

Fasteners to use with preserved wood

Care should be taken in selecting the right fasteners for use with preserved wood.

Ingredients in most preservatives today can be corrosive to the steel in fasteners such as nails, nuts, bolts and washers. Since preserved wood is typically used for outdoor applications, exposure to water also can impact fasteners that are not properly coated or made from corrosion-resistant metals.

The following fasteners are required by building codes for use with preservative-treated wood:

- Hot-dipped galvanized steel
- Stainless steel
- Silicon bronze
- Copper



Recommended fasteners

The most commonly used fasteners for preserved wood are hot-dipped galvanized steel, which are typically dull gray in appearance. These are made by dipping the fasteners under high temperatures to bond a protective coating of zinc to the steel.

Hot-dipped galvanized fasteners are recommended for use with all preservatives, including those containing ammonia such as ACQ and ACZA. Simpson Strong-Tie, a major fastener maker, has revised its recommendations and noted its in-house testing “concluded that there is no significant difference in corrosion activity in galvanized steel in contact with treatments with or without ammonia.”

Stainless steel is a popular corrosion resistant material used for fasteners. Considered the highest quality, stainless steel is more expensive than comparable hot-dipped galvanized products. While silicon bronze and copper fasteners are approved by building codes, they are typically used only for special applications.

Building code requirements

The International Building Code defines what fasteners and connectors are approved for use with preservative-treated wood. The requirements are shown in **Chapter 23 - Wood** of the code:

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.

Preservative manufacturer recommendations

Companies producing preservatives also offer specific recommendations for fasteners. See the following websites for more information:

Koppers www.kopperspc.com
Lonza Wood Protection www.wolmanizedwood.com

U.S. Borax
Viance, Inc.

www.borax.com/wood
www.treatedwood.com