

Borates: the future of framing

By Christine Brewton

The end of this year marks the end of an era for the building industry. CCA pressure treated wood – a product that has been used effectively for 70 years – is being phased out. CCA for residential applications will no longer be available after December 31, 2003; but what does the future hold?

Replacement treatments will be either copper-based, such as alkaline copper quat (ACQ,) or borate based, such as disodium octaborate tetrahydrate (DOT) for lumber and plywood, and zinc borate for wood composites. Copper-based products are best suited for treating exterior wood used in fences and decks, while borate preservatives have superior functionality for interior applications such as dimensional lumber and sheathing, sill plates and furring strips.

Using borate treated wood for structural components builds protection against wood destroying organisms directly into the framing package, lowering the need for pesticides. From termites to rot and decay, the treated wood acts as a sentry against these silent, hidden threats. Plus, borates are among the most cost-effective wood preservatives available.

Borates have proven effective over time – and safe for people, pets and the environment. Their 60-year track record, plus a twenty year warranty for homeowners, have encouraged many treaters – such as Royal Pacific Industries and the Pacific Wood Preserving Companies – to get into the game ahead of the transition curve. The number of treatment facilities providing borates has more than doubled over the last twelve months, due to increasing demand. Other borate benefits include:

Borates Don't Corrode

Borates are often used as corrosion inhibitors in paints and serve the same purpose in wood. No special fasteners are required when building with borate pressure treated wood.

Borates Don't Quit

The long-term performance of borates is well established. Borates do not degrade or off gas, and years of intensive research have not revealed a single instance of wood-destroying organisms developing resistance to borates. In New Zealand's rain-soaked climate, borate treated wood has been used for more than 50 years to protect homes against wood destroying organisms without a single case of failure.

Borates Pass Muster

Borate treated wood is recognized by the International Residential Code, the International Building Code, the 2001 Florida Building Code, the 1997 Standard Building Code, and various evaluation reports such as ER-4890 (issued to U.S. Borax Inc.), NER-648 (Osrose), and ER-5548 (Arch).

Beyond building codes, borates also pass muster with the federal government. Recently, architects designing housing for a Navy base in Belle Chase, Louisiana, specified that the entire 525-unit development use borate-treated OSB and lumber for its structural system. Similarly, borates will be used to protect the structural framework of

the HUD-backed St. Thomas HOPE VI development – a mixed-use community of 1,200 homes in Louisiana.

Savings Over Steel

In these and other projects, builders sought environmentally sustainable building materials and integrated pest management into the design and construction. They found that borate treated building materials cost less – in one case saving eight dollars per square foot over steel framing.

Value in the Private Sector

Borate preservatives offer value in the private sector, too. A growing number of custom home and production builders in the southeastern United States offer built-in protection from termites and decay through the use of borate treated wood. Some housing developments feature borate treated wood in partial structural systems for the “suspenders,” – the exterior wall system, from sill plate to top plate. Borates are also used to repair buildings that have been damaged by termites, decay, carpenter ants, and other wood destroying organisms.

Dr. Dennis Ring, an entomologist with LSU’s Ag. Extension Service, suggests always replacing termite-damaged wood with borate treated wood. He asks, rhetorically, “Why keep feeding them (termites.)”? In his lectures on the aggressive Formosan termite, prevalent along the Gulf Coast, he quips “There are three types of homes in the South; those that have termites, those that will have termites, and those that are built out of borate treated wood.”

Borates Address Moisture Problems

Moisture and dampness do not decrease the performance of borates – in fact, they can help. Because borates move from areas of low moisture to areas of high moisture, borate treated wood products can act as reservoirs that feed borates into areas of greatest need. This mobility is not, however, a problem at the construction site. Normal exposure to weather during construction does not adversely affect performance.

How Do Borates Work?

Termites, decay fungi, and other organisms require moisture to survive and prosper. These wood destroying organisms often gravitate to areas of high moisture. Borates work by interfering with their basic metabolic processes, similar to their mode of action in controlling cockroaches, ants, and silverfish. Because the mode of action is fundamental, target organisms such as termites, decay fungi, and carpenter ants cannot develop resistance.

What Happens Next?

Borate treatments offer the best of the past – having stood the test of time in some of the world’s most challenging environments – and the greatest hope for the future as an affordable treatment that is safe for people, pets and the environment, but deadly for termites, rot and decay.

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