

Fasteners for use with D-Blaze Fire Retardant Wood

Fasteners used in D-Blaze fire-retardant-treated wood must be galvanized steel, stainless steel, silicon bronze or copper, in accordance with 2018, 2015 IBC Section 2304.10.5; 2012, 2009, and 2006 IBC Section 2304.9.5; 2018, 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 of the D-Blaze Technical Specifications.

TABLE 1—DESIGN VALUE ADJUSTMENT FACTORS
FOR D-BLAZE® FIRE-RETARDANT LUMBER COMPARED TO UNTREATED LUMBER

PROPERTY	SERVICE TEMPERATURE < 100°F (38°C)	D-BLAZE® LUMBER ROOF FRAMING, CLIMATE ZONE ^{1,2}		
		1A	1B	2
Compression Parallel, Fc	0.935	0.935	0.935	0.935
Horizontal Shear	0.985	0.838	0.894	0.964
Tension Parallel	0.874	0.625	0.775	0.905
Bending: Modulus of Elasticity, E	1.000	0.977	0.986	0.997
Bending: Extreme Fiber Stress, Fb	0.972	0.740	0.828	0.939
Fasteners/Connectors	0.900	0.900	0.900	0.900

¹Climate 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).

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

The corrosivity of D-Blaze FRTW is 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.

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 D-Blaze fire retardant treatment when the product is used as recommended.

In code-compliant interior applications of D-Blaze fire-retardant treated wood 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 D-Blaze lumber and plywood.

- D-Blaze FRTW 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 D-Blaze FRTW becomes wet during construction, allow to dry before enclosure or covering with roofing material.
- When installing D-Blaze® FRT lumber and plywood it is important to utilize the design value adjustments on our technical guide.



- D-Blaze® plywood should be spaced and fastened as recommended in “APA Engineered Wood Construction Guide” (Form E30), published by APA-The Engineered Wood Association.

Building 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.

R317.3.1 Fasteners for preservative-treated wood.

Fasteners, including nuts and washers, for preservative-treated wood shall be of hot-dipped, zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Coating types and weights for connectors in contact with preservative-treated wood shall be in accordance with the connector manufacturer’s recommendations. In the absence of manufacturer’s recommendations, a minimum of ASTM A 653 type G185 zinc-coated galvanized steel, or equivalent, shall be used.

Exceptions:

1. One-half-inch-diameter (12.7 mm) or greater steel bolts.
2. Fasteners other than nails and timber rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.
3. Plain carbon steel fasteners in SBX/DOT and zinc borate preservative-treated wood in an interior, dry environment shall be permitted.

R317.3.2 Fastenings for wood foundations.

Fastenings, including nuts and washers, for wood foundations shall be as required in AF&PA PWF.

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 permitted to 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.

2304.9.5.1 Fasteners and connectors for preservative-treated wood.

Fasteners, including nuts and washers, in contact with preservative-treated wood 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. Connectors that are used in exterior applications and in contact with preservative-treated wood shall have coating types and weights in accordance with the treated wood or connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A 653, type G185 zinc-coated galvanized steel, or equivalent, shall be used.

Exception: Plain carbon steel fasteners, including nuts and washers, in SBX/DOT and zinc borate preservative-treated wood in an interior, dry environment shall be permitted.

2304.9.5.2 Fastenings for wood foundations.

Fastenings, including nuts and washers, for wood foundations shall be as required in AF&PA PWF.

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.

