



Oregon Wood Innovation Center

Connecting people, ideas, resources

COMING OWIC EVENTS:

- September 19-20: [Bio-mass From Feedstock to Product](#) Weed, CA
- December 3-6, 2007: [How to Dry Lumber for Quality and Profit](#) Corvallis, OR

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How Will California's Formaldehyde Regulation Impact Your Firm?

The Willamette Valley Chapter of the Forest Products Society in partnership with the Oregon Wood Innovation Center conducted a workshop to help clarify unresolved issues involving the new formaldehyde emission regulations being developed by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/toxics/compwood/compwood.htm>).

The day-and-a-half event was held at the Valley River Center in Eugene, Oregon on July 10th and 11th and drew more than 100 attendees from all over the US and Canada. The event featured representatives from CARB, glue manufacturers, wood composite trade associations, wood composite users, and third party certifying agencies presenting their views and concerns.

This workshop served as one of the first forums where CARB was able to receive feedback from all wood products industry sectors impacted by this regulation.

Attendees had an opportunity to ask questions of the presenters during an extended panel discussion, tour formaldehyde emission testing chambers and attend an evening social where discussions and a free exchange of ideas

occurred.

A description of the program and copies of slide presentations are available on the event website <http://owic.oregonstate.edu/formaldehyde/>. Answers to questions submitted to CARB during the panel discussion will be possible on the website as soon as they are available.

Other issues raised during the panel discussion included cross contamination of panels in common storage areas, enforcement on imported panel products, which types of panel products are subject to the regulation, and issues relating to chain of custody.

To continue the discussion on this hot topic, the Oregon Wood Innovation Center is hosting an on-line discussion forum now available at <http://owic.oregonstate.edu/bboard/>. The forum is intended to facilitate continued dialogue among manufacturers on the challenges, solutions, and regulatory issues related to this topic. Additionally, the forum will serve as the venue for posting answers to the written questions submitted to CARB by participants during the session.

The California Air Resources Board is in the process of developing a Frequently Asked Questions webpage where they will provide answers to common questions regarding this regulation.

More information on the California Air Resources Board can be found at <http://www.arb.ca.gov/homepage.htm>



Erwin Schutfort, Senior Wood Scientist, PSI and President of the Willamette Valley Chapter of the Forest Products Society discusses challenges the forest products industry will face in meeting the new CARB regulation.

In addition to the challenges the forest products industry faces in meeting this regulation, the panel discussion forum revealed that CARB faces equally daunting challenges with enforcement. It has yet to be determined how the increased demand for emissions testing will be met, not only domestically but also internationally.

Featured Researcher: Kate McCulloh

The featured researcher for the month of August is Dr. Kate McCulloh. Kate is a Faculty research associate in the Department of Wood Science and Engineering at OSU and works with Dr. Barbara Lachenbruch in the ecological physiology research group. She has been with OSU since January 2005.

Kate's research focuses on the functioning of wood within living plants and how the complex xylem tissue accomplishes many tasks. Currently, she is working on comparing the xylem networks of many different plant types and species from various habitats. For example, plants such as vines and trees differ in how dependent they are on their xylem to hold them upright. Their research group is trying to understand how those different needs are met by the xylem and if they might impact the ecological distribution of various growth forms.

Kate is interested in comparing many plant types from different habitats, so she has done research in tropical forests in Panama and Ecuador. This fall she hopes to visit Brazil and in the winter, she is planning a trip to tropical Australia. By comparing species from these exotic locations with local species here in Oregon and Washington, she hopes to better understand questions like why conifers are so abundant here and why vines are so much more common in the tropics.

Many of the measurements that her research group takes require samples from the tops of tall plants, and they use a variety of methods to get those samples. The most interesting ways are canopy cranes, which are construction cranes in the middle of the forests that pick up researchers in a gondola and move them all over the canopy. The ecological

physiology research group has done work on the cranes in Washington and Panama, and hope to visit the one in Australia early next year. Kate considers herself very lucky

to have witnessed the unique view of the canopy that the cranes and climbing provide. Additionally, they collect samples through tree climbing. The picture of Kate above shows her climbing a madrone tree in the College of Forestry's MacDonald-Dunn research forest.

More information on Kate can be found at <http://woodscience.oregonstate.edu/faculty/gartner/others.htm>.



Financial Assistance Programs for Oregon Businesses

Do you have an idea to start a new business or expand your current business? Do you need funding to help make your idea a reality? The Oregon Economic and Community Development Department has several programs available that can provide you with financial assistance. The programs available are outlined in the following text.

Oregon Business Development Fund (OBDF) - This program has a revolving loan fund which provides long-term, fixed rate financing. Financing is available to firms with fewer than 50 employees for land, equipment, machinery, and long-term working capital. This fund empha-

sizes rural and distressed areas and businesses.

Oregon Business Retention Program - This program provides consulting services to businesses facing challenges. Consultants are matched to companies based on specific needs and industry requirements.

Oregon Capital Access Program (CAP) - A small business program providing capital for start-up or expansion. This program assists lenders making commercial loans to small businesses.

Oregon Credit Enhancement Fund (CEF) - This program is a

fund that provides guarantees for working capital or fixed assets bank loans and is available to manufacturing, processing and production companies with less than 200 employees.

Entrepreneurial Development Loan Fund (EDLF) - This program provides start-up firms with direct loans and is designed for firms less than 24 months old with annual revenue less than \$100,000.

Industrial Development Revenue Bonds/Express Bonds - This program issues tax-exempt bonds for the benefit of businesses.

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Ask the Expert

Have questions related to wood? The faculty of the Wood Science and Engineering Department at OSU have the expertise to handle almost any question about wood. Simply submit your question using the [Ask the Expert form](http://owic.oregonstate.edu/askexpert.php) (<http://owic.oregonstate.edu/askexpert.php>). Please be as specific as possible.

The following are examples of recent 'Ask the Expert' questions:

Question: We are having problems with stain in pine. What might be causing this problem?

Answer: There are a number of different kinds of stain in wood:

Sapstain is usually a blue to blue-black color caused by fungi. The fungi use the sugars in the sapwood for food and thus this stain is limited to the sapwood.



Sapstain in southern pine.

Chemical brown stain is common in pine and is caused by high temperature and humidity early in kiln drying; these stains are usually a pale brown that look like the wood has been 'toasted.'

Iron stain is typically black and caused by tannins in the wood coming into contact with iron fasteners and/or water with high concentrations of iron. Iron stain is more common in oak and western redcedar than in pine.



Iron stain on a building.

Lastly, there are stains caused when two species come into contact due to reactions between chemicals found in the woods. Such discolorations are common in kiln-drying when the wood being dried and the wood used for stickers are from 2 (or more) different species.

Question: I have a question about tolerances that are 'one-sided.' For example, in a mortise and tenon joint, the mortise might be allowed to be some dimension plus 0.040 but minus 0 inches. The tenon can be minus 0.040, but plus 0. How do you set targets in a situation like this where two parts fit together and there is some minimal allowance for 'slop' in the joint but no allowance for parts that don't fit together due to 0 clearance?

Answer: This seems to fall into the category of tolerance stacking, i.e., when you combine two or more parts together in an assembly, the variability

of the assembly is a combination of the means and variations of the individual components.

A spreadsheet is available at <http://owic.oregonstate.edu/spc/tolerance.xls> that calculates the non-conforming parts per million (ppm) using various combinations of average part size and standard deviation.

The 'clearance' and the gap are really the same thing - the amount of slop in the fit. You can play around with the mean dimensions of each part to see which gives you the best situation. As I have it set now, the tenon is at 0.721 inches, mortise at 0.763 and both have standard deviation of 0.007 inches. This will result in about 11 parts that don't fit together and about 62 ppm with excessive slop.

Thus, if your control chart showed an in-control average of 0.721 and 0.763 for the parts, AND an estimate of sigma of 0.007, then you'd be able to meet the specifications.

As is always the case with quality control, controlling (and hopefully reducing) the standard deviation is crucial. See what happens if you adjust the standard deviation to be, for example, 0.010. Nonconforming ppm jumps to nearly 5,100!

OWIC has an on-line discussion forum where industry professionals can discuss issues related to several topics including SPC. The discussion forums are available at <http://owic.oregonstate.edu/bboard/index.php>.

Oregon Biofuels and Biomass Report

Gail Achterman
 Director Institute for Natural Resources
 Oregon State University

A report on the current state of industrial interest in producing biofuels in Oregon is now available. The report was funded jointly by the Oregon Economic and Commu-

nity Development Department (OECD) and the Oregon University System (OUS) to help policy and economic decision makers in the State to determine the importance of promoting the establishment of a new signature research center, the Bioeconomy and Sustainable Technology Research Center (BEST). BEST is one of two

new research centers proposed by the Oregon Innovation Council (Oregon InC) for the 2007-08 biennium.

The report is comprised of two documents:

Potential Project Survey including

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Biofuels and Biomass (Continued from Page 3)

Potential Barriers - Environmental Strategies, LLC and Northwest Environmental Business Council collaborated to inventory the biofuels and biomass projects pending in Oregon, and gathered information from individuals and organizations about permitting regulatory barriers that face new or expanding biofuels or biomass facilities in Oregon including suggesting possible solutions.

Woody Biomass in Oregon-

Current Uses, Barriers and Opportunities for Increased Utilization, and Research Needs - The Oregon Wood Innovation Center at OSU assessed barriers and opportunities to utilization of woody biomass. The report examined implications for research via an overview of Oregon's current primary forest products manufacturing industry combined with estimates of regional biomass supply, review of recent reports related to use of woody biomass for biofuels and bio-based

products, and interviews with private landowners and forest industry personnel.

The project was directed by Kenneth J. Williamson, Department of Chemical Engineering, Oregon State University.

The full reports can be viewed at <http://owic.oregonstate.edu/biomass.php>

Financing Oregon Businesses (Continued from Page 2)

Local Revolving Loan Funds - Revolving funds available to small businesses by many organizations including the federal Housing and Urban Development (HUD), the federal Economic Development Administration (EDA), and the U.S. Department of Agriculture Rural Economic and Community

Development Administration (RECD).

More information about these programs can be found on the Oregon Economic and Community Development Departments website at <http://econ.oregon.gov/ECDD/finance.shtml>.

The Oregon Economic and Community Development Department also has programs which provide business incentives and tax credits. These programs will be highlighted in a future newsletter article.

Events of Interest

August 21-22, 2007

Sanding and Abrasives & Moulders and Tooling
Wood Education and Resource Center
Princeton, West Virginia
<http://www.ces.ncsu.edu/nreos/wood/>

September 17-18, 2007

Lumber Quality & Process Control
Richardson Hall
Oregon State University
Corvallis, OR
<http://oregonstate.edu/conferences/lumberquality2007>

August 30-31, 2007

Profile Knife Grinding and Moulder Set-Up Orientation
University of Kentucky
Quicksand, Kentucky
<http://www.ca.uky.edu/forestryextension/calendar.php>

September 19-20, 2007

Lumber Quality Leadership
Richardson Hall
Oregon State University
Corvallis, OR
<http://oregonstate.edu/conferences/lumberquality2007>

September 12, 2007

Grading and Specifying Workshop
Hardwood Plywood and Veneer Association
Salt Lake City, Utah
<http://www.hpva.org/events/index.asp>

September 24-25, 2007

Managing and Understanding the Hispanic Workforce: A Workshop for Managers in the Forest Industries
Wood Education and Resource Center
Princeton, West Virginia
<http://www.woodscience.vt.edu/about/extension/marketing.asp>

Events of Interest

October 8-12, 2007
TCI Global Competitiveness Conference
 The Competitiveness Institute
 Portland, OR
<http://www.clusters2007.com/index.html>

October 9-12, 2007
Hardwood Dry Kiln Operator's Short Course
 Haywood Community College
 Clyde, North Carolina
<http://www.ces.ncsu.edu/nreos/wood/>

October 16-18, 2007
Making Wood Work: Local Energy Solutions
 Missoula, Montana
http://fuelsforschools.org/biomass_boiler_workshop.html

October 18-19, 2007
Western Hardwood Association Lumber Grade School
 Location to be announced
 Portland, OR
<http://www.westernhardwood.com/WHAGradeSchool07.htm>

October 23-25, 2007
Continuous Improvement Using Statistical Process Control for Forest Products Manufacturers
 The University of Tennessee Forest Products Center
 Knoxville, Tennessee
http://web.utk.edu/~tfpc/Intelligent/SPC_Training/SPC%20trainingmain%20page.htm

December 4-6, 2007
Advanced Statistical Seminars for Forest Products Manufacturers
 The University of Tennessee Forest Products Center
 Knoxville, Tennessee
http://web.utk.edu/~tfpc/Intelligent/SPC_Training/SPC%20trainingmain%20page.htm

If you have an event you would like to include, please submit it to Chris.Knowles@oregonstate.edu.

To subscribe to this newsletter send an email to [Chris Knowles](mailto:Chris.Knowles@oregonstate.edu) with "subscribe to newsletter" in the subject line.

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Previous issues of the OWIC newsletter are available at: <http://owic.oregonstate.edu/newsletter/>

