



A still grainy view of ACQ-treated lumber

Nov 1, 2006
Roofing/Siding/Insulation (RSI)



Certainly by now most roofing professionals have heard or read about the new wood-pressure treatment called ACQ, which was introduced in January 2004 as a result of the EPA's ban of CCA pressure-treated lumber for residential use. Almost two years after the introduction of ACQ wood preservative, a wide range of opinions still exists for roofing contractors.

Based on a review of the roofing industry's responses to this new wood preservative, it appears that little consensus exists among accessory and fastener manufacturers. Given these divergent opinions, designers and installers are often unsure of acceptable installation practice. Since the performance of the roof system may depend on the longevity of the accessories and fasteners used in it, the potential for accelerated accessory and fastener corrosion in these assemblies is of serious concern for everyone.

Two facts are clear so far:

- No standardized corrosion-test criteria are currently available to help evaluate the products for field use.
- Most, if not all, fastener manufacturers assert that ACQ is more corrosive to carbon steel than CCA.

As a result, manufacturers have conducted testing to investigate the potential for corrosion, to validate growing field experience, and to provide solutions for the use of steel accessories and fasteners with ACQ treated lumber.

Much, although not all, of this testing indicates that ACQ lumber is potentially more corrosive to steel decking, accessories, and fasteners. Special consideration, therefore, should be taken in the design and installation of lumber (roof system nailers, wood blocking) treated with ACQ.

Why the concern?

Corrosion of steel components used in ACQ lumber is usually caused by galvanic reaction between dissimilar metals. Galvanic corrosion occurs when dissimilar metals are in contact with each other in the presence of moisture. This condition creates an electrical current, resulting in the less noble metal "sacrificing" itself to the more noble metal.

The new ACQ preservative has a higher content of copper in its formulation than the previously accepted standard, CCA. This higher concentration of copper, which is a more noble metal than carbon steel or zinc, is thought to cause the carbon steel or zinc-coated fastener to sacrifice itself to the copper in the ACQ lumber; in other words, to corrode.

To date, the opinions from various manufacturers include the following range of thought:

- Current practice should include the use of carbon steel fasteners with a corrosion resistant barrier coating because concerns regarding fastener corrosion in ACQ with this protection are unfounded.
- ACQ treated lumber should not be used. Instead, untreated lumber or an alternative treated lumber using a preservative without a high concentration of copper should be used (such as the sodium borates).
- Fasteners with a greater concentration of zinc should be used to extend the life of the fastener.
- Aluminum fasteners or flashing should not be used.

- A barrier between steel decks and accessories should be installed to prevent the electrical connection necessary for galvanic corrosion.
- 400 series stainless steel fasteners and accessories should be used.
- 300 series stainless steel fasteners and accessories should be used.
- Installers should be sure to run the roofing membrane over the roof edge to help keep out moisture, thus minimizing the galvanic connection associated with ACQ and carbon steel.

The difference of opinion in the industry is clear from these diverse recommendations.

In light of these differences, SPRI currently recommends re-sellers, designers and installers consult the accessory and fastener manufacturers for their installation and product recommendations, as well as available warranties.

These differences also suggest that further research is necessary to provide clear, consensus-based information regarding the use of steel fasteners and accessories with ACQ pressure treated lumber. In order to provide more information, SPRI is currently developing a test method to further analyze this important issue.

For more information, contact SPRI at (781) 647-7026 or visit the association's Web site at www.spri.org.