.	Class A (cover or assembly)	Class A (cover or assembly)
Roof vents	WUI vents on horizontal/ vertical planes or non-corrosive 1/16" to 1/8" screen on a sloped roof.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen on a sloped roof.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen on a sloped roof.
Skylights (not included in analysis)	Glass unit must be dual-paned, single tempered and protected with noncombustible, non-corrosive 1/16" to 1/8" screen.	N/A	Glass unit must be dual-paned, single tempered and protected with noncombustible, non-corrosive 1/16" to 1/8" screen.
Eaves	Soffited or open-eave allowed. If open-eave, nominal 2x material (or greater) is required as blocking and rafters. Exposed roof deck shall be constructed of a material that is noncombustible, or ignition-resistant, or tested for 10-minute direct flame contact, or have a one-hour fire rating on the exterior side of the framing.	N/A	Noncombustible soffit for enclosed eave; Materials approved for 1 hour fire resistance, or 2-inch nominal dimension lumber).
Eave/soffit vents	WUI vents on horizontal/ vertical planes; non-corrosive 1/16" to 1/8" screen.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen.
Gutter System (downspouts, gutter, guard, drip edge)	Noncombustible gutters and downspouts. Gutter cover material unspecified. Metal drip edge assumed.	Noncombustible gutters and downspouts. No gutter guard req'd. Metal drip edge assumed.	Noncombustible cover. Metal drip edge assumed.
Siding	Five options for compliance: 1) noncombustible material, 2) ignition-resistant material, 3) heavy timber construction, 4) log wall assembly, or 5) assembly complying with SFM 12-7.	6-inches of noncombustible material on the base of the wall (cover).	Noncombustible covering
Gable vents	WUI vents on horizontal/ vertical planes.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen.
Dryer vents	N/A	Louver required over vent opening	Louver required over vent opening
Foundation vents	WUI vents on horizontal/ vertical planes. (Not included in this analysis due to pour-on-grade foundation)	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen.	WUI vents or vents covered with noncombustible, non-corrosive 1/16" to 1/8" screen.
Windows	Four options for compliance: 1) multipaned glazing with a minimum of one tempered pane, 2) glass block units, 3) fire-resistance rating of not less than 20 minutes, or 4) meeting performance requirements of SFM 12-7A-2.	N/A	Dual-paned; double tempered glass or fire-resistance rating of not less than 20 minutes.
Doors	Noncombustible; ignition-resistant covering; or 20 minute fire rated door; or solid core; weather stripping req'd for gaps in the door and door opening (>1/8").	N/A	Noncombustible; ignition-resistant covering; or 20 minute fire rated door; or solid core.
Decking surface	Noncombustible; Ignition resistance materials, fire treated wood.	N/A	Noncombustible
Mulch	Noncombustible	Noncombustible	Noncombustible
Fencing	Noncombustible within 5 feet.	Noncombustible within 5 feet.	Noncombustible within 5 feet. No parallel (back-to-back) combustible fences within 5 feet of each other (5-30 feet from house).