Fire Hardening and Reach Code Opportunities

Version 1.0

Images from Fire Safe Council of Santa Barbara County

What is Fire Hardening?

Limiting a building's opportunity to ignite during a wildfire by making strategic choices in the following categories

Building materials

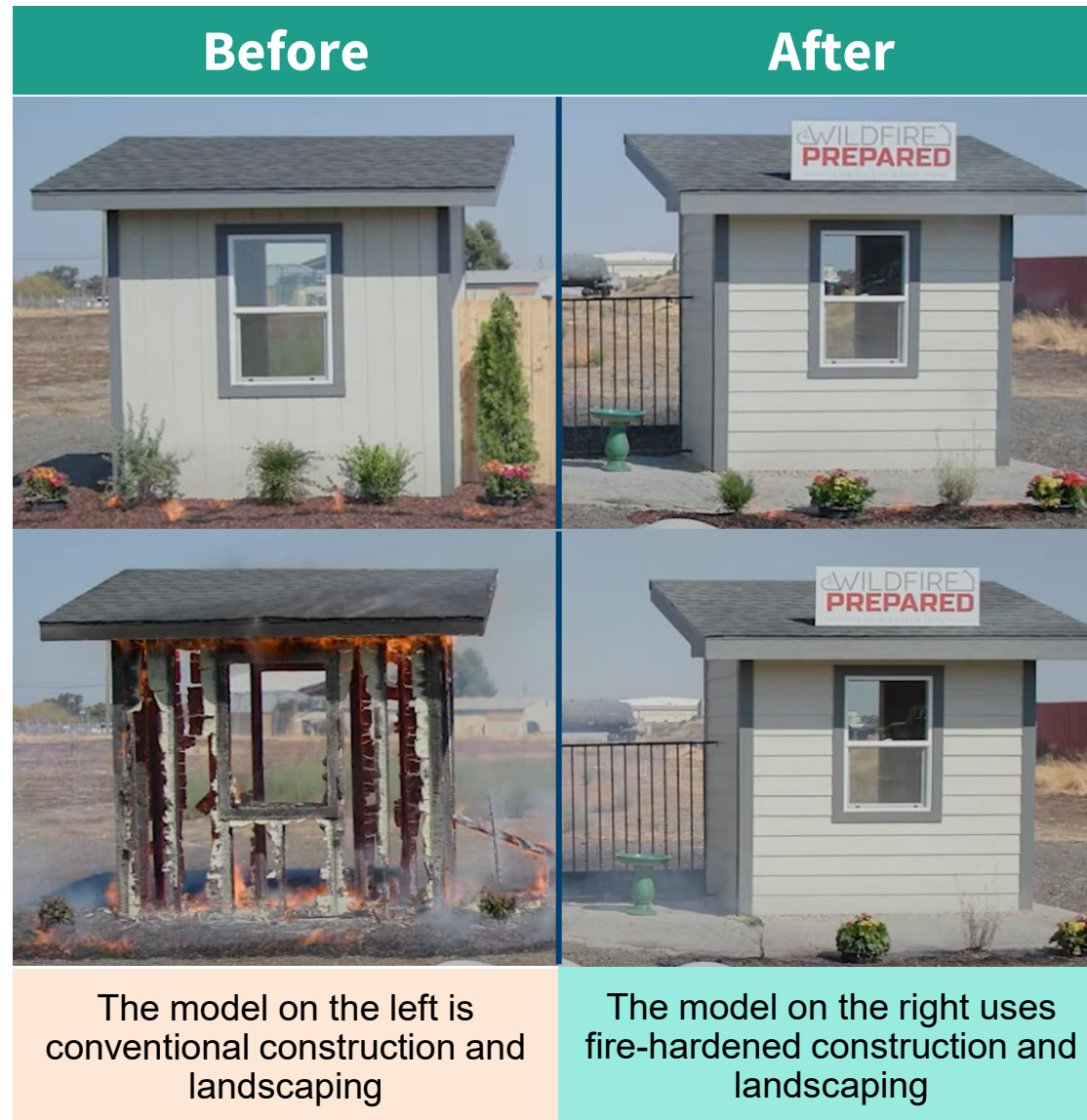- roof, siding, windows, gutters

Perimeters

- Fencing, decking

Landscaping

- Isolating the home
- Separating plants horizontally and vertically

Image: CALFire

What is Fire Hardening?

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Fire Hardening can prevent losses and limit damage during wildfire events

Before	After
The model on the left is conventional construction and landscaping	The model on the right uses fire-hardened construction and landscaping

Images: CAL Fire TV 15-minute test by CAL Fire and the Insurance Institute for Business & Home Safety (IBHS) for spot fire and ember resistance on the two model homes

Member agencies have authority to act on fire preparedness

Two statewide codes govern construction materials and defensible space in California, and member agencies could choose to apply them more broadly

The Wildland-Urban Interface (WUI) Code

Fire-resistant building materials codified for new construction in specific areas

Expand use
- Apply it to any geographical area
- Apply it to significant existing building work

California Public Resources Code (PRC) Section 4291

Explanation of defensible space around a property through fuel control

Expand enforcement
- Annual fire department inspections
- Voluntary inspections that produce a customized list of recommendations

Existing Fire Hardening Statutes

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Statute	Summary	Make it Reach	Examples
Chapter 7A (Title 24, Part 2)	Fire-resistant materials for new construction (Section 704)	• Apply to any geography • Include remodels, alterations, repairs	Marin County Fire Protection Standard 222 applies to existing building work El Cerrito Chapter 8.30 applies roof repairs on existing buildings San Mateo Consolidated Fire Department Ordinance 2022-001 applies to existing building work
Chapter 49 (Title 24, Part 9)	Vegetation management & landscaping plan requirements (Section 4906); defensible space requirements (Section 4907)	• Apply to any geography	Ventura County Fire Protection District Order 32 adds limits on back-to-back combustible fencing
California Public Resources Code (PRC) Section 4291	Defensible space requirements, amended in 2020 to include 5-ft "zone 0" and enforcement mechanism (AB-3074)	• Apply to any geography • Create an enforcement structure • Create a fee structure for violations	El Cerrito Vegetation Management Plan; Marin County Vegetation Management Plan; Santa Barbara County Hazard Reduction Program; LA County Defensible Space Annual Inspection Program; San Mateo Consolidated Fire Department Ordinance 2023-001
AB-38 (2019)	Property seller provides documentation of defensible space	• Apply to any geography	Woodside Fire Protection District Ordinance No. 24-01 applies to high and very-high FHSZ

What will it take to build more fire resiliency?

Information accessibility

As written, municipalities need to know multiple geographic categories in order to apply and enforce the correct code:

1. A designated Wildland-Urban Interface Zone (WUI)
2. State Responsibility area (SRA) vs Local Responsibility Area (LRA)
3. Fire Hazard Severity Zone (FHSZ)

Expanded Applications

State code is only written to apply to new construction and not existing building work in wildfire-prone areas

Expanded Enforcement

Fuel reduction in landscaping and defensible space is required, but has no enforcement mechanism at the State level

Appendix

- Policy Examples
- Specific Measures
- Fire Hazard Severity Zone Lookup Resources

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Fire Hardening Reach Code Examples: Homes and Perimeters

Local Statute	Improvement over statute	State Statute
Marin County Fire Protection Standard 222	Applies new construction standards to remodels, alterations, repairs in WUI	California WUI Code (Title 24, Part 2, Chapter 7a)
El Cerrito Chapter 8.30	Applies new construction standards to existing building roof work	California WUI Code (Title 24, Part 2, Chapter 7a)
San Mateo Consolidated Fire Department Ordinance 2022-001	Applies new construction standards to "high" FHSZ	California WUI Code (Title 24, Part 2, Chapter 7a)
Ventura County Fire Protection District Order 32	Adds combustible fencing limitations to existing code	Chapter 49 (Title 24, Part 9)
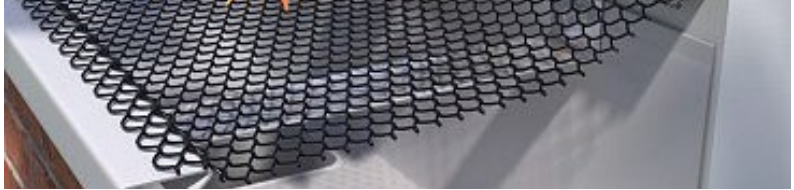
Fire Hardening Reach Code Examples: Landscaping & Defensible Space

Local Statute(s)	Action	State Statute
El Cerrito Vegetation Management Plan; LA County Defensible Space Annual Inspection Program; Marin County Vegetation Management Plan; Santa Barbara County Hazard Reduction Program; San Mateo Consolidated Fire Department Ordinance 2023-001	Establishes inspection schedule and fee structure to enforce defensible space in home's landscaping regardless of FHSZ	California Public Resources Code (PRC) Section 4291
Woodside Fire Protection District Ordinance No. 24-01	Requires documentation of defensible space at property sale regardless of FHSZ	AB-38 (2019)

Fire Hardening Reach Code Examples: Voluntary Fire Actions

Statute/Program	Description
International Wildland-Urban Interface Code (2024)	Basis for California Wildland-Urban Interface Code, but inclusive of additions/alterations/remodels. More stringent noncombustible material requirements for gutters, gutter covers, ventilation mesh
Wildfire Prepared Home (WPH) and Wildfire Prepared Home Plus	Optional inspection from Insurance Institute for Business & Home Safety (IBHS) to designate individual property owners have used safer construction materials and established defensible space

Fire Hardened Construction
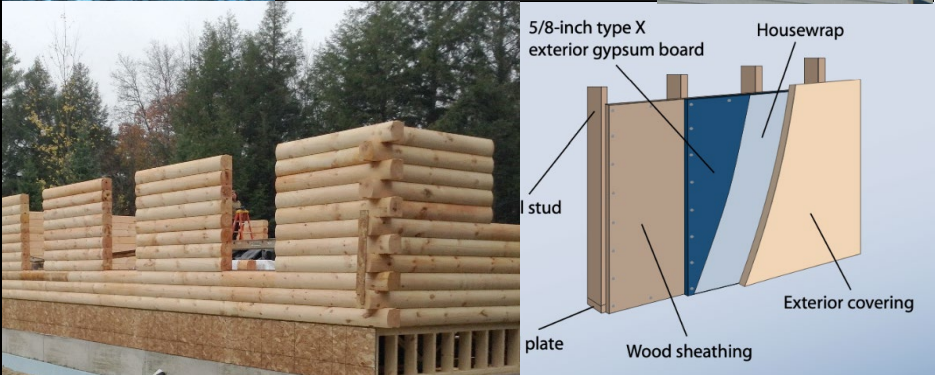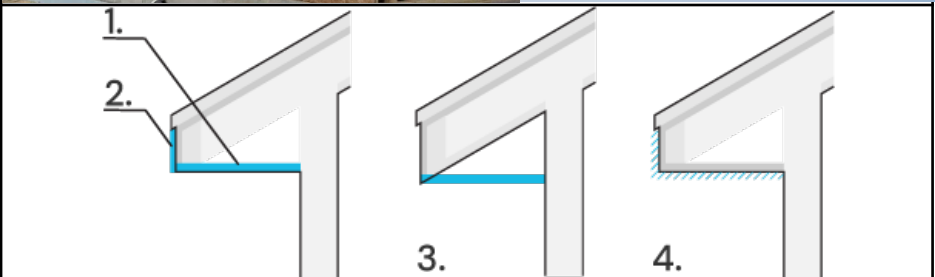
Measure	Description	Example
Class A roof	• Clay tiles† • Slate • Asphalt fiberglass shingles • Concrete and flat/barrel-shaped tiles • Some metals†	
Roof valley flashing	• 36-inch wide, full valley length	
Gutter construction & cover (noncombustible)	• Noncombustible • Noncorrosive • Prevent litter buildup	

Vent & vent cover (noncombustible)	• Openings <144 in^2
	  • Mesh covering
	   • Noncombustible
	   • Noncorrosive
	   • openings < 1/8"
	 • Sealing*	

†energy efficient upgrade
*some fire districts

Images: Google, IBHS

Fire Hardened Construction

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Measure	Options	Example
Exterior wall covering	• 6" noncombustible siding base* • Noncombustible (fiber-cement†, metal†) • Ignition-resistant • Fire-retardant-treated wood	
Exterior wall assembly	• Sawn lumber > 4" diameter • Log wall • 10-min direct flame test • 1-hr fire-resistance rating • 5/8" type X gypsum sheathing • Fire-rated insulation: fiberglass, mineral wool, treated cellulose	
Open & enclosed roof eaves & soffits, floor projections, underfloor protection, appendage underside	• Same as exterior wall • 1-hr fire resistance rating • 5/8" type X gypsum sheathing	

*Wildfire Prepared Home Plus certification from IBHS
†energy efficient upgrade

Images: Google, IBHS

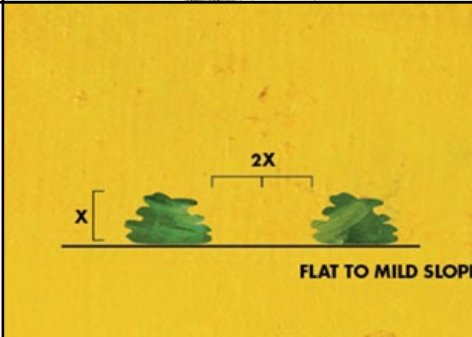# Fire Hardened Construction
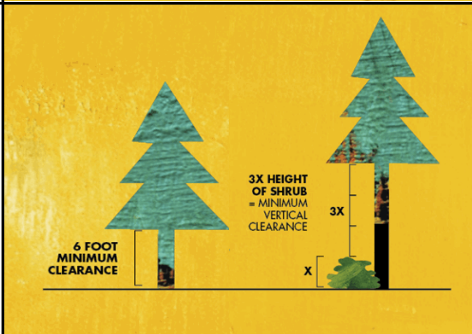
Measure	Description	Example
Windows	• Multipane glazing and >1 pane tempered† • Glass block • Fire protection rating >20 min	
Skylights	• Multipane glazing, >1 pane tempered† • Glass block • Fire protection rating >20 min • Operable: noncombustible mesh cover, openings < 1/8"	
Doors	• Noncombustible surface/cladding • Ignition resistant surface/cladding • Solid wood core • 20-min fire resistant • Glazed doors/door windows meet window standards	

Garage door sealing†	• Prevent gaps > 1/8"
	  • Weather stripping
	  • Door overlaps on jamb, header
	  • Metal flashing for jamb, header	

†energy efficient upgrade

Images: Google, IBHS

Fire Hardened Perimeters

Measure	Description	Example
Decks	• 6" vertical flashing on exterior wall/deck intersections • Ignition-resistant • Fire-retardant-treated wood • Noncombustible material • Clear & enclose underside (>4')*	
Combustible Fencing: Spacing*	• 5' separation between back-to-back combustible fences • 5' separation between exterior walls and combustible fences	

CalFire Defensible Zone Guide

Measure	Description	Example
5-ft Exclusion Zone (Zone 0)	• 5-foot perimeter around the home • Limited live plants (fire resistant, potted) • No combustible wood or plastic (mulch, furniture, firewood) • No flammable litter (leaves)	
5-30 ft Fuel Modification Zone (Zone 1)	• 10-ft horizontal space between tree crowns and other trees or buildings • 6-ft vertical space below tree limbs • No flammable plant litter • No dead plants	
100-ft Defensible Space (Zone 2)	• Short, well-maintained ground cover • Same horizontal and vertical distancing • 10-ft clearance from wood piles • 3-inches of litter/mulching ok	

Images: CalFire

Fire Hazard Severity Zones (FHSZ)

- Fire Hazard Severity Zones (FHSZ) are mapped by the Fire Marshal based on
  - Fuel
  - Fire history
  - Terrain
  - Typical fire weather
- There are 3 levels
  - Moderate
  - High
  - Very high
- Fire hazard is not the same as fire risk
  - **Fire hazard** is based on the **physical conditions** that create a likelihood and expected fire behavior over a 30 to 50-year period **without considering mitigation**.
  - **Fire risk is the potential damage** a fire can do to the area under existing conditions, **accounting for any modifications** such as fuel reduction projects, defensible space, and ignition resistant building construction
  - Statutes apply based on an area's fire hazard and are designed to decrease a property's fire risk
- The Fire Marshal released FHSZ for local responsibility areas throughout the state on 3/24/25
- These zones are growing in size as California warms
- Areas below these thresholds can still experience catastrophic wildfire

Sources: California State Fire Marshal Fire Hazard Severity Zones, LA Times

How to find Local Responsibility Area fire hazard maps

1. Navigate to the [Fire Hazard Severity Zones](#) page from the California State Fire Marshall

2. Expand the Local Responsibility Area Fire Hazard Severity Zone Maps section

3. Click the [2025 FHSZ Rollout Plan](#) link to find the correct phase for your county (pictured at right)

4. Find the correct [map for your phase](#) by clicking PDF Maps under your county's phase