by Dustin Lambert, P.E.

WITH TREATED LUMBER, BEWARE THE HARDWARE

In many circumstances, lumber treated with preservatives or naturally durable wood, such as redwood, are needed for home construction.

According to the 2006 International Residential Code, these applications include wood joists or floors closer than 18 inches to exposed ground; wood in contact with concrete or masonry, such as ledgers, sill plates or beams; and wood exposed to the weather, such as deck framing. Table R319.1 of the IRC lists additional conditions.

It has been our experience that preservative-treated lumber is more commonly used than naturally durable wood in these applications. Usually the lumber is treated by immersing it in a liquid chemical preservative, such as alkaline copper quat, and then placing it in a pressure chamber to more effectively disperse the chemicals throughout the lumber.

Chromated copper arsenate, the once-common wood preservative, was banned four years ago by the Environmental Protection Agency. Common chemicals used for today's treatment include ACQ and copper azole, which are typically sold under the trade names Preserve, Nature-Wood and Natural Select. While these treatments are generally considered safer to humans and pets, they are much more corrosive to metals – up to five times more corrosive to common steel.

With the higher corrosiveness of these alternative preservatives, much more care is needed when using metal connectors and fasteners. Stainless steel or galvanized connectors and fasteners are usually recommended. While stainless steel is less prone to corrosion, it is typically more expensive and more difficult to obtain. This leaves galvanized materials as the more viable option.

Most connector manufacturers, including Simpson and USP, have multiple levels of galvanization available for their products. Zinc galvanization can be applied by three methods: electroplating, mechanically or hot-dip. Zinc is typically applied to sheet metal in electroplating and mechanical galvanization, and the connector then is stamped and formed from the sheet. This process will leave the edges of the connector unprotected, so connectors made with these processes shouldn't be used in contact with treated lumber.

The hot-dip galvanization process involves submerging an already-formed connector in a zinc bath. The level of protection for hot-dip galvanization is denoted by the weight of zinc per square foot of surface area. For example, a joist hanger with a G90 coating would have 0.90 ounces of zinc per square foot of steel.

The amount of galvanization needed varies depending on the application. When working with galvanized connectors, it is a good idea to check with the structural engineer and the manufacturer about the level of protection to use. Keep in mind that both the connector and the fasteners – nails, bolts and screws – need to be corrosion-protected, too.

Proper use of treated lumber and protected connectors can add longevity to, and decrease maintenance of, your projects.

For more information regarding protected hardware and fasteners, visit www.galvinfo.com, www.strongtie.com and www.USPconnectors.com.

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