



1. Product Name

FirePRO® Brand Fire Retardant Treated Wood (FirePRO FRTW)

2. Manufacturer

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3. Product Description

BASIC USE

FirePRO® FRTW is lumber and plywood pressure impregnated with FirePRO Interior Type A High Temperature Tested (HTT) fire retardant chemicals. Independent testing performed in accordance with the latest industry standards has shown FirePRO FRTW to exhibit exceptional fire performance and superior strength durability, corrosion and hygroscopic properties when compared to the untreated wood used in these tests.

FirePRO FRTW is typically permitted for interior, aboveground 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.

FirePRO FRTW is treated with a fire retardant that contains borates and is an EPA registered pesticide. This offers FirePRO FRTW protection from termites and decay fungi.

Key product values include:

- Termite and decay protection
- Independently tested
- Superior strength durability
- Low hygroscopicity
- Highly cost effective
- Low smoke development values
- Corrosion resistant
- Pressure treated (not a coating)
- UL classified (FR-S rated) for surface burning characteristics
- Building code compliant

- 50 year limited warranty
- Quality monitored by independent, third party inspection agency

COMPOSITION & MATERIALS

FirePRO FRTW is a unique, new generation, patented fire retardant based on proprietary Osmose technology.

TYPES

FirePRO fire retardant treated lumber is available in a wide range of softwood species including:

- Southern pine
- Red pine
- Douglas fir
- Ponderosa pine
- Western hemlock
- White fir
- Alpine fir
- Hem-fir
- Lodgepole pine
- Balsam fir
- White spruce
- Jack pine
- Spruce-pine-fir
- Englemann spruce
- Red spruce
- Black spruce

FirePRO fire retardant treated plywood is available in Douglas fir.

IDENTIFICATION

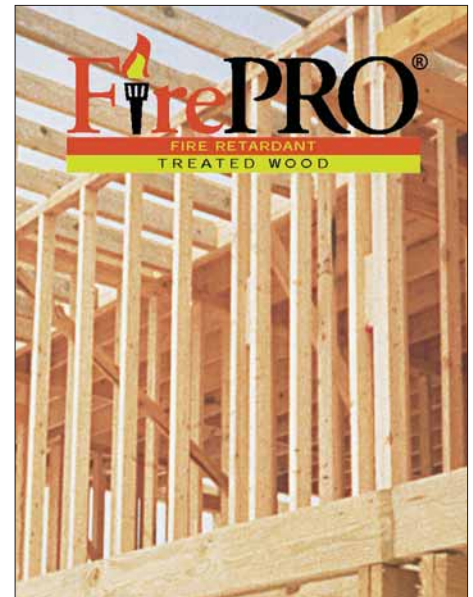
All lumber and plywood treated with FirePRO fire retardant chemicals shall be identified with the grade mark of an approved quality assurance agency. FirePRO FRTW bears the Underwriters Laboratories, Inc. (ULI), stamp, the producer's name and location, the flamespread rating or FR-S designation, the statement "TP MONITORED STD FP-00" and the National Evaluation Report number (NER-577), for field identification.

LIMITATIONS

Review the test data on FirePRO FRTW to determine if it is acceptable for the intended end use. FirePRO FRTW is typically specified for use where the building code jurisdiction permits the use of wood or fire retardant treated wood.

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

FirePRO FRTW is not permitted for applications where the material may be exposed to



FirePRO® FRTW structural framing

precipitation, direct wetting or regular condensation, and it should not be used in contact with the ground.

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM D3201 Standard Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Base Products
- ASTM D3359 Standard Test Methods for Measuring Adhesion by Tape Test
- ASTM D5516 Standard Test Method for Evaluating the Flexural Properties of Fire-Retardant Treated Softwood Plywood Exposed to Elevated Temperatures
- ASTM D5664 Standard Test Method for Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength Properties of Fire-Retardant Treated Lumber
- ASTM D6305 Standard Practice for Calculating Bending Strength Design Adjustment Factors for Fire-Retardant-Treated Plywood Roof Sheathing
- ASTM D905 Standard Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E162 Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source



FirePRO® FRTW meets major model building codes.

- ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- ASTM E1354 Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter

American Wood-Preservers' Association (AWPA)

- AWPA C20-93 Structural Lumber - Fire - Retardant Treatment by Pressure Processes
- AWPA C27-93 Plywood - Fire-Retardant Treatment by Pressure Processes
- AWPA E1 Standard Method of Laboratory Evaluation to Determine Resistance to Subterranean Termites
- AWPA E6 Standard Method for Determining the Equilibrium Moisture Content of Fire-Retardant Treated Wood
- AWPA E12 Standard Method for Determining Corrosion Resistance of Metal in Contact with Treated Wood

American National Standards Institute (ANSI) - ANSI/TPI 1-1995 National Standard for Metal Plate Connected Wood Truss Construction

Boeing Support Standard (BSS) - BSS 7239 Gas Analysis and Smoke Density Test

National Fire Protection Association (NFPA) - NFPA 255 Standard Method of Test of Surface Burning Characteristics of Building Materials

Underwriters Laboratories, Inc. (ULI) - UL 723 Standard for Safety for Surface Burning Characteristics of Building Materials

NYS Mod. Pittsburgh Protocol on Smoke Toxicity

Copies of tests are available upon request.

APPROVALS

National Evaluation Report NER-577 indicating flamespread, smoke development, strength durability, corrosion and hygroscopic properties

New York City Materials and Equipment Acceptance Numbers MEA 137-00-M (lumber), MEA 136-00-M (plywood)

City of Los Angeles Research Report Number RR 25442

Consult manufacturer for current information on approvals by code bodies and other industry entities.

ENVIRONMENTAL CONSIDERATIONS

Historically, fire retardants have utilized phosphorus based compounds. FirePRO products contain no phosphorus based compounds.

PHYSICAL/CHEMICAL PROPERTIES

Test reports are available to design professionals upon request.

Strength Durability

The structural durability of FirePRO brand fire retardant treated lumber and plywood has been independently tested according to the latest and most stringent versions of ASTM strength durability standards. When tested according to ASTM Standards D5564-95 (lumber) and D5516-96 (plywood), FirePRO brand fire retardant treated wood showed no signs of significant degrade over untreated wood following exposure to the severe test conditions.

This structural performance testing demonstrates that lumber and plywood treated with FirePRO chemicals show no indications and no significant potential to experience high temperature strength reductions or exhibit thermal degradation when exposed for extended periods to elevated temperatures and humidity.

The National Design Specifications (NDS), Wood Handbook, and other publications have cautioned against the use of any wood product in environments exceeding 150 degrees F (66 degrees C). Based on the strength data generated at the USDA Forest Products Laboratory, professional engineers have calculated design values and span adjustments to modify the untreated design



FirePRO® FRTW roof decking and trusses

values for lumber and span ratings for plywood (see Tables 1 and 2).

Corrosivity

The corrosivity of FirePRO FRTW has been evaluated in accordance with AWPA Standard E12-94 for a variety of metals. The corrosion rates for carbon steel, galvanized steel, stainless steel, aluminum, red brass and copper are not significantly increased by FirePRO fire retardant chemicals when the treated wood products are used as recommended by the manufacturer and properly sized for the materials selected.

Use conventional metal fasteners in contact with FirePRO FRTW: 2024-T3 aluminum, SAE 1010 steel, hot dipped zinc galvanized steel, stainless steel, copper or red brass.

Hygroscopicity

Hygroscopicity testing conducted by independent laboratories has confirmed that compared to untreated wood, FirePRO FRTW does not pick up excessive moisture even under the humid test conditions of the standards developed for fire retardant treated wood. Consequently, FirePRO fire retardant treated lumber and plywood qualifies as Interior Type A High Temperature Tested (HTT) fire retardant treated wood in accordance with Sections 2.2.2.1 of AWPA Standards C20 and C27, when tested at 92% relative humidity.

FIRE PERFORMANCE

All FirePRO FRTW is recognized as having flame-spread and smoke development ratings of 25

or less when subjected to ASTM E84 surface burning characteristics tests of 30 minutes duration without evidence of significant progressive combustion. Consequently, wood treated with FirePRO fire retardant carries the superior UL FR-S classification for surface burning characteristics. Independent combustion toxicity testing has shown that smoke generated by FirePRO FRTW is no more toxic than smoke produced by untreated wood.

5. Installation

PREPARATORY WORK

Handle and store product according to Osmose recommendations. Store protected from weather and direct wetting.

METHODS

Structural systems, which include FirePRO fire retardant treated lumber or plywood, should be designed and installed in accordance with the requirements of the building code authority having jurisdiction, using the appropriate lumber design adjustment factors and plywood spans from tables provided in manufacturer's literature. Ventilation must be provided in compliance with the applicable codes.

Under normal temperature and humidity conditions, latex and oil based paints, as well as water and solvent-based stains, can be used with FirePRO FRTW. If prolonged exposure to high humidity conditions is expected, special surface preparation procedures, including the use of an appropriate primer, are recommended. Before application of any finish, the wood surface should be lightly sanded, cleaned and dry. For best results, always follow the coating manufacturer's label instructions. Complete installation and use recommendations are available from the manufacturer.

PRECAUTIONS

Exposure to precipitation during shipping, storage and installation should be avoided.

Typical joining cuts, end cuts and drilled holes will not adversely affect the fire performance of FirePRO FRTW and no field treatment is required to maintain flamespread ratings. However, ripping or milling of FirePRO lumber is not permitted, as these operations could adversely affect the surface burning characteristics. FirePRO plywood can be ripped as required.

TABLE 1 STRENGTH DESIGN FACTORS FOR FIREPRO LUMBER ¹

Strength design factor	Southern pine	Douglas fir	Spruce	Other available species
Compression parallel to grain	1.00	1.00	1.00	1.00
Tension parallel to grain	0.82	0.83	0.99	0.82
Horizontal shear	0.97	0.93	0.88	0.88
Bending: MOE	0.95	0.99	0.94	0.94
Bending: extreme fiber stress, FB	0.84	0.97	0.89	0.84

¹ Compared to untreated lumber applicable at temperatures up to 180°F (82°C).

TABLE 2 FIREPRO PLYWOOD SPAN RATINGS ¹

Panel thickness	APA rating	FirePRO rating
5/16" (7.9 mm)	12/0	12/0
5/16", 3/8" (7.9, 9.5 mm)	16/0	16/0
5/16", 3/8" (7.9, 9.5 mm)	20/0	20/0
3/8", 7/16", 1/2" (9.5, 11.1, 12.7 mm)	24/0	24/0
7/16", 1/2" (11.1, 12.7 mm)	24/16	24/16
15/32", 1/2" (11.9, 12.7 mm)	32/16	32/16
5/8" (15.9 mm)	32/16	32/16
5/8", 19/32" (15.9, 15.1 mm)	40/20	32/20
3/4", 7/8" (19.1, 22.2 mm)	40/20	40/20
23/32", 3/4" (18.3, 19.1 mm)	48/24	48/24
7/8" (22.2 mm)	48/24	48/24

¹ Span ratings are for rated sheathing applicable at temperatures up to 170°F (77°C).

BUILDING CODES

Current data on building code requirements and product compliance may be obtained from Osmose technical support specialists. Installation must comply with the requirements of applicable local, state and national code jurisdictions.

6. Availability & Cost

AVAILABILITY

FirePRO FRTW is produced by independently owned and operated wood preserving facilities.

COST

Budget installed cost information may be obtained from a local FirePRO distributor, retailer or supplier.

7. Warranty

The only warranties made by Osmose are set forth in the "Osmose FirePRO 50 Year Limited Warranty Agreement." Osmose makes no other warranties, express or implied, of merchantability, fitness for a particular purpose or otherwise.

For additional information on warranty conditions, duration and remedies, contact manufacturer.

8. Maintenance

There are no specific maintenance requirements for properly installed FirePRO FRTW; however, the product should be kept dry during service life.

9. Technical Services

For technical assistance, contact a dealer, supplier, FirePRO processing facility or Osmose, Inc.

10. Filing Systems

- First Source™
- MANU-SPEC™
- Sweet's Catalog Files
- Additional product information is available from the manufacturer upon request.