

## TESTING AND STANDARDS

- ASTM D3201-94 (Hygroscopicity)
- ASTM D5516-96 (Plywood Strength Testing)
- ASTM D6305-98 (Plywood Strength Calculations)
- ASTM E662 (Smoke Density)
- AWPA E1-97 (Termite Testing)
- AWPA E6-97 (Hygroscopicity)
- UL 723 (Surface Burning Characteristics)
- ASTM E1354-97 (Oxygen Consumption)
- ASTM D5664-95 (Lumber Strength Testing)
- ASTM D3359-87 (Finish Adhesion)
- ASTM E162 (Radiant Panel)
- ASTM E84 (Surface Burning Characteristics)
- AWPA E12-94 (Fastener Corrosion)
- NFPA 255 (Surface Burning Characteristics)
- NYS Mod. Pittsburgh Protocol (Smoke Toxicity)
- BSS 7239 (Smoke Toxicity)
- ANSI/TPI-1995 (Truss Plate Withdrawal)

Copies of tests are available to design professionals upon request.

For a complete specification visit [www.sweets.com](http://www.sweets.com) or call Koppers Performance Chemicals at 800-585-5161.

This is not a stand alone document and must be read in conjunction with other FirePRO brand fire retardant treated wood literature and test data cited in the literature. **For example, refer to other Sweets brochures, the FirePRO Specifications and the FirePRO Limited Warranty Agreement. The only warranties made by Koppers Performance Chemicals are as set forth in the "FirePRO Limited Warranty Agreement". KOPPERS PERFORMANCE CHEMICALS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.**

## IMPORTANT INFORMATION

- Do not burn fire retardant treated wood.
- Wear a dust mask and goggles when cutting or sanding wood.
- Wear gloves when working with wood.
- Some fire retardant 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.
- 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.
- If the wood is wet during construction, it should be replaced.
- 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.
- Use fasteners and other hardware which are in compliance with building codes for the intended use.
- Projects should be designed and installed in accordance with federal, state and local building codes and ordinances governing the 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 treated wood, during prolonged surface exposure to excessive moisture conditions. 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](http://www.epa.gov)
- For more information visit [www.kopperspc.com](http://www.kopperspc.com)

*For more information, call 800-585-5161 or visit [www.kopperspc.com](http://www.kopperspc.com)*

\* The USDA Forest Products Laboratory tested fire retardant formulation FR226-07. FR226-07 is the formulation used to produce FirePro brand fire retardant treated wood. It is the policy of the USDA Forest Products Laboratory not to endorse any product.

\*\* "Other available species" were not part of the test protocol and the values were assigned the highest reduction value for each mechanical property from those species tested.

\*\*\* When designing any structure it is the responsibility of the design professional to 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 brochure should be regarded as an adjunct to, and not a substitute for these mandatory and historical references.

FirePro treated wood products are produced by independently owned and operated wood treating facilities. FirePro® is a registered trademark of Koppers Performance Chemicals Inc. © 2\_2017

# FirePRO®

FIRE RETARDANT  
TREATED WOOD





FirePRO® brand fire retardant treated wood (FRTW) is lumber and plywood pressure impregnated with FirePRO Interior Type A High Temperature (HT) fire retardant chemicals. FirePRO brand fire retardant is a patented formulation based on proprietary Koppers technology. Historically, fire retardants have depended upon phosphorus-based compounds to achieve fire performance properties. While the unique FirePRO chemistry contains no phosphates, independent testing performed in accordance with industry standards has shown FirePRO FRTW to exhibit exceptional fire performance properties without compromising other critical engineering properties such as strength durability, corrosivity and hygroscopicity. In fact, when compared to the untreated wood used in these tests, FirePRO FRTW exhibited superior strength durability, low hygroscopicity and resistance to fastener corrosion.



FirePRO FRTW is available nationwide through a network of independently owned and operated wood treatment facilities licensed by Koppers Performance Chemicals Inc. A 50-Year Limited Warranty against structural failure due to heat or humidity is available. See the FirePRO 50-Year Limited Warranty for details.

FirePRO brand fire retardant treated wood is typically specified for use in areas not exposed to the weather or wetting and where the adopted building code permits the use of wood or fire retardant treated wood.

### KEY PRODUCT VALUES

- Independently Tested
- Limited Warranty
- Corrosion Resistant
- Low Hygroscopicity
- Highly Cost Effective
- EPA registered pesticide
- Low Smoke Development Values
- Superior Strength Durability
- Quality Monitored by Independent Inspection Agency
- Pressure-Treated (Not a Coating)
- UL Classified (FR-S Rated) for Surface Burning Characteristics

### FIRE PERFORMANCE

All FirePRO brand fire retardant treated wood is recognized as having flame spread and smoke development ratings of 25 or less when subjected to ASTM E-84 surface burning characteristics in 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.

Moreover, independent combustion toxicity testing has shown that smoke generated by FirePRO brand fire retardant treated wood is no more toxic than smoke produced by untreated wood.

### STRENGTH DURABILITY

The structural durability of FirePRO brand fire retardant treated lumber and plywood has been tested by the USDA Forest Products Laboratory\*, 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°F. Based on the strength data generated when tested per industry protocol at the USDA Forest Products 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 180°F for lumber and 170°F for plywood (see Tables 1 and 2).

**Table 1: FirePro FRT Lumber Design Factors as Compared to Untreated Lumber. (Applicable to temperatures up to 180°F.)**

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, E	0.95	0.99	0.94	0.94
Bending: Extreme Fiber Stress, FB	0.84	0.97	0.89	0.84

**Table 2: FirePro FRT Plywood Span Ratings for Douglas Fir Sheathing. (Applicable to temperatures up to 170°F.)**

Panel Thickness (inch)	APA Rating	FirePro Rating
5/16	12/0	12/0
5/16, 3/8	16/0	16/0
5/16, 3/8	20/0	20/0
3/8, 7/16, 1/2	24/0	24/0
7/16, 1/2	24/16	24/16
15/32, 1/2	32/16	32/16
5/8	32/16	32/16
5/8, 19/32	40/20	32/20
3/4, 7/8	40/20	40/20
23/32, 3/4	48/24	48/24
7/8	48/24	48/24

### CORROSIVITY

The corrosivity of FirePRO brand fire retardant treated wood has been evaluated in accordance with AWWA 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 brand fire retardant chemicals when the treated wood products are used as recommended by the manufacturer and properly sized for the materials selected.

The following metal fasteners are recommended for use in contact with FirePRO brand fire retardant treated wood: 2024-T3 aluminum, SAE 1010 steel, hot-dip zinc galvanized steel, stainless steel, copper, or red brass.

### HYGROSCOPICITY

Hygroscopicity testing conducted by independent laboratories has confirmed that compared to untreated wood, FirePRO brand fire retardant treated wood does not pick up excessive moisture even under humid test conditions.

Consequently, FirePRO brand fire retardant treated lumber and plywood qualifies as Interior Type A High Temperature (HT) fire retardant treated wood in accordance with Sections 2.2.2.1 of AWWA Standards C20 and C27, when tested at 92% relative humidity.



### APPLICATIONS

FirePRO 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 FirePRO brand fire retardant treated wood to determine if it is acceptable for the intended end use.\*\*\*

### TERMITE AND DECAY PROTECTION

The fire retardant in FirePRO FRTW contains borates and is an EPA registered pesticide. This offers FirePRO FRTW protection from termites and decay fungi.

### AVAILABLE SPECIES

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

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

FirePRO fire retardant treated plywood is available in Douglas-Fir.



### INSTALLATION

Structural systems, which include FirePRO brand fire retardant 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.

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

Exposure to precipitation during shipping, storage or installation should be avoided. If material does become wet, it should be replaced.

### 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 FirePRO brand fire retardant 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 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.

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

### IDENTIFICATION

All lumber and plywood treated with FirePRO brand fire retardant chemicals will be identified with the grade mark of an approved quality assurance agency. FirePRO brand fire retardant treated wood will, in addition, bear the Underwriters Laboratories Inc. (UL) stamp, the producer’s name and location, the flame spread rating or FR-S designation, the statement “TP MONITORED STD FP-00”, and meet all major building code requirements – ICC-ES Report, ESR-2666.

