ALWAYS PIONEERING

Delta MILLWORKS

FIRE CODES FOR EXTERIOR WOOD CLADDING

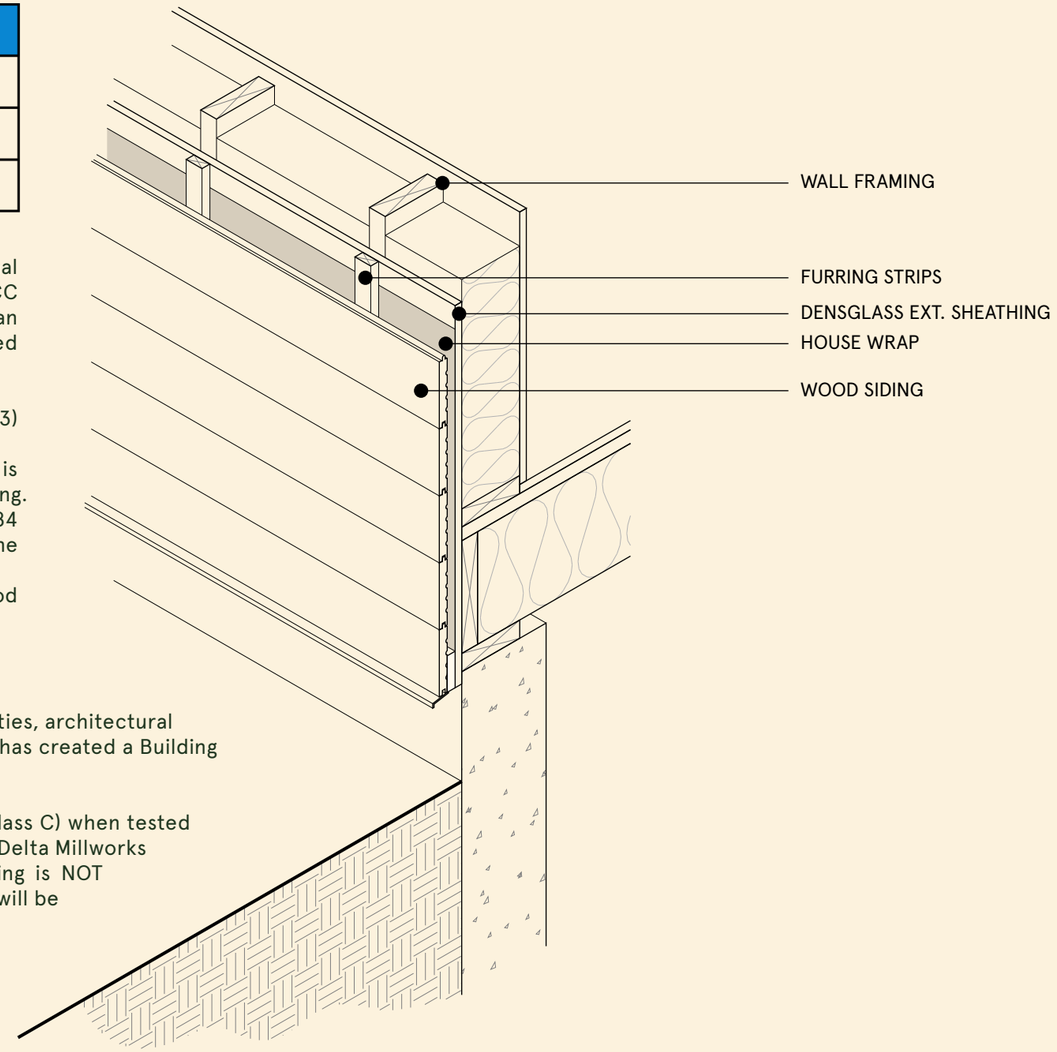
KEY TERMS

FLAME SPREAD INDEX (FSI): Flame-spread, used to describe the surface burning characteristics of building materials, measures how quickly a flame travels across a substrate after a fire is initiated. The Flame Spread Index is an estimate of how fast a fire might spread given the wind, temperature, humidity, and vegetation state. FSI ratings per the ASTM E-84 test are defined according to this chart.

Class	*Flame Spread Index (FSI)*	*Smoke Developed Index (SDI)*
Class A	0 - 25	450 maximum
Class B	26 - 75	450 maximum
Class C	76 - 200	450 maximum

WILDLAND-URBAN INTERFACE (WUI): It is important to understand the difference between WUI and the IWUIC (International Wildland-Urban Interface Code). WUI defines a general area or zone, while IWUIC is a specific code published by the ICC (International Code Council). As defined by the ICC, WUI is the zone of transition between unoccupied land and human development. It is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. In California, this is referred to as a Very-High-Fire-Hazard-Severity-Zone (VHFHSZ).

- In order to be compliant under IWUIC, the material must be either 1) Class A FSI rating, 2) Noncombustible, or 3) Fire-retardant-treated wood.
- However, 1) All natural wood species will test at a Flame Spread Rating of Class B or higher; 2) All natural wood is combustible by nature; and 3) Delta is currently working on developing a FRTW product that will obtain a Class A FSI rating.
- Please note that other suppliers who offer a "Class A" rated wood product have likely only passed the old 10-minute E-84 test. ASTM has now adopted a new extended 30-minute E-84 test and the products must be tested in accordance with the new requirements.
- It is very important to understand that compliance with IWUIC is rarely required to satisfy most fire restrictions in wood construction. Delta Millworks' goal is to educate our customers and provide several solutions.



SOLUTIONS

CAL FIRE BUILDING MATERIALS LISTING (BML): The OSFM (Office of the State Fire Marshal) listing service provides building authorities, architectural and engineering communities, contractors, and the fire service with a reliable and readily available source of information. OSFM has created a Building Materials Listing (BML) with approved building materials for various Fire Hazard Severity Zones.

- The American Wood Council provides a BML for ANY wood species having a Flame Spread Rating not greater than 150 (Class C) when tested in accordance with ASTM E84, with minimum nominal 6" wide and nominal 1" thick boards made of wood. All products at Delta Millworks obtain a FSI less than 150, so every product will be compliant by using this listing. Please note that this BML Listing is NOT assembly-specific, meaning that the siding can be installed any way and still meet compliance. For most clients, this BML will be the path of least resistance for fire code compliance.

EXTERIOR WALL ASSEMBLY TEST: The California Building Code (CBC) is requiring that wall assemblies meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1. This test is focused on the building assembly rather than the exterior cladding material. In other words, certain assemblies can be used to offset the natural characteristics of a semi-flammable natural wood cladding product.

- Delta Millworks has tested and passed multiple products in compliance with CBC for SFM 12-7A-1. This exterior wall assembly is a very standard/typical wall assembly that essentially uses a noncombustible sheathing product (Densglass) in lieu of a typical wood exterior sheathing product (please see adjacent diagram). While this is technically a California test, we have seen acceptance in many other US states, recognizing that CA holds the highest standard for fire-code compliance.
- Please note that Architects may propose a similar 1-hour rated exterior wall assembly to the building department for review. One layer of 5/8" Type X gypsum sheathing can be applied behind the exterior covering or cladding on the exterior side of the framing to build a 1-hour rated exterior wall assembly designed for exterior fire exposure.

Please note that these solutions are highly subjective and always up to the discrection of local building officials and fire marshals.