

PRESSURE-TREATED
FIRE-RETARDANT WOOD

pro'wood[®]FR
FIRE RETARDANT



pro^owood[®]FR

FIRE RETARDANT

You demand quality. You demand reliability. You demand a product that has the same relentless standards as you do. And that's why you choose ProWood[®] FR from UFP Industries.

If you are specifying fire-retardant dimensional lumber, plywood and wall assemblies for multifamily and commercial structures or on a custom home, look to ProWood FR pressure-treated fire-retardant wood. With ProWood FR, you get superior fire-retardant wood building pros and specifiers can rely on. It meets the highest available standard carrying UL's FR-S designation and is fully code compliant.

ProWood FR fire-retardant pressure-treated wood products are backed by a 50-Year Limited Warranty against structural failure.

FIRE PERFORMANCE

ProWood FR fire-retardant wood was developed by UFP Industries and tested at Underwriters Laboratories ("UL"). UL engineers and fire-safety professionals determined the process parameters and quality standards necessary to receive their highest category designation of "FR-S," signifying minimal flame-spread and smoke development. ProWood FR fire-retardant wood products received UL's highest designation of FR-S. When used in critical structures – like yours – ProWood FR provides a system that will reduce fuel contribution and heat release to slow the spread of flames while also minimizing potentially deadly smoke development. The ProWood FR system contributes to maintaining the building's structural integrity longer than other building materials.

APPLICATIONS

ProWood FR brand fire-retardant treated wood is typically permitted for interior, above ground applications such as: roof systems, studs, flooring, joists, sill plates (when not in direct contact with the ground), blocking and furring, and other interior applications. The specifier and/or end user is responsible to review the test data on ProWood FR brand fire-retardant treated wood to determine if it is acceptable for the intended end use.*

Typical applications include:

- Roof Trusses
- Rafters
- Plywood Roof Sheathing
- Floor & Roof Joists
- Mezzanines
- Sill Plates
- Steps
- Stairways
- Studs
- Interior Partitions (Non-load)
- Floor Sheathing
- Subflooring
- Partition Walls
- Beams & Purlins
- Blocking & Furring
- Platforms
- Stages
- Wall Sheathing & Paneling
- Millwork & Trim
- Backing for Electrical Panels
- 1 & 2 Hour Wall Assemblies

STRUCTURAL DURABILITY

The structural durability of ProWood FR treated lumber and plywood has been verified by certified engineers according to the latest and most stringent versions of ASTM strength durability standards. ProWood FR treated lumber and plywood have been tested by independent accredited laboratories, following industry standards ASTM D5564 and ASTM D5516, to develop strength design factors for various use conditions.

The National Design Specifications (NDS), Wood Handbook, and other publications have cautioned against the use of any wood product in environments exceeding 150°F. Based on the strength data generated when tested per industry protocol at an accredited third-party laboratory, professional engineers have calculated design values and span adjustments to modify the untreated design values for lumber and span ratings for plywood. These design values are applicable at temperatures up to 150°F for lumber (see Tables 1 and 2) and 170°F for plywood (see Table 3).

* When designing any structure, it is the responsibility of the design professional to take into account environmental conditions, duration of load and other factors as set forth in the NDS and all other applicable design standards, codes, etc. This brochure should be regarded as an adjunct to, and not a substitute for, these mandatory and historical references.



Table 1

Strength design factors for ProWood® FR Fire-retardant treated lumber compared to untreated lumber applicable at service temperatures up to 100°F (38°C)

Strength Design Factors	Southern Pine	Douglas Fir	Spruce-Pine-Fir	Other Species
Modulus of Rupture (MOR)	0.82	1.00	0.95	0.82
Modulus of Elasticity (MOE)	0.87	1.00	0.94	0.87
Work to Maximum Load (WML)	0.72	0.93	0.90	0.72
Ultimate Tensile Strength (UTS)	0.99	1.00	0.98	0.98
Maximum Compressive Strength (MCS)	0.96	0.96	1.00	0.96
Ultimate Shear Strength (USS)	0.95	1.00	0.99	0.95
Fasteners/Connectors	0.90	0.90	0.90	0.90

Table 2

Strength design factors for ProWood® FR Fire-retardant treated lumber compared to untreated lumber applicable at service temperatures up to 150°F (66°C)^{1,2}

Strength Design Factors	Southern Pine			Douglas Fir			Spruce-Pine-Fir			Other Species		
	Climate Zone			Climate Zone			Climate Zone			Climate Zone		
	1A	1B	2	1A	1B	2	1A	1B	2	1A	1B	2
Modulus of Rupture (MOR)	0.82	0.82	0.82	0.88	0.93	0.96	0.81	0.87	0.93	0.81	0.82	0.82
Modulus of Elasticity (MOE)	0.87	0.87	0.87	1.00	1.00	1.00	0.94	0.94	0.94	0.87	0.87	0.87
Work to Maximum Load (WML)	0.69	0.70	0.71	0.92	0.93	0.93	0.69	0.77	0.87	0.69	0.70	0.71
Ultimate Tensile Strength (UTS)	0.70	0.84	0.96	1.00	1.00	1.00	0.81	0.90	0.97	0.70	0.84	0.96
Maximum Compressive Strength (MCS)	0.66	0.81	0.93	0.84	0.89	0.94	0.83	0.91	0.98	0.66	0.81	0.93
Ultimate Shear Strength (USS)	0.66	0.80	0.93	0.88	0.93	0.98	0.82	0.91	0.97	0.66	0.80	0.93
Fasteners/Connectors	0.66	0.81	0.90	0.84	0.89	0.90	0.83	0.90	0.90	0.66	0.81	0.90

1 Climate Zone definition:

Zone 1 – Minimum design roof live load or maximum ground snow load ≤ 20 psf (960 Pa)
 Zone 1A – Southwest Arizona, Southeast Nevada (area Bounded by Las Vegas-Yuma-Phoenix-Tucson)
 Zone 1B – All other qualifying areas of the United States
 Zone 2 – Maximum ground snow load > 20 psf (960 Pa)

2 Duration of load adjustments for snow load, 7-day (construction) loads, and wind loads as given in the National Design Specification for Wood Construction® (NDS) also apply.

Table 3

Maximum loads and spans for ProWood® FR Fire-retardant treated plywood at service temperatures from > 100°F (38°C) up to 170°F (77°C)^{1,2,3,4,5}

Panel/Sheathing Thickness	Span Rating for Untreated Roof/Sub-floor Sheathing	ProWood FR Roof Sheathing Maximum Total Load (psf)					ProWood FR Wall or Subfloor Span (inches)
		Span (inches)	Climate Zone				
			1A	1B	2		
15/32, 1/2	32/16	24	31	47	68	16	
19/32, 5/8	40/20	24	48	74	107	20	
		32	27	42	60	20	
23/32, 3/4	48/24	32	34	52	76	24	
		48	15	23	34	24	
7/8	48/24	32	43	66	95	24	
		48	19	29	42	24	
1	48/24	32	58	88	127	24	
		48	26	39	57	24	
1-1/8	48/24	32	73	111	161	24	
		48	32	49	71	24	

1 For Surface Temperatures < 100°F, use Untreated Span Ratings.

2 Allowable total loads are for unsanded, Structural 1 & 2 Grade plywood, manufactured with Group 1 Species, stress grade S-2 (Fb=1650 psi), one-and-two span conditions.

3 For allowable live loads, subtract dead load (assumed to be 8 psf) from total loads listed above.

4 Climate Zone definition:

Zone 1 – Minimum design roof live load or maximum ground snow load ≤ 20 psf (960 Pa)
 Zone 1A – Southwest Arizona, Southeast Nevada (area Bounded by Las Vegas-Yuma-Phoenix-Tucson)
 Zone 1B – All other qualifying areas of the United States
 Zone 2 – Maximum ground snow load > 20 psf (960 Pa)

5 For other load conditions, contact manufacturer.

AVAILABLE SPECIES

ProWood FR brand fire-retardant treated lumber is available in a wide range of softwood species including:

- Southern Pine
- Douglas Fir
- Western Hemlock
- Alpine Fir
- Lodgepole Pine
- White Spruce
- Spruce-Pine-Fir
- Red Spruce
- Red Pine
- Ponderosa Pine
- White Fir
- Hem Fir
- Balsam Fir
- Jack Pine
- Engelmann Spruce
- Black Spruce

ProWood FR fire-retardant treated plywood is available in Southern Pine and Douglas-Fir.

CORROSION

Galvanized steel hardware is recommended for use with ProWood FR wood. Even though the ProWood FR treatment does not increase corrosion of bare or galvanized steel, galvanizing provides an added level of protection with any treated wood product.

The following metal fasteners are compatible with ProWood FR wood and are outlined in ESR-4373: 2024-T3 aluminum, SAE 1010 steel, hot-dip zinc galvanized steel, copper, or red brass.

HYGROSCOPICITY

Hygroscopicity testing conducted by a third-party independent laboratory has confirmed that compared to untreated wood, ProWood FR brand fire-retardant treated wood does not pick up excessive moisture under ASTM D3201 test conditions.

INSTALLATION

Structural systems, which include ProWood FR brand treated lumber or plywood, should be designed and installed in accordance with the adopted building code using the appropriate lumber design adjustment factors and plywood spans from Tables 1 and 2. Ventilation should be provided in compliance with the applicable codes in force at time of construction.

ProWood FR brand fire-retardant treated wood is not permitted for applications where the material may be exposed to precipitation, direct wetting, or regular condensation, and should never be used in contact with the ground.

If the wood is to be used in an interior application and becomes wet during construction, it should be allowed to dry before being covered or enclosed.

FINISHING AND WORKABILITY

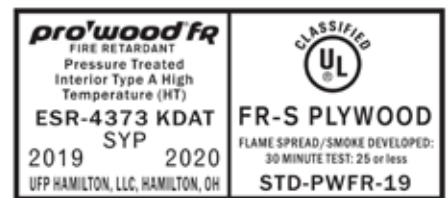
Under normal temperature and humidity conditions, latex and oil-based paints, as well as water- and solvent-based stains, can be used with ProWood FR treated wood. If prolonged exposure to

high humidity conditions is expected, special surface preparation procedures including the use of an appropriate primer are recommended. Before applying any finish, the wood surface should be lightly sanded, cleaned and dry. For best results, always follow the coating manufacturer's label instructions.

Typical joining cuts, end cuts, and drilled holes will not adversely affect the fire performance of ProWood FR wood, and no field treatment is required to maintain flame spread ratings. However, ripping or milling of ProWood FR lumber is not permitted, as these operations could adversely affect the surface burning characteristics. ProWood FR fire-retardant treated plywood can be ripped as required.

IDENTIFICATION

ProWood FR lumber and plywood products are clearly identified. Each piece is stamped with the critical information required by building code authorities including the UL FR-S designation and the ICC-ES report ESR-4373. Additionally, all ProWood FR products are color tinted for easy identification on the job site.



TESTING AND STANDARDS

UL 723 Surface Burning Characteristics

ASTM E84 Surface Burning Characteristics

ASTM 2768 Extended 30-minute Test

ASTM E119 Fire Tests of Building Construction

ASTM D3201 Hygroscopic Properties

ASTM D5516 Flexural Properties Plywood

ASTM D5664 Flexural Properties Lumber

ASTM D6305 Strength Design

ASTM D6841 Treatment Adjustment Factors

AWPA E12 Determining Corrosion of Metal

AWPA M4 Care of Treated Wood

AWPA P50 Standard for Fire-retardants

AWPA T1 Treatment Standard

WARRANTY

ProWood FR fire-retardant pressure-treated wood products are backed by a 50-Year Limited Warranty against structural failure. The Limited Warranty provides protection against a reduction in strength below the strength properties published in ESR-4373 caused by the ProWood FR fire-retardant chemical. See Warranty for details. Visit ProWoodLumber.com/FR



1 Hour Tested Wall Assembly (ASTM E119)

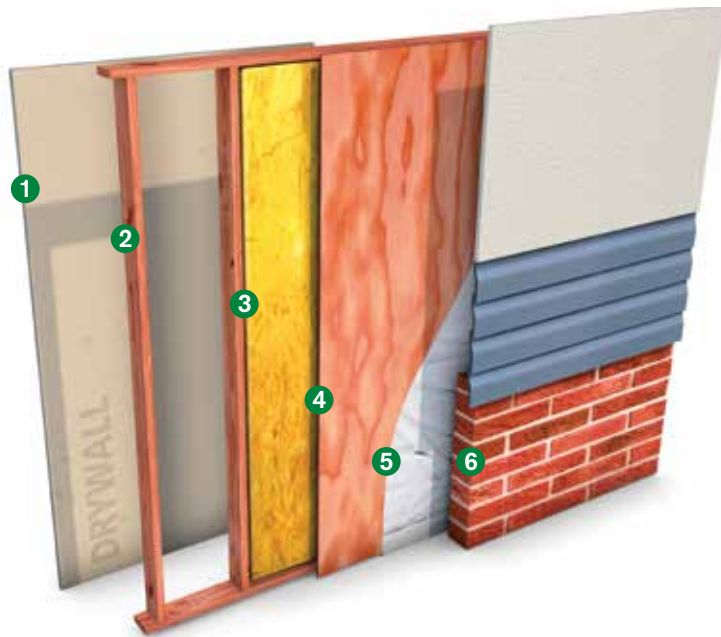
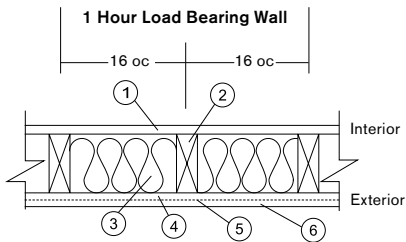
Max. Tested Load

100% of Design Load

Fire Ratings

1 hour, load bearing rated from one side (interior side only).

For details refer to ESR Report 4373.



- 1 Drywall
- 2 ProWood FR Fire-retardant Treated Lumber
- 3 Insulation
- 4 ProWood FR Fire-retardant Treated Plywood
- 5 House Wrap (optional)
- 6 Exterior Facings (optional)

UL V343 2-Hour Wall Assembly (UL 263 Listed)

Max. Tested Load

100% of Design Load

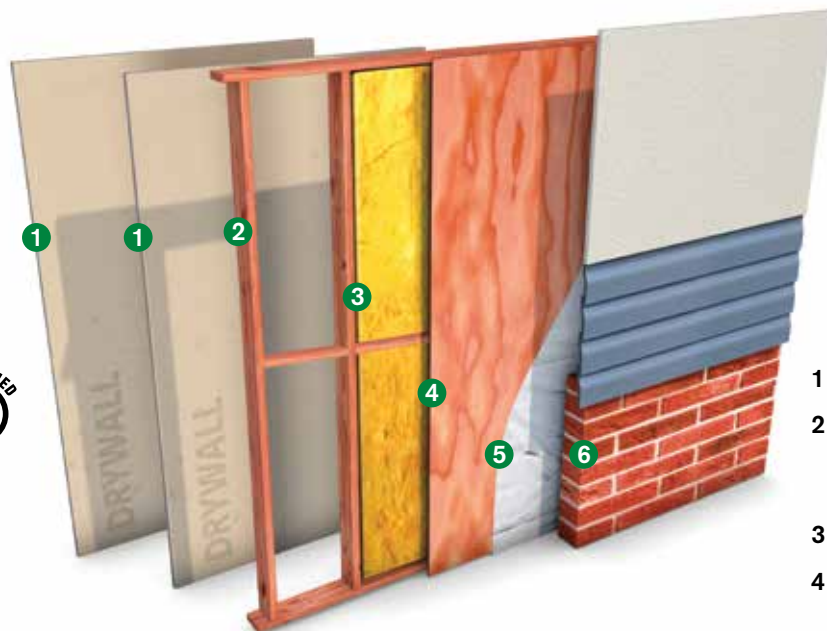
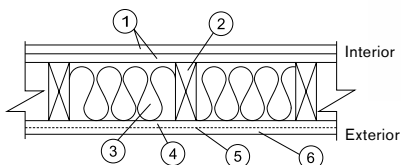
Fire Ratings

- 2 hour rated wall assembly from wall interior
- 1 hour rated wall assembly from wall exterior when brick is exterior facing
- 2 Hour Fire Retardant Wall Assembly Now UL Listed



2 Hour Load Bearing Wall

- 2x4 construction at 16" oc
- 2x6 construction at 24" oc



- 1 Drywall
- 2 ProWood FR Fire-retardant Treated Lumber
- 3 Insulation
- 4 ProWood FR Fire-retardant Treated Plywood
- 5 House Wrap (optional)
- 6 Exterior Facings (optional)

IMPORTANT INFORMATION

- ProWood FR wood must be stored off the ground and protected from weather to prevent loss of the protective chemical treatment. Likewise, exposure during construction should be minimized. If some exposure occurs, the material must be allowed to dry to its original specification before being covered or exposed.
- Do not burn fire-retardant treated wood.
- Wear NIOSH N95 dust mask and goggles when cutting or sanding wood.
- Wear gloves when working with wood.
- Some fire-retardant treated wood chemicals may migrate from the treated wood into soil/water or may dislodge from the treated wood surface upon contact with skin. Wash exposed skin areas thoroughly.
- All sawdust and construction debris should be cleaned up and disposed of after construction.
- Wash work clothes separately from other household clothing before reuse.
- Fire-retardant treated wood should not be used where it may come into direct or indirect contact with drinking water.
- Do not use fire-retardant treated wood under circumstances where it may become a component of food, animal feed, or beehives.
- Do not use fire-retardant treated wood as mulch.
- Only fire-retardant treated wood that is visibly clean and free of surface residue should be used.
- Disposal Recommendations - Fire-retardant treated wood may be disposed of in landfills or burned in commercial or industrial incinerators or boilers in accordance with federal, state, and local regulations.
- If you desire to apply a paint, stain, clear water repellent, or other finish to your fire-retardant treated wood, we recommend following the manufacturer's instructions and label of the finishing product. Before you start, we recommend you apply the finishing product to a small exposed test area before completing the entire project to ensure it provides the intended result before proceeding.
- Projects should be designed and installed in accordance with federal, state, and local building codes and ordinances governing construction in your area and in accordance with the National Design Specifications (NDS) and the Wood Handbook.
- Mold growth can and does occur on the surface of many products, including untreated and fire-retardant treated wood, during prolonged surface exposure to excessive moisture. To remove mold from the treated wood surface, wood should be allowed to dry. Typically, mild soap and water can be used to remove remaining surface mold. For more information, visit www.epa.gov.
- Use fire-retardant treated wood safely. Always read the label and product information before use.

KEY PRODUCT VALUES

- UL Certified Products
- UL GREENGUARD GOLD, Low VOC
- ESR-4373 ICC Report
- Independently Tested
- Highly Cost Effective
- Quality Monitored by Independently Inspection Agency
- Limited Warranty
- Pressure-treated (Not a Paint or Coating)
- Low Corrosion to Metal, Hardware and Fasteners
- Low Hygroscopicity
- Low Smoke Development Values
- Low Flamespread Index Values
- Superior Strength Durability
- ASTM E84 Extended 30-minute Test
- ASTM E119
1 & 2 Hour Wall Assemblies



UL CLASSIFIED

UL Classified with an FR-S Rating for flame spread and smoke development values of 25 or less.



UL GREENGUARD GOLD CERTIFICATION

ProWood FR has undergone rigorous testing and met stringent standards for low volatile organic compound (VOC) emissions. Products certified to this criteria are suitable for use in schools, offices, and other sensitive environments.



ESR REPORT

ProWood FR products, as described in the ICC Evaluation Services, Inc. ESR-4373, meet all major model building code requirements.



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For more information, call 800.598.9663
or visit ProWoodLumber.com/FR

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ICC-ES is a registered trademark
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