CITY OF BEND

City Hall
710 NW Wall Street
Bend, OR 97703

ORDINANCE NO. NS-2552

An ordinance of the City Council amending Bend Municipal Code Title 9.

Findings

A. In June 2025, the Oregon legislature adopted Senate Bill 83 (SB 83), allowing local jurisdictions to opt into a provision of the Oregon Residential Structural Code (ORSC) called section R327. This section includes home hardening standards for newly constructed residential dwelling units and accessory structures, as defined in the ORSC.

B. At a work session on February 25, 2026, the Bend City Council provided direction to City staff to bring back an ordinance opting the City into the provisions of R327, and making them applicable to all development within the City limits subject to the ORSC.

C. The entire area of the City of Bend has previously been recognized by the Bend City Council as a Wildfire Hazard Zone, under Bend Municipal Code Chapter 9.30, Wildfire Hazard Zone, adopted by ordinance number NS-1899, on November 5, 2003. This Wildfire Hazard Zone designation has been used in prior versions of the ORSC to apply certain building standards to new development, but is mostly replaced with the new R327 code. The changes adopted by this ordinance keep the Wildfire Hazard Zone designation in place, and relocate this reference for clarity.

D. The City recognizes the proximity of the City of Bend to nearby wildlands, including the Deschutes National Forest and other forested lands to the west and public and undeveloped or ranch lands to the east, and the risk posed by increasing frequency and severity of wildfires to cities and human habitation in an area often referred to as the "wildland-urban interface" (WUI). Due to this and the pre-existing Wildfire Hazard Zone designation, it is appropriate for the R327 standards to apply citywide.

E. Home hardening reduces the risk of ignition from embers, slows structure-to-structure fire spread – a major factor in community-scale wildfire destruction – and increases the time and opportunity for emergency responders to save structures during a fire event.

F. Applying the R327 code to new residential construction and accessory uses is intended to be one step the City can take in helping the community become more resilient to wildfire risk. The Bend City Council intends to continue to look at additional regulatory tools that can increase community resiliency, including defensible space and vegetation management.

G. Given the increasing wildfire risk all over the mountain west, including in Bend, and the impacts of wildfire on affordability, community health, and livability (e.g., air quality, recreation homeowner's insurance cost and coverage, economic impacts), stronger local requirements help provide meaningful long-term community benefits.

Ordinance

Based on these findings, the City of Bend ordains as follows:

Section 1. Chapter 9 of the Bend Municipal Code is amended as shown on the attached Exhibit A.

Section 2. If any provision, section, phrase, or word of this ordinance or its application to any person or circumstance is held invalid, the invalidity does not affect other provisions that can be given effect without the invalid provision or application.

Section 3. All other provisions of the Bend Municipal Code remain unchanged by this ordinance and remain in effect.

First Reading

April 1, 2026

Second Reading

April 15, 2026

Adoption by Roll Call Vote

Yes: Kebler, Méndez, Platt, Riley

No: Franzosa

Melanie Kebler, Mayor

Attest:

Ashley Bontje, City Recorder

Approved as to form:

Ian Leitheiser, City Attorney

Effective Aug. 5, 2025
(Ref.: ORS 455.610)

2023 Oregon Residential Specialty Code Amendments

Building Codes Division
Department of Consumer and Business Services

Summary: In accordance with Senate Bill 83 (2025) this amendment makes Section R327, *Wildfire Hazard Mitigation*, available for local adoption and applicable to new construction of new ORSC governed buildings.

This code amendment was adopted by temporary rule effective Aug. 5, 2025 through Jan. 2, 2026 and subsequently adopted by permanent rule effective Jan. 1, 2026.

The following amendments are adopted as part of the 2023 Oregon Residential Specialty Code (ORSC).

The changes are denoted as follows:

Blue/underline = Added code language
~~Red/strikethrough~~ = Deleted code language

SECTION R302—FIRE-RESISTANT CONSTRUCTION

R302.2.12 Townhouse roof coverings. In addition to the requirements of Chapter 9, structurally independent townhouses shall be provided with a minimum Class C roof covering, and structurally dependent townhouses shall be provided with a minimum Class B roof covering.

Exceptions:

1. Structurally dependent townhouses may use Class C roof coverings where all of the following conditions are met:
   1.1. The townhouses are not more than two stories in height.
   1.2. The townhouses do not have more than 6,000 square feet (557 m^2) of projected roof area.
   1.3. There is not less than 3 feet (914 mm) from the extremity of the roof to the exterior lot line or an assumed lot line on all sides except for street fronts.
2. Where adopted by the local *municipality*, roof coverings for townhouses located in areas determined by the *municipality* to be "Wildfire Hazard Zones" shall be in accordance with Section R327.

SECTION R327—WILDFIRE HAZARD MITIGATION

R327.1 General. Where adopted by the local *municipality*, the provisions of this section shall apply to new *dwellings* and their *accessory structures* required ~~by a local *municipality* via local ordinance~~ to be protected against *wildfire*.

~~Nothing in the code prevents a local *municipality* from modifying the requirements of this section for any lot, property or *dwelling*, or the remodel, replacement or reconstruction of a *dwelling* within the jurisdiction, as provided in Section R104.10.~~

R327.1.1 Local adoption. The provisions of this section may be adopted in whole by a *municipality* ~~via local ordinance~~ without following ORS 455.040 or OAR 918-020-0370. ~~Where a *municipality* chooses to adopt these provisions locally, the following shall be included in the adopting ordinance:~~

~~1. Identification of areas subject to the additional construction standards of Section R327.~~

~~2. A transition plan or other measures to address subdivisions already under development at the time of local adoption.~~

~~3. A local appeal process for customers to follow. Where a *municipality* has previously adopted the provisions of Section R327 locally, the requirements of Section R327.1.1 do not apply and the existing local ordinance may continue without change, to include those based on prior iterations of this section.~~

R327.1.2 Notification. Where a *municipality* adopts Section R327 locally, ~~or where a *municipality* has previously adopted Section R327 locally,~~ the *municipality* shall notify the State of Oregon, Building Codes Division, and ~~provide a copy of the locally adopted map identifying~~ identify areas of the jurisdiction where the additional construction standards of Section R327 are required.

R327.1.3 Application. Where ~~required~~ adopted by a local *municipality* ~~via local ordinance~~, newly constructed *dwellings*~~,~~ and their *accessory structures,* ~~and new *additions* to existing *dwellings* and their *accessory structures*~~ located in areas designated by the *municipality* shall be protected against *wildfire* in accordance with this section. ~~Where existing exterior elements that are within the scope of this section are replaced in their entirety, the replacement shall be made in accordance with the provisions of this section.~~

Exceptions:

1. Nonhabitable detached *accessory structures* with a *floor area* of not greater than 400 square feet (37.2 m^2) located not less than 50 feet (15 240 mm) from all ~~other~~ structures on the *lot* that contain habitable space.
2. ~~Partial *repairs* made in accordance with Section R105.2.2.~~
2. Structures exempted by ORS 455.315.
3. Detached accessory *membrane-covered frame structures*

R327.2 Definitions. The following words and terms shall, for purposes of Section R327, have the meanings shown herein. See Chapter 2 for general definitions.

HEAVY TIMBER. For the use in this section, *heavy timber* shall be sawn lumber or glued-laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). *Heavy timber* walls or floors shall be sawn or glued-laminated planks splined, tongue-and-groove or set close together and well spiked.

IGNITION-RESISTANT MATERIAL. A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildland urban interface conflagrations under worst-case weather and fuel conditions with *wildfire exposure* of burning embers and small flames. Such materials include any product designed for exterior exposure that, when tested in accordance with ASTM E84 or UL 723 for surface burning characteristics of building materials, extended to a 30-minute duration, exhibits a flame spread index of not more than 25, shows no evidence of significant progressive combustion, and whose flame front does not progress more than $10^1/_2$ feet (3200 mm) beyond the centerline of the burner at any time during the test.

NONCOMBUSTIBLE MATERIAL. Any material that in the form in which it is used and under the conditions anticipated will not ignite, burn, support combustion or release flammable vapors when subjected to fire or heat in accordance with ASTM E136.

WILDFIRE. Any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property or resources.

WILDFIRE EXPOSURE. One or a combination of circumstances exposing a structure to ignition, including radiant heat, convective heat, direct flame contact and burning embers being projected by a vegetation fire to a structure and its immediate environment.

R327.3 Roofing. Roofing shall be asphalt shingles in accordance with Section R905.2, slate shingles in accordance with Section R905.6, metal roofing in accordance with Section R905.4, tile, clay or concrete shingles in accordance with Section R905.3 or other *approved* roofing that is deemed to be equivalent to a minimum Class B-rated roof assembly. Wood shingle and shake roofs are not permitted on structures ~~in areas designated by the *municipality*~~ that fall within the scope of this section.

Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be fireblocked with *approved* materials, or have one layer of minimum 72-pound (32.6 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 installed over the combustible decking.

Where valley flashing is installed, the flashing shall be not less than 0.019-inch (0.48 mm) No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72-pound (32.6 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 not less than 36-inch-wide (914 mm) running the full length of the valley.

R327.3.1 Gutters and downspouts. Where provided, ~~required, roof~~ gutters and downspouts shall be constructed of *noncombustible material*s and be provided with an *approved* means to prevent accumulation of leaves and debris in the gutter.

R327.3.2 Ventilation. Where provided, the minimum net area of ventilation openings for enclosed attics, enclosed soffit spaces, enclosed rafter spaces and underfloor spaces shall be in accordance with Sections R408 and R806.

All ventilation openings shall be covered with noncombustible corrosion-resistant metal wire mesh, vents designed to resist the intrusion of burning embers and flame, or other *approved* materials or devices.

Ventilation mesh and screening shall be a minimum of $^1/_{16}$-inch (1.6 mm) and a maximum of $^1/_8$-inch (3.2 mm) in any dimension.

R327.3.2.1 Eaves, soffits and cornices. Ventilation openings shall not be installed on the underside of eaves, soffits or cornices.

Exceptions:

1. The *building official* may *approve* eave, soffit or cornice vents that are manufactured to resist the intrusion of flame and burning embers.
2. Ventilation openings complying with the requirements of Section R327.3.2 may be installed on the underside of eaves, soffits or cornices where the opening is located 12 feet (3658 mm) or greater above *grade* or the surface below.

R327.3.3 Exterior walls. The *exterior wall covering* or wall assembly shall comply with one of the following requirements:

1. *Noncombustible material*.
2. *Ignition-resistant* material.
3. *Heavy timber* assembly.
4. Log wall construction assembly.
5. Wall assemblies that have been tested in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in ASTM E2707, complying with the conditions of acceptance listed in Section R327.3.3.2.

Exception: Any of the following shall be deemed to meet the assembly performance criteria and intent of this section:

1. One layer of $^{5}/_{8}$-inch (15.9 mm) Type X exterior gypsum sheathing applied behind the *exterior wall covering* or cladding on the exterior side of the framing.
2. The exterior portion of a 1-hour fire-resistance-rated *exterior wall* assembly designed for exterior fire exposure, including assemblies using exterior gypsum panel and sheathing products listed in the Gypsum Association *Fire Resistance and Sound Control Design Manual.*

R327.3.3.1 Extent of exterior wall covering. *Exterior wall covering*s shall extend from the top of the foundation to the roof and terminate at 2-inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves or soffits, shall terminate at the underside of the enclosure.

R327.3.3.2 Conditions of acceptance. ASTM E2707 tests shall be conducted in triplicate and the following conditions of acceptance shall be met. If any one of the three replicates do not meet the conditions of acceptance, three additional tests shall be conducted. All additional tests shall meet the following conditions of acceptance:

1. Absence of flame penetration through the wall assembly at any time during the test.
2. Absence of evidence of glowing combustion on the interior surface of the assembly at the end of the 70-minute test.

R327.3.4 Overhanging projections. All exterior projections (exterior balconies, carports, decks, patio covers, porch ceilings, unenclosed roofs and floors, overhanging buildings and similar architectural appendages and projections) shall be protected as specified in this section.

R327.3.4.1 Enclosed roof eaves, soffits and cornices. The exposed underside of rafter or truss eaves and enclosed soffits, where any portion of the framing is less than 12 feet (3658 mm) above *grade* or similar surface below, shall be protected by one of the following:

1. *Noncombustible material*.
2. *Ignition-resistant* material.
3. One layer of $^{5}/_{8}$-inch (15.9 mm) Type X exterior gypsum sheathing applied behind an exterior covering on the underside of the rafter tails, truss tails or soffit.
4. The exterior portion of a 1-hour fire-resistance-rated *exterior wall* assembly applied to the underside of the rafter tails or soffit, including assemblies using exterior gypsum panel and sheathing products listed in the Gypsum Association *Fire Resistance and Sound Control Design Manual.*
5. Soffit assemblies with an underside surface that meets the performance criteria in Section R327.3.4.5 when tested in accordance ASTM E2957.

Exceptions: The following materials do not require protection required by this section:

1. Eaves and soffits where all portions of the framing members are 12 feet (3658 mm) or greater above *grade*, and 2-inch (610 mm) nominal eave fireblocking is provided between roof framing members from the wall top plate to the underside of the roof sheathing.
2. Gable end overhangs and roof assembly projections beyond an *exterior wall* other than at the lower end of the rafter tails.
3. Fascia and other architectural trim boards.

R327.3.4.2 Exterior patio and porch ceilings. The exposed underside of exterior patio and porch ceilings greater than 200 square feet (18.58 m^2) in area and less than 12 feet (3658 mm) above *grade* shall be protected by one of the following:

1. *Noncombustible material*.
2. *Ignition-resistant* material.
3. One layer of $^{5}/_{8}$-inch (15.9 mm) Type X exterior gypsum sheathing applied behind the exterior covering on the underside of the ceiling.
4. The exterior portion of a 1-hour fire-resistance-rated *exterior wall* assembly applied to the underside of the ceiling assembly, including assemblies using exterior gypsum panel and sheathing products listed in the Gypsum Association *Fire Resistance and Sound Control Design Manual*.
5. Porch ceiling assemblies with a horizontal underside that meet the performance criteria in Section R327.3.4.5 when tested in accordance with the test procedures set forth in ASTM E2957.

Exception: Architectural trim boards.

R327.3.4.3 Floor projections. The exposed underside of cantilevered floor projections less than 12 feet (3658 mm) above *grade* or the surface below shall be protected by one of the following:

1. *Noncombustible material*.
2. *Ignition-resistant* material.
3. One layer of $^{5}/_{8}$-inch (15.9 mm) Type X exterior gypsum sheathing applied behind an exterior covering on the underside of the floor projection.
4. The exterior portion of a 1-hour fire-resistance-rated *exterior wall* assembly applied to the underside of the floor projection, including assemblies using exterior gypsum panel and sheathing products listed in the Gypsum Association *Fire Resistance and Sound Control Design Manual*.
5. An assembly that meets the performance criteria in Section R327.3.4.5 when tested in accordance with ASTM E2957.

Exception: Architectural trim boards.

R327.3.4.4 Underfloor protection. The underfloor area of elevated structures shall be enclosed to *grade* in accordance with the requirements of this section, or the underside of the exposed underfloor shall be protected by one of the following:

1. *Noncombustible material*.
2. *Ignition-resistant* material.
3. One layer of $^{5}/_{8}$-inch (15.9 mm) Type X exterior gypsum sheathing applied behind an exterior covering on the underside of the floor assembly.
4. The exterior portion of a 1-hour fire-resistance-rated *exterior wall* assembly applied to the underside of the floor, including assemblies using exterior gypsum panel and sheathing products listed in the Gypsum Association *Fire Resistance and Sound Control Design Manual*.
5. An assembly that meets the performance criteria in Section R327.3.4.5 when tested in accordance with ASTM E2957.

Exception: *Heavy timber* structural columns and beams do not require protection.

R327.3.4.5 Conditions of acceptance. ASTM E2957 tests shall be conducted in triplicate, and the following conditions of acceptance shall be met. If any one of the three replicates do not meet the conditions of acceptance, three additional tests shall be conducted. All additional tests shall meet the following conditions of acceptance:

1. Absence of flame penetration of the eaves or horizontal projection assembly at any time during the test.
2. Absence of structural failure of the eaves or horizontal projection subassembly at any time during the test.
3. Absence of sustained combustion of any kind at the conclusion of the 40-minute test.

R327.3.5 Walking surfaces. Deck, porch and balcony walking surfaces located greater than 30 inches (762 mm) and less than 12 feet (3658 mm) above *grade* or the surface below shall be constructed with one of the following materials:

1. Materials that comply with the performance requirements of Section R327.3.5.1 when tested in accordance with both ASTM E2632 and ASTM E2726.
2. *Ignition-resistant* materials that comply with the performance requirements of Section R327.2 when tested in accordance with ASTM E84 or UL 723.
3. Exterior fire-retardant-treated wood.
4. *Noncombustible material*.
5. Any material that complies with the performance requirements of Section R327.3.5.2 when tested in accordance with ASTM E2632, where the *exterior wall covering* of the structure is noncombustible or *ignition-resistant* material.
6. Any material that complies with the performance requirements of ASTM E2632, where the *exterior wall covering* of the structure is noncombustible or *ignition-resistant* material.

   Exception: *Wall covering* material may be of any material that otherwise complies with this chapter where the decking surface material complies with the performance requirements ASTM E84 with a Class B flame spread rating.

Exception: Walking surfaces of decks, porches and balconies not greater than 200 square feet (18.58 m^2) in area, where the surface is constructed of nominal 2-inch (51 mm) lumber.

R327.3.5.1 Requirements for Section R327.3.5, Item 1. The material shall be tested in accordance with ASTM E2632 and ASTM E2726, and shall comply with the conditions of acceptance in Sections R327.3.5.1.1 and R327.3.5.1.2. The material shall also comply with the performance requirements of Section R327.2 for ignition-resistant material when tested in accordance with ASTM E84 or UL 723.

R327.3.5.1.1 Conditions of acceptance. ASTM E2632 tests shall be conducted in triplicate and the following conditions of acceptance shall be met. If any one of the three replicates do not meet the conditions of acceptance, three additional tests shall be conducted. All additional tests shall meet the following conditions of acceptance:

1. Peak heat release rate of less than or equal to 25 kW/ft^2 (269 kW/m^2).

2. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-minute observation period.
3. Absence of falling particles that are still burning when reaching the burner or floor.

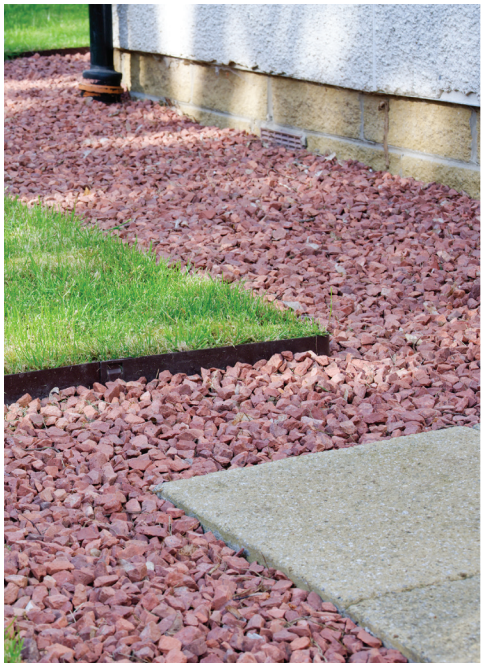
R327.3.5.1.2 Conditions of acceptance. ASTM E2762 tests shall be conducted in triplicate and the following conditions of acceptance shall be met. If any one of the three replicates do not meet the conditions of acceptance, three additional tests shall be conducted. All of the additional tests shall meet the following conditions of acceptance:

1. Absence of sustained flaming or glowing combustion of any kind at the conclusion of the 40-minute observation period.
2. Absence of falling particles that are still burning when reaching the burner or floor.

R327.3.5.2 Requirements for Section R327.3.5, Item 6. The material shall be tested in accordance with ASTM E2632 and shall comply with the following conditions of acceptance. The test shall be conducted in triplicate and the peak heat release rate shall be less than or equal to 25 kW/ft^2 (269 kW/m^2). If any one of the three replicates do not meet the conditions of acceptance, three additional tests shall be conducted. All of the additional tests shall meet the conditions of acceptance.

R327.3.6 Glazing. Exterior windows, windows within exterior doors, and skylights shall be tempered glass, multilayered glazed panels, glass block or have a fire-resistance rating of not less than 20 minutes.

For questions about the 2023 ORSC, visit the division website to contact a building code specialist.



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

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

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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.

HEADWATERS ECONOMICS

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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).