

PERFORMANCE **FORMULATION** SOLUTIONS™
Technical Specification

Fasteners for use with FlameTech Treated Wood Products

The corrosivity of FlameTech treated wood products are lower than the maximum allowed by industry and governmental standards. Hot-dipped galvanized steel fasteners or stainless-steel fasteners are recommended, and all fasteners should meet or exceed local code requirements. Fasteners that are approved for use with ACQ treated wood products meet the same requirements as hot dipped galvanized fasteners.

The corrosion rate of aluminum (2024-T3), carbon steel (SAE 1010), or galvanized steel, copper or red brass in contact with wood is not increased by the treatment of the materials with FlameTech as long as the product is used as recommended.

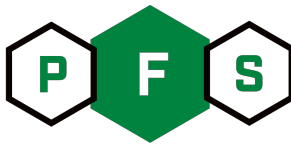
In code-compliant interior applications of FlameTech treated wood products which are completely protected from moisture, dampness, wetting and weather, uncoated carbon steel fasteners may be used.

Proper handling procedures should be followed when using FlameTech treated lumber and plywood. FlameTech must be kept dry during transit and on the job-site by covering the top of the bundle, storing the material under shelter, elevating the bundle from ground contact, and allowing for air circulation around the wood. Roof sheathing should be covered as soon as practical after installation. If FlameTech treated wood products becomes wet during construction, allow to dry before enclosure or covering with roofing material. When installing FlameTech treated lumber and plywood it is important to utilize the design value adjustments located in ESR report 4056.

Fasteners used with FlameTech treated wood must be in accordance with 2015 IBC Section 2304.10.5; 2012, 2009, and 2006 IBC Section 2304.9.5; 2015, 2012 and 2009 IRC Section R317.3; or 2006 IRC Section R319.3. or must be of other corrosion-resistant materials and are subject to the adjustment factors found in the Table 1 and Table 2 of the FlameTech ESR evaluation report.

TABLE1—STRENGTH DESIGN FACTORS FOR FLAMETECH™ FIRE RETARDANT TREATED LUMBER COMPARED TO UNTREATED LUMBER APPLICABLE AT SERVICE TEMPERATURES UP TO 100°F (33°C) ^{1,2}

Strength Design Factors	SPECIES		
	Southern Pine	Douglas Fir	Spruce-Pine-Fir
Bending MOR	0.82	1.0	0.96
Bending MOE	0.87	0.99	0.93
Tension Parallel to Grain	0.98	1.00	0.99
Shear Parallel to Grain	0.95	1.00	1.00
Compression Parallel to Grain	0.96	0.96	0.99
Compression Perpendicular to Grain	0.95	0.95	0.95
Fasteners/Connectors	0.90	0.90	0.90



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TABLE2—STRENGTH DESIGN FACTORS FOR FLAMETECH™ FIRE RETARDANT TREATED LUMBER COMPARED TO UNTREATED LUMBER APPLICABLE AT SERVICE TEMPERATURES UP TO 150°F (66°C) ^{1,2}

Strength Design Factors	SPECIES								
	Southern Pine			Douglas Fir			Spruce-Pine-Fir		
	Climate Zone			Climate Zone			Climate Zone		
	1A	1B	2	1A	1B	2	1A	1B	2
Bending MOR	0.82	0.82	0.82	1.00	1.00	1.00	0.91	0.93	0.95
Bending MOE	0.88	0.88	0.88	1.00	1.00	1.00	0.96	0.96	0.96
Tension Parallel to Grain	0.89	0.93	0.98	1.00	1.00	1.00	0.95	0.97	0.99
Shear Parallel to Grain	0.89	0.93	0.98	1.00	1.00	1.00	0.95	0.97	0.99
Compression Parallel to Grain	0.87	0.91	0.96	0.98	0.98	0.98	0.92	0.94	0.96

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

Code Fastener References for Preservative Treated Wood and Fire Retardant Treated Wood

International Residential Code (IRC)

R317.3 Fasteners and connectors in contact with preservative-treated and fire-retardant-treated wood. Fasteners, including nuts and washers, and connectors in contact with preservative-treated wood and fire retardant-treated wood shall be in accordance with this section. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A 153.

R317.3.3 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations. Fasteners, including nuts and washers, for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot-dipped, zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails and timber rivets shall be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

R317.3.4 Fasteners for fire-retardant-treated wood used in interior applications. Fasteners, including nuts and washers, for fire-retardant-treated wood used in interior locations shall be in accordance with the manufacturer’s recommendations. In the absence of the manufacturer’s recommendations, Section **R317.3.3** shall apply.

International Building Code (IBC)

2304.9.5 Fasteners and connectors in contact with preservative-treated and fire-retardant-treated wood. Fasteners, including nuts and washers, and connectors in contact with preservative-treated and fire-retardant treated wood shall be in accordance with Sections **2304.9.5.1** through **2304.9.5.4**. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A 153.

2304.9.5.3 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations. Fasteners, including nuts and washers, for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

2304.9.5.4 Fasteners for fire-retardant-treated wood used in interior applications. Fasteners, including nuts and washers, for fire-retardant-treated wood used in interior locations shall be in accordance with the manufacturer’s recommendations. In the absence of manufacturer’s recommendations, Section **2304.9.5.3** shall apply.