

## California fire standards and exterior wood products

On January 1, 2008, California implemented requirements for building materials, systems and assemblies used in the exterior design and construction of new buildings within a Wildland-Urban Interface (WUI) fire area. These regulations and standards, initiated by the California State Fire Marshal's Office, created new requirements under Chapter 7A of the California Building Code and cover exterior wood products such as siding, decking and soffits. The full standard is available online at <http://www.fire.ca.gov>.

The following wood species and products meet the California Building Code Chapter 7A for construction in WUI areas. These products have been successfully fire-tested or accepted in the State Fire Marshal WUI Products Handbook.

### SIDING

<i>Species/Products</i>	<i>Size, Installation</i>
WESTERN RED CEDAR, PORT ORFORD CEDAR, INCENSE CEDAR, ALASKA YELLOW CEDAR, REDWOOD, PONDEROSA PINE, DOUGLAS FIR, WHITE FIR, WESTERN SPRUCE, other species having an ASTM E84 flame-spread rating not greater than 150 ( <i>reference: Calif. OSFM WUI Products Handbook<sup>2</sup></i> )	
Tongue & Groove, Shiplap, Log Cabin <sup>1</sup>	1x6 min., installed horizontal over 7/16" OSB or plywood
WESTERN RED CEDAR, PORT ORFORD CEDAR, INCENSE CEDAR, ALASKA YELLOW CEDAR, REDWOOD, other species having an ASTM E84 flame-spread rating not greater than 75 ( <i>reference: Calif. OSFM WUI Products Handbook<sup>2</sup></i> )	
Rabbeted Bevel <sup>1</sup>	1x6 min., installed horizontally over 7/16" OSB or plywood
Board-and-Batten <sup>1</sup>	1x8 min. board and 1-1/4"x4 minimum battens, installed vertically over 7/16" OSB or plywood, boards installed with a 1/2" max. gap, battens fastened to wood framing with 3" min. long fasteners, fastener spacing 24" o.c. max. in vertical direction
INCENSE CEDAR ( <i>reference: Western Fire Center test, 2008<sup>3</sup></i> )	
Board-on-Board <sup>1</sup>	1x8 min. boards, installed vertically over 7/16" OSB, plywood inserts installed between underlying course of boards and attached with one 2-1/4" fastener per bearing, boards fastened to wood framing with 3" min. long fasteners, fastener spacing 24" o.c. max. in vertical direction
PONDEROSA PINE ( <i>reference: Western Fire Center test, 2008<sup>3</sup></i> )	
Shiplap <sup>1</sup> (Ponderosa Pine only)	1x8 min., installed vertically over 7/16" OSB, fastener spacing 24" o.c. max. in vertical direction

<sup>1</sup> Publications G-16, Standard Patterns, and TG-8, Natural Wood Siding Technical Guide, *Western Wood Products Association*; Standard Patterns, *West Coast Lumber Inspection Bureau*; Standard Dry Patterns, *Western Red Cedar Lumber Association*; and Redwood Lumber Patterns No. 17, *California Redwood Association*. Edge- and end-glued siding is permitted to be used interchangeably with solid-sawn members.

<sup>2</sup> Wildland-Urban Interface Products Handbook published by California Office of the State Fire Marshal: <http://www.osfm.fire.ca.gov/strucfireengineer/pdf/bml/wuiproducs.pdf>.

<sup>3</sup> Western Fire Test Center is an approved testing agency of the California Office of the State Fire Marshal.

## DECKING

Species/Products	Size, Installation	Reference
<b>PONDEROSA PINE</b>		
1-1/4 decking	1-1/4" thickness, use noncombustible or FRT wood exterior wall covering, over solid wood joist spacing 24" or less on center	Western Fire Center test, 2008 <sup>4</sup>
<b>WESTERN RED CEDAR, PORT ORFORD CEDAR, INCENSE CEDAR, ALASKA YELLOW CEDAR, REDWOOD</b>		
Solid wood decking	2" minimum thickness, over solid wood joist spacing 24" or less on center	Calif. OFSM WUI Product Handbook <sup>3</sup>

## SOFFITS

Species/Products	Size, Installation	Reference
<b>PONDEROSA PINE</b>		
T&G WP-4 <sup>1</sup>	1x6 <sup>2</sup> , over 5/8" Type X gypsum wallboard and 26 gauge flashing	Western Fire Center test, 2007 <sup>4</sup>

<sup>1</sup> Publication G-16, Standard Patterns, Western Wood Products Association.

<sup>2</sup> Products successfully fire-tested are applicable to the width tested and wider.

<sup>3</sup> Wildland-Urban Interface Products Handbook published by California Office of the State Fire Marshal: <http://www.osfm.fire.ca.gov/structfireengineer/pdf/bml/wuiproducts.pdf>.

<sup>4</sup> Western Fire Center is an approved testing agency of the California Office of the State Fire Marshal.

## FLAME SPREAD RATINGS

Western lumber species flame-spread ratings tested in accordance with ASTM E84

Western Larch - 45	Port Orford Cedar - 60	Pacific Silver Fir - 69	Idaho White Pine - 82	Ponderosa Pine - 115
Alaska Yellow Cedar - 50	Incense Cedar - 65	Western Red Cedar - 69	Douglas Fir - 90	
Engelmann Spruce - 55	Redwood - 65	West Coast Hemlock - 73	Sugar Pine - 95	
Hem-Fir - 60	White Fir - 65	Sitka Spruce - 74	Lodgepole Pine - 98	

## PRODUCT REQUIREMENTS

If not otherwise stated, all approved products must meet these requirements and be installed as defined.

### Siding

**Lumber sizes:** Minimum nominal 1" thickness in basic profile by minimum nominal 6" width.

**Lumber grades:** No through holes or loose knots.

**Installation:** Install horizontally over 7/16" minimum thickness structural wood panel. Butt joints between pieces should be staggered a minimum of 12" and all butt joints should be flush or mitered with no gap. Nail joints into the studs or blocking members. One nail at each crossing with the wood frame support member shall be used for nominal 6" width siding and two nails for nominal 8" or wider siding (see nailing pattern diagram on page 3).

### Decking

Includes decking surfaces, stair treads, risers and landing of decks, porches and balconies.

**Lumber sizes:** Minimum nominal 2" thickness.

**Lumber grades:** Redwood - Construction Common & Better, Commercial Decking & Better.  
Cedars - 3 Common & Better, Commercial Decking & Better.

**Installation:** Install over solid wood joists spacing 24" or less on center.

### Soffits

**Lumber sizes:** Minimum nominal 1" thickness in basic profile by minimum nominal 6" width.

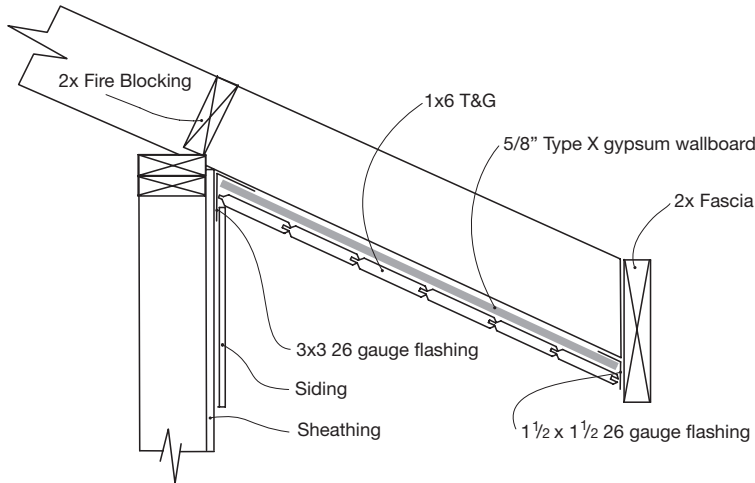
**Lumber grades:** No through holes or loose knots.

**Installation:** Install over 5/8" Type X gypsum wallboard and 26 gauge flashing (see soffit construction diagram on page 3).

# EXAMPLES OF SOLID WOOD SIDING PATTERNS

Siding Pattern	Nailing		Siding Pattern	Nailing	
	6" and Narrower	8" and Wider		6" and Narrower	8" and Wider
<b>TONGUED &amp; GROOVED (DROP)</b>		<p>T&amp;G Patterns      Shiplap Patterns</p>	<b>TONGUED &amp; GROOVED</b>		<p>Plain      Plain</p>
<b>SHIPLAP</b>		<p>T&amp;G Patterns      Shiplap Patterns</p> <p>← approximate 1/8" gap for dry material 8" and wider</p> <p>1/2" = full depth of rabbet</p>	<b>CHANNEL RUSTIC</b>		<p>← approximate 1/8" gap for dry material 8" and wider</p> <p>1/2" = full depth of rabbet</p>
<b>RABBETED BEVEL</b>		<p>Rabbeted Edge      Rabbeted Edge</p> <p>← approximate 1/8" gap for dry material 8" and wider</p> <p>1/2" = full depth of rabbet</p>	<b>LOG CABIN</b>		<p>← approximate 1/8" gap for dry material 8" and wider</p> <p>1/2" = full depth</p>
<b>BOARD-AND-BATTEN</b>		<p>Board and Batten      Board and Batten</p> <p>1/2"</p>	<b>BOARD-ON-BOARD</b>		<p>(one nail per bearing)</p> <p>plywood insert</p>

## DIAGRAM OF SOFFIT CONSTRUCTION



## FIRE TESTS

Test requirements for acceptance of products used in exterior applications are detailed by the California State Fire Marshal in the WUI Building Standards. The standards are detailed outlining the equipment needed for testing, the test preparation protocols, the

test procedures and conditions for acceptance. To review the testing standards, go to the following web sites:

**Exterior Wall Siding and Sheathing** - Testing Standard CA SFM 12.7A-1

[http://www.fire.ca.gov/fire\\_prevention/downloads/Part\\_12\\_CA\\_SFM\\_12-7A-1\\_Test\\_Standards.pdf](http://www.fire.ca.gov/fire_prevention/downloads/Part_12_CA_SFM_12-7A-1_Test_Standards.pdf)

**Under Eaves** - Testing Standard CA SFM 12.7A-3

[http://www.fire.ca.gov/fire\\_prevention/downloads/Part\\_12\\_CA\\_SFM\\_12-7A-3\\_Test\\_Standards.pdf](http://www.fire.ca.gov/fire_prevention/downloads/Part_12_CA_SFM_12-7A-3_Test_Standards.pdf)

**Decking** - Testing Standard CA SFM 12.7A-4

[http://www.fire.ca.gov/fire\\_prevention/downloads/Part\\_12\\_CA\\_SFM\\_12-7A-4\\_Test\\_Standards.pdf](http://www.fire.ca.gov/fire_prevention/downloads/Part_12_CA_SFM_12-7A-4_Test_Standards.pdf)

## OTHER WOOD PRODUCTS

The use of solid wood fascia and trim products are not regulated under the new requirements in California Building Code Chapter 7A.

Solid sawn lumber, treated lumber and other products such as heavy timbers or logs may be used without undergoing WUI fire testing. See the table below to determine which solid wood products may require successful WUI fire testing for use in California.

## USE OF OTHER WOOD PRODUCTS

Product	Exterior FRT <sup>1</sup> Wood	Heavy Timber	Log Wall	Solid Sawn Lumber and Preservative-Treated Wood
Decking	OK without WUI Testing	OK without WUI Testing	Not applicable	Must meet the following requirements: (1) pass the WUI Decking Under-Flame test, and (2) pass ASTM D2898 and D3201 Accelerated Weathering tests, and (3) a. use noncombustible or FRT <sup>1</sup> exterior wall covering, or b. ensure the decking has Class B flame-spread rating <sup>2</sup>
Siding	OK without WUI Testing	OK without WUI Testing	OK without WUI Testing	WUI Testing required
Soffit	OK without WUI Testing	OK without WUI Testing	OK without WUI Testing	WUI Testing required
Fascia & Trim	OK without WUI Testing	Not applicable	Not applicable	OK without WUI Testing

<sup>1</sup> FRT - Fire Retardant Treated wood

<sup>2</sup> Western Wood species with a flame-spread rating of Class B (75 or less) are listed below:

Western Larch - 45	Engelmann Spruce - 55	Port Orford Cedar - 60	Redwood - 65	Pacific Silver Fir - 69	West Coast Hemlock - 73
Alaska Yellow Cedar - 50	Hem-Fir - 60	Incense Cedar - 65	White Fir - 65	Western Red Cedar - 69	Sitka Spruce - 74

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