Technical Bulletin

Colorado Wood Utilization and Marketing Program

You will notice that this Technical Bulletin is a little different than those of the past, in that it covers a range of different topics as opposed to the more narrow scope of earlier versions. This is mainly a result of time, and wanting to get this information out now, instead of three separate issues. As always, I would be interested in knowing your thoughts on these Technical Bulletins, particularly on topics you would like to see covered, or timing/format changes that might make it more useful to yourself or your crew. Feel free to contact me with your thoughts.

RETAIL SEASON

As we enter into warmer weather, and homeowners begin to think of projects requiring the products you produce, I would like to offer this challenge to you. What value-added or even finished products could you make available at your mill site that would offer additional retail sales opportunities ? What markets could these offerings allow you to expand into, down the road ? A trip to Home Depot should be enough to put ideas into your head. I currently have 3 folders worth of things clipped from the paper, or sketched from items I have seen at the local big-box stores.

For example, how difficult would it be to replicate the western red cedar mailbox holder ($23 retail for 12 bdft of downfall 4x4's for the post, cantilevered arm, and cross brace) from ponderosa pine ? How about the unfinished Adirondack chairs that retail for a small fortune at the unfinished pine furniture stores ? Wouldn't that look a little nicer if it were blue-stained lodgepole, instead ? Or, how about those incredibly simple shelving systems constructed of two vertical 2x2's, with 5 horizontal 2x2's in the shape of a ladder ? Home Depot sells them for $7/piece (5.5 bdft), and hopes you will buy particle board for the shelving. Why couldn't you produce the same thing, and sell squarely cut boards for the shelving ? How about gazebo's ? Could you develop a kit-form of a gazebo, complete with hardware, completely bundled, that a homeowner could construct on a weekend ?

I'm not suggesting you close the mill and pursue this full time, but is there an opportunity to have a talented member of your crew give a shot a producing a few, and making them readily visible to those folks walking in on a sunny afternoon ? If you want to think bigger, just realize there are 3 major universities in Northern Colorado where students buy loft beds every year, and move into apartments they furnish with knock-down particleboard furniture. I bet there might be an idea or two there.. Give me a call if you would like to visit on any of these ideas, I have plans available for everything I have mentioned, and more.

WHAT'S GOING ON WITH WOOD PRESERVATIVES ?

By now probably everyone in the local industry knows that Chromated Copper Arsenate, better known as CCA, is no longer being used as the magic bullet wood preservative it had been. However, I did want to go over a couple of points related to CCA, it's "disappearance", and what other chemicals are being used in wood preservation, both locally and nationally.

First off, CCA was not banned by the

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EPA. The registrants of CCA, namely Osmose, Chemical Specialists, Phibro-Tec, and Arch chose to withdraw the product from use in certain applications, namely all those available to the homeowner. The companies cited the "current and projected demand" for CCA, and the "availability of the next generation" of preservative treatment solutions, others point to the increasing pressure the companies faced regarding the presence of arsenates in CCA. It is interesting to note that arsenates are still in use as a wood preservative. Ammonical zinc copper aresenate (ACZA by Chemonite) used primarily with refractive species like Douglas fir on the West Coast, is still in use. ACZA contains slightly lower levels of aresenates (25 % by weight of arsenate pentoxide versus 34% for CCA-C), and is a much smaller portion of the treated wood market than CCA was, but it will be interesting to see if it faces similar pressures.

In any case, CCA stopped being used to treat wood products for residential applications on December 31, 2003. CCA was essentially replaced by two different chemical systems: Alkaline Copper Quaternary (ACQ, under the names "Preserve", by Chemical Specialists, and "NatureWood" by Osmose), and Copper Azole (CA, under the name "Wolmanized" by Arch). Both have proven to be just as effective as CCA in protecting wood from insects and decay, and both lack the arsenicals that hounded CCA. Interestingly, both also share another factor – the higher concentration of copper is corrosive to metals due to galvanic corrosion (similar to the principle of how a battery works). CCA avoided this problem in part due to the presence of chromium, which actually inhibited galvanic corrosion. As such, recommendations for using hot-dipped galvanized, or stainless steel hangers and fasteners with CCA became vital for use with the new chemical systems. The new International Residential Code requires the use of hot-dipped galvanized, stainless steel, silicon, copper, or bronze with treated wood.

Also "new" is the use of borate based preservatives ("FrameGuard" by Arch, "TimberSaver" by Chemical Specialists, and "AdvanceGuard" by Osmose). Although they are effective against both decay and insects, they cannot be used in ground contact due to the water solubility of the borates. Borates have a low mammalian toxicity, do not have the problems with corrosion, and are less expensive than ACQ or CA. Different formulations are also being used with wood-based composites like OSB, and it will be interesting to see if greater volumes of such product is used in the rebuilding of the Gulf States in the wake of hurricanes Katrina and Rita, in response to growing concern over mold and problems with Formosoan termites in Louisiana.

Locally, both Universal Forest Products and All-Weather Wood are using ACQ. All-Weather continues to treat certain industrial/commercial products with CCA, and also treats various products with AdvanceGuard Borates.

Another system that is still available, and has shown to be quite effective in the treatment of wood for ground contact applications, is copper naphthenate. It is applied in a variety of ways, including wraps for the remedial treatment of power poles, and water-borne and oil-borne formulations for dip treating products such as fence posts. CopperCare is a local distributor in Manitou Springs (contact Randy Gross at 719.685.0444), and can answer questions about potential applications of copper naphthenate in our local industry.

What is the bottom line on arsenic ?
It is poisonous, and if you ingest it, it will kill you. If it doesn't kill you, it is believed to lead to cancer (interesting note, it is also used to treat some forms of cancer). Sadly, this is where the argument begins and ends when discussions of CCA treated wood arise. Obviously the issues do go a little deeper than that. There isn't space enough to review the results of studies that have been conducted on topics ranging from chemical leaching to ingestion by children on playgrounds. However, there is a very well constructed website run by the Wood Preservative Science Council – WoodPreservativeScience.org (funded by the Arch, Chemical Specialists, and Osmose) that summarizes numerous scientific articles conducted on treated wood, and includes references to the source reports as well. To be somewhat objective, you can check out the other side of the argument at BanCCA.org. This site doesn't include results of, or references to any studies, but does link to other articles on the internet, like "Poisonous Playgournds of Monroe

County." I will let you draw your own conclusions, but if you would like more information on wood treating systems, please feel free to contact me at 970.491.2958.

OSHA AND THE INDUSTRY

In response to questions regarding the number and types of OSHA violations that are being cited in logging and sawmilling operations in Colorado, we set-out to analyze data compiled by Denver OSHA field office. They were kind enough to provide data on OSHA standards that were violated over a combined three-year time period (September 2002-2005) in Colorado, Montana, and South Dakota in both the logging and sawmilling industry sectors. Unfortunately, it was not possible to separate out the Colorado data from the combined data.

Standards were identified by their alpha-numeric designations only, requiring them to be cross-referenced to the written standards. To simplify the analysis, standards were grouped into like categories. For example, standards referring to personal protective equipment in the data provided by OSHA are contained in 1910.132A, 1910.132 D1, and 1910.266 D1 I – D1 VII, but were grouped together into a general Personal Protective Equipment class for analysis.

The emphasis of the analysis was focused on the number of violations per classification, as well as the initial and adjusted penalties levied against companies violating the identified standards.

Logging

Over the three-year time period, 81 violations of OSHA standards were cited in logging operations in the three states. In our analysis, it appeared that these violations could be separated into 17 different classes. OSHA classified approximately 74% of the violations as serious. Details on the five most cited classes of violations are given below.

1. Training – Violations on this class spanned from not having a certification of training to not re-training employees after witnessing an unsafe action. Of the 15 violations that were cited, 10 (67%) were considered as serious. Initial penalties in this class ranged from $0 to $2500, with four violations receiving no initial penalty. Only one of the violations resulted in a final (adjusted) penalty ($250). Overall, the average adjusted penalty was 13% of the initial penalty.

2. Felling – Twelve violations were cited in this class, ranging from the proper use of undercuts/backcuts, to dropping the tree in a safe work area. A full 100% of the violations were considered serious. Initial penalties ranged from $1200 to $4500, however adjusted penalties ranged from $190-$1500, or approximately 38% of the initial value of the penalty.

3. Personal Protective Equipment – Eleven violations were cited in this class. All were considered serious and initial penalties ranged from $0 (one violation) to $2100. Adjusted penalties ranged from $188 to $900, or an average of approximately 50% of the initial penalty.

4. First Aid Kits – This class contained violations ranging from not having first-aid kits available, to not having them properly stocked. Eight violations were cited, half of which were considered serious. Initial penalties ranged from $225 to $1200, while adjusted penalties ranged from $113 to $588, or approximately half of the initial penalty.

5. (tie) Flammable/Combustible Liquids – Six citations were issued in this class, which ranged from improper storage to improper transport (mainly in the cab) of flammable/combustible liquids. Eight-three percent of the violations were considered serious, and initial penalties ranged from $0-$1425. Adjusted penalties averaged $490, or approximately 34% of the initial penalty.

(tie) Hand / Portable Powered Tools – Six citations were issued for this class, 83 % considered serious, which covered the safe transport of tools in the vehicle, to not drop-starting a chainsaw. Initial penalties ranged from $750 - $1200, with adjusted penalties of slightly less than half of the initial at $375 to $490.

(tie) Machines – Six citations were issued in this class, which requires the operating and maintenance instructions for a machine to be nearby. No penalties were assessed for any of these violations, however.

Sawmills

A total of 141 citations were issued during the inspection of sawmills during the three-year time period in Colorado, Montana, and South Dakota. 104, or 73% of the violations were considered serious. In our analysis, we separated these violations into 26 different classes. Details of the top five most cited violations are given below.

1. Lock-out/Tag-out – 29 violations were cited in this class, with 83% being considered serious. Initial penalties ranged from $0 (4 violations) to $1750. Adjusted penalties ranged from $150 to $1750, or an average of approximately 27% of the initial penalty.

2. Machine Guards – 27 violations were cited, 89% considered serious. Initial penalties ranging from $0 (3 violations) to $3350. Adjusted penalties were approximately 50% of the initial value, ranging from $300 to $3350.

3. Electrical – 21 violations were cited in this class, which ranged from guarding live parts (cabinets), sufficient working space, to more basic issues like polarity and continuity. Eighty-one percent of the violations were considered serious, and initial penalties ranged from $0 (3 violations) to $3375. Adjusted penalties were only 14 % on average of the initial penalties and ranged from $0 (5 violations) to $1,000.

4.Occupation Noise – 15 violations were cited in this class, which covered a broad range of topics on noise, including maintaining a hearing conservation program, to administrative/engineering controls to control noise, to required use of PPE. Of the 15 violations, 47 % were considered serious. Initial penalties ranged from $0 (6 citations) to $15,000 – the highest initial penalty in the study. Adjusted penalties ranged from $0 to $5250 (the adjusted value of the $15,000 penalty). Overall, adjusted penalties were 30% of the initial values.

5. Guarding Wall and Floor Openings - of the 6 citations in this class, all were considered serious. Initial penalties ranged from $0 (1 citation) to $6375, while adjusted penalties ranged from $300 to $3188, or approximately 65% of the value initial penalties.

The Denver OSHA Office was also kind enough to provide a number of copies of their Wood Products Specialty Series CD's. The CD's contain a reproduction of some of the OSHA websites related to sawmills, logging, and woodworking, along with interactive E-tools that outline safety in every stage of logging/production, and lists of applicable standards. I would be happy to send a copy of the CD to you at no charge, if you let me know you are interested. Give me a call at 970.491.2958, or email me at chris.jennings@colostate.edu

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