

greenhouse management

Grower 101:

Pressure-Treated LUMBER

How the transition in pressure-treated lumber standards and new alternatives will affect greenhouse and nursery growers.

By John W. Bartok, Jr.



Some may find the trip to the lumberyard or home center to purchase pressure-treated lumber more difficult due to new standards and alternatives. Chromated Copper Arsenate (CCA), the standard material for treated lumber, has been withdrawn from the non-industrial market and replaced by several other treating materials that don't contain arsenic. A new set of use categories have also been added.

Although exposure to CCA material does not exceed the U.S. Environmental Protection Agency's acceptable risk limits, the American Wood Preservers' Association (AWPA) has modified its standards, based on public concern, to allow CCA material to be used for listed industrial uses only. This listing is still being developed and interpreted.

In the meantime, the current revised listing still allows CCA material to be used for building posts, structural timbers, glue-laminated and nail-laminated beams, skirt boards, and plywood in agricultural and industrial applications. It can also be used for docks, utility poles, fence posts and shingles. So how do these changes affect you?

AVAILABILITY

Wood treaters and lumber dealers control the availability of pressure-treated lumber. Whether they will treat and stock both CCA and arsenic-free treated lumber will depend on demand, treatment facilities, storage space and price. The same is true for lumberyards and home centers. Space is usually at a premium, and most will opt to stock only one type of material.

ALTERNATIVE MATERIALS

In the two most common alternatives, ACQ (alkaline copper quat) and CA-B (copper azole), decay is controlled by the level of copper that is injected into the wood. For interior use, such as end-wall frames or benches, the retention and penetration can be lower than if the lumber is to be in contact with the soil, such as skirt boards or posts.

ACQ is an environmentally friendly material that contains copper oxide and a quaternary

ammonium compound (quat). There are several variations of the quat formulation to aid in the penetration of different wood species. Retention levels of the preservative are from 0.25-0.6 lbs. of preservative per cubic foot of wood. The lower levels are for use above ground, and the higher levels are for ground contact.

Copper azole is a recent formulation that contains 96 percent copper and 4 percent tebuconazole, a fungicide that protects against decay and insect attack. Retentions are about the same as ACQ. Lumber treated with this material is becoming more readily available.

The AWPA has developed 12 use categories from dry, above ground construction to continuous saltwater exposure. You may be able to order material that fits the intended use, but it is likely that the local lumber supplier will carry only one material, probably a material that can be used in ground contact. The cost of the lumber is directly related to the amount of copper and other chemicals injected.

LABELING

Look for a quality stamp or end tag on each piece of pressure-treated wood. It will include the preservative used, retention level, exposure category (above ground, ground contact, etc.) and the name of the company that did the treating. These materials will be inspected by U.S. Department of Labor approved inspection agencies.



Clockwise from top: Skirt boards require treated lumber with at least 0.60 lbs./cu.ft. of chemical retention; posts in this shipping conveyor shelter should be pressure treated to give a long service life; soil and mulch bins should be built from a non-CCA treated material; pressure-treated lumber is a good choice for benches; use ACQ- or CA-B-treated lumber for compost bins and raised beds; trailer beds that are exposed to the weather will have a longer service life if built from pressure-treated lumber.

EFFECTIVENESS

The long-term effectiveness of most new materials has not been established. Tests are under way in a number of locations. Treating materials, such as ACQ have been in service for at least 10 years and are considered as effective as CCA. Other materials such as acid copper chromate (ACC), ammoniacal copper citrate (CC) and Copper HDO (CX-A) need further long term testing. Borate preservatives are safe, low-cost preservatives, but because they remain very soluble in water, they readily leach out in soil applications.

LUMBER SELECTION

First, determine if pressure-treated lumber is needed. Unless the application is in a wet or very humid location or in contact with soil, treated lumber may not be necessary. For example, at UConn, the non-treated fir lumber frame of a greenhouse built in 1966 was still very strong in 2000 when it was taken down.

Second, in some areas of the country, red cedar, redwood, white oak or cypress may be less expensive than pressure-treated lumber. These materials have an average life of 10-15 years. Although it doesn't have the strength of wood, lumber made from recycled plastic is also becoming more readily available. It has a life similar to treated wood.

Finally, determine how the pressure-treated lumber will be used. If available, use treated lumber with lower retentions and less cost for above ground, indoor applications.

FASTENER SELECTION

The greater copper content in the alternative materials also has an effect on fasteners. Fastener manufacturers have reported rapid corrosion when the standard electro-galvanized nails and bolts are used. With the new treated lumber, hot-dipped galvanized with a much heavier galvanizing coat will be needed. Stainless steel fasteners are required for below-grade installation. Care has to be taken that stainless steel nails and bolts not be used with galvanized connectors. Also the new higher level, copper-treated lumber should not be placed in contact with aluminum frame parts.

The new pressure-treated lumber, although still in transition, are more environmentally friendly. Continued testing of both the lumber and fasteners is needed to establish life cycle applications and the best alternatives. 

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