

CONTRACTOR TOOLS AND SUPPLIES

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Pages 8-10

Corrosion-resistant fasteners

Using the wrong fasteners with ACQ-treated lumber will eat your business faster than termites in an old house. Know your wood and choose the right fasteners for it.

Fastener manufacturers all agree on one thing — if you're working with treated lumber, use stainless steel fasteners and connectors.

It's good advice, but with the cost of stainless steel fasteners running three to four times the price of galvanized, that choice is not always cost-effective. What does a contractor have to do to provide a good finished job on budget and avoid callbacks? Know your wood and know your fasteners and choose the right ones for your application, experts report. Today, that advice is more important than ever. Ignoring it produces horror stories.

"We've been called to sites where customers claim our nails have failed," says Jacek Romanski, product manager, remodeling for ITW Paslode. "In every case, when we got there and pulled the nail we discovered the contractor had mistakenly used regular nails, not hot-dipped galvanized nails."

Not a situation you want to find yourself in. It seems like a simple precaution — use galvanized nails at a minimum when working with treated lumber. It is simple except for three tiny variables: not all treated lumber is the same, not all nails are the same and not all applications are the same.

"The first, most critical error contractors make is not realizing all the information you should know when selecting a pressure-treated wood and anything that will be used in contact with it," says Mark Crawford, vice president of engineering for Simpson Strong-Tie. "Contractors today need to be more knowledgeable about pressure-treated woods than they did in the past."

Lumber — the one-year deck

What sparked this product avalanche was the transition away from CCA (chromated copper arsenic)-treated lumber to the more environmentally friendly ACQ (Alkaline Copper Quaternary) lumber, which contains no arsenic. For details on arsenic, we refer you to the 1944 Cary Grant classic, *Arsenic and Old Lace*.

The chemicals used in ACQ will corrode ordinary fasteners, so manufacturers and suppliers stress that hot dipped galvanized or stainless steel fasteners must be used with ACQ-treated lumber.



ITW Paslode's 30-degree paper collated full RoundDrive Hot Dipped Galvanized Plus! nails offer a fast, worry-free system for working with ACQ pressure-treated lumber.

How fast can fasteners corrode, you ask? Pretty darn fast: a standard nail can corrode completely in ACQ lumber within one year. Imagine your new deck falling apart just a year after you had it built.

Then there is the question of type of wood the ACQ is in. Framing and decking lumber used in the United States falls into two general categories: Western heartwoods like Douglas fir, and Eastern sap woods like Southern yellow pine.

“Chemicals have a harder time penetrating heartwood species such as Douglas fir, so lumber treaters tend to use additives like ammonia to help those chemicals penetrate further into the wood,” Crawford explains. “Ammonia has a higher corrosion potential when in contact with steel or hot-dipped galvanized fasteners. That’s why we make the ‘with or without ammonia’ distinction in our minimum recommendation tables”

Most states away from the west use Southern yellow pine, which absorbs treatment chemicals more easily. As a result, this lumber is less likely to contain added ammonia. However, within some general guidelines, pressure treaters are free to put in whatever additives they choose to differentiate their brands.

Water repellent, which typically does not increase corrosivity, is the most common additive, but simply assuming that treated Southern pine lumber contains no ammonia can be a big mistake. What your treated lumber contains depends not just on where you are but also on who treated it, so ask your supplier.

The ACQ treatment process has also evolved. Standardized by the American Wood Preservers Association, there are four types of ACQ. ACQ A came first; ACQ B followed in 1992 and was used initially for treating western wood species like Douglas fir. Today, most U.S. treaters use ACQ D.

Different nails

The term “galvanized” can mean different things to manufacturers. “Some nails claim they are galvanized but they use an inferior process of electroplating the nail with zinc, which produces the thinnest surface accumulation of zinc,” Romanski explains. “These electroplated nails do not meet ASTM A153 Class D codes, and their thin accumulation of zinc doesn’t meet the one oz. of zinc per sq. ft. of surface that the ASTM code requires. Some of these nails are also coated with polymers to try to add a bit of extra protection, but it really doesn’t work in ACQ lumber.

“We’ve gone one step further by adding a polymer coating on the head of our Hot-Dipped Galvanized Plus nails. This helps prevent bleeding, particularly in vertical applications like fences,” says Romanski. This coating is also available on Duo-Fast 20-degree round head paper tape collated nails.

Fortunately, many contractors are keeping up with these trends. “Over the last eight years that lumber has been transitioning from CCA to ACQ, I’ve seen more contractors comply with hot-dipped galvanized building guidelines,” says Rose Bianco, president of Innovative Fastening Systems (IFS). “In that time, more manufacturers and companies like IFS have developed ‘ultimate’ coatings that react very well in ACQ lumber.”

Double dipping

There are also different types of treatments. Some manufacturers hot dip, some double dip or use higher concentrations of zinc. Simpson Strong-Tie for example, uses heavier concentrations of zinc in its ZMAX hot-dipped galvanized connectors.

Simpson Strong-Tie's Composi-Lok screws for composite decking feature Quik Guard, a duplex coating combining electroplated zinc and chromate substrates with an organic top coat designed for use with specific pressure-treated wood substrates.

ITW Paslode paper collated full RounDrive Hot Dipped Galvanized Plus! nails feature a polymer head coating that reduces staining and streaking by 80 percent when compared with regular hot-dipped nails.

“Our standard hot-dipped galvanized connectors are typically made of coil steel with a G90 level of galvanization, or 0.9 oz. of zinc per sq. ft. of steel. ZMAX has 1.85 oz. per sq. ft., so it provides approximately twice the galvanizing life of our standard product,” says Crawford.

Other manufacturers use totally different treatment techniques and formulas.

“Some use automotive industry-type coatings, which are very corrosion resistant,” Bianco says. “Others, like IFS, are testing inorganic coatings like those used on some battleships. It’s amazing how many coatings can be used for this type of application.”

Different applications

Treated lumber is also being used in a wider range of applications.

“Advantech lumber is replacing plywood in subfloors. The company no longer requires galvanized nails with Advantech, perhaps because it knows

that many builders/contractors in coastal areas are now using galvanized nails in all their framing,” Romanski says.

Manufactured by Huber Engineered Woods, Advantech is more stable and water-resistant than regular plywood, and is backed by a 50-year limited warranty. Its water-repellent treatment means it does not require sanding due to moisture absorption during installation, but that treatment also makes Advantech more corrosive to fasteners than regular plywood.

Stainless steel and galvanized fasteners also withstand the salt air of coastal areas better than standard fasteners, so contractors in these regions are using them more framing and finishing applications.

Then there is the critter factor. Nothing tastes as sweet to a termite as untreated lumber. As a result, some contractors now use treated lumber not just for sill plates and decking but in all structural and flooring members.

Hawaii is one case in point. It may be paradise, but it is a paradise with termites, so treated lumber on projects there is commonplace.

Caveat constructor

For manufacturers, formula tinkering to achieve the coveted American Society of Testing and Materials (ASTM) A153 rating for use with ACQ lumber is part of the never-ending battle for competitive advantage. But for contractors, as choices multiply, so can opportunities for error. You might call it caveat constructor: let the builder beware. Your reputation stands, literally, on making the right choice.

