Oregon Wood Innovation Center

Connecting people, ideas, resources

COMING OWIC EVENTS:

- **September 19-20:** From Feedstock to Product **Weed, CA**
- **December 3-6, 2007:** How to Dry Lumber for Quality and Profit **Corvallis, OR**

INSIDE THIS ISSUE:

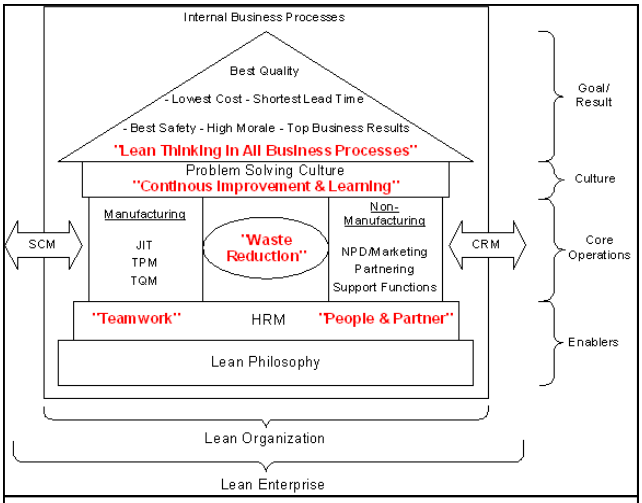
What Lean Can do for Your Wood Products Business

Lean Manufacturing, with its roots in the automotive industry, is a philosophy that has been integrated into many manufacturing industries. Despite such widespread popularity, the lean philosophy has not been widely implemented in the forest products industry.

Recent research at OSU using case companies in the U.S. and Germany highlights the challenges of implementing a lean philosophy, as well as the benefits to companies implementing this philosophy. The results of this research, completed by Jochen Czabke, a recent OSU MS graduate, and Eric Hansen, professor of forest products marketing,, is available for forest industry personnel to view at http://owic.oregonstate.edu/lean/czabke.php.

Lean thinking captures the holistic management approach behind lean manufacturing. Findings of the study on lean thinking in U.S. and German secondary wood products firms suggest that lean thinking can make companies in the secondary wood products industry more profitable.

The implementation of lean thinking resulted in more efficient and cost-effective operations. The study also shows that applying lean thinking to marketing processes benefits customer service, new product development, and customer satisfaction.



The Lean House outlines how the lean philosophy reaches all aspects of the firm.

The key challenges case companies faced during lean implementation were communication issues. All case companies saw it as critical to communicate the new vision and values to all employees. It was seen as extremely important to have everyone understand and accept what lean thinking means and what benefits it can bring to an organization.

At the same time, effectively communicating these messages was the main challenge all case companies had to overcome.

Although there are some differences between companies and countries, key factors for successful lean implementation were found to be consistent. The exchange of experiences with other companies that have already successfully implemented lean thinking was seen as very beneficial to novice lean implementers.

Across all case companies, managers indicated that external assistance is required to successfully implement a lean philosophy. The identified types of assistance required to successfully implement a lean philosophy can be recommended to any company willing to implement lean thinking at its operation. Furthermore, it is critical to understand that the employees were the single most important resource for a company and that they should be treated accordingly.

Additional resources on lean can be found on the OWIC website at http://owic.oregonstate.edu/lean/.

Oregon State University OSU College of Forestry

Featured Researcher: Lech Muszynski

The featured researcher for the month of September is Dr. Lech Muszynski. Lech is an Assistant Professor in the Department of Wood Science and Engineering at OSU. He has been with the Department for 3 years. Prior to joining OSU, Lech worked on the faculty at the Agricultural University of Poznan, Poland and on the faculty at the Advanced Engineered Wood Composites Center at the University of Maine.

In the rapidly changing global economy with global labor markets, fast technology transfer and low cost of massive transport the US forest products industries can hardly maintain their competitive advantage in manufacturing cheap commodities. Their long-term growth requires assuming the leading position in developing new, advanced materials and smart technologies and making the innovation a permanent self-sustaining process. Lech's research projects are focused on supporting the innovation process by expanding the fundamental knowledge and building integrated empirical methods for physical and mechanical characterization of complex wood-based composites. This knowledge and experimental methods are instrumental in building better computer models, accurate simulation and rapid prototyping tools for new bio-based materials.

Currently the main thrusts of Lech's research are 1) *Characterization of morphology, micro-mechanics and governing failure mechanisms in natural fiber-plastic composites*, 2) *Non-destructive in-situ characterization of adhesive bonds in wood-based composite materials* and 3) *Experimental determination of thermo- and hygro-mechanical characteristics of wood for modeling composite manufacturing processes*.

All three are concerned with developing methodologies based on clearly defined geometric, physical and mechanical characteristics of materials rather than indirect comparative properties. All utilize advanced imaging techniques for quantitative characterization of composite materials.

Lech has recently mentored one graduate student to completion and is expecting two students to join him in the coming academic year.

Lech teaches a course in Composites Manufacturing (with Dr. John Simonsen) as well as course in Wood Physics.

For more information about Lech's research program visit http://woodscience.oregonstate.edu/faculty/muszynski/indexa.htm.

'America's Dynamic Workforce'

A report by the U.S. Department of Labor

In August, the U.S. Department of Labor (http://www.dol.gov/) released a report on the current and notable trends and conditions affecting the U.S. labor market and economic activity. The primary emphasis of the report is on measures of labor market performance (employment), labor force participation, unemployment, and compensation. The report also describes how gross domestic product (GDP) and productivity growth relate to the these market trends and conditions.

The U.S. labor market is analyzed using data to present an overall portrait of the market's health and dynamism.

According to the report, the U.S. has a strong and resilient labor market which is creating jobs, expanding output, and rewarding work with good compensation. The economy has recorded 46 consecutive months of job gains (through June 2007) and employment has reached record levels. Not only is the economy creating jobs, but the majority of growth in employment over the past six years has been in areas with above-average compensation. This trend is expected to continue, with most new growth projected to be filled by employees with some level of post-secondary education. The report notes that education providing the skills and knowledge in demand by U.S. employers is the key to success in the is dynamic labor market.

In addition to highlighting the positive aspects of our economy, the report also acknowledges the challenges facing our economy. The world is currently experiencing a major economic transformation, where technology has accelerated the pace of change and the U.S. is in a transition to a knowledge-based economy.

Data through June 2007 is presented in the report and updates and revisions through July 31, 2007 have been incorporated.

The report is composed of six chapters and an executive summary. The executive summary and the full report are available on the U.S. Department of Labor's website at http://www.dol.gov/asp/media/reports/workforce2007/.

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). Please be as specific as possible when submitting your question.

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

Question: I have a bunch of pacific madrone on my property that I have to clear for my house. I would like to use it for my hardwood floors. Is this feasible?

Answer: What you are suggesting is certainly feasible. However, there are a couple hurdles you will have to clear before the trees on your property become the floor in your house.

The first hurdle will be finding someone to cut the trees down and haul them to the location where they will be sawn into lumber. The second hurdle will be finding a manufacturer to take the madrone lumber and make it into flooring.

We have a tool that will help you clear both of these hurdles - the Oregon Forest Industry Directory. This directory is a searchable database of businesses in the forest products industry in the state of Oregon. Using the Advanced Search function you can find firms that will cut and haul your trees by searching for logging.

You can also use the directory to search for a company that will mill the lumber into flooring. A search of firms producing flooring in Oregon revealed 28 companies.

You can also use the county or region search fields within the advanced search function to narrow both searches to a specific region of the state.

Question: I am building custom lattice panels for a new sun-deck. The panels are made of 1/2" x 1" spruce / pine- approx 7' long. I would like to attach the panels directly to my posts to strengthen the whole assembly but I'm concerned about wood movement.

Do you think a 7' long piece of pine / spruce will move enough to "bow" the panels and/or push the posts? or should I allow the panels to "float"?

Answer: Sounds like the primary movement you're concerned with is swelling along the length of the 7' piece. Normal wood shrinks primarily across the grain and very very little along the grain. Thus, if your material has been stored outside long enough that the moisture content (MC) will be approximately the average of where it will be in-service you should be safe. Where MC could be a problem is, for example, if the wood was kiln-dried down to 6% or less or, on the other extreme, green from the living tree.

Again though, this is for 'normal' wood. You might see significant shrinkage in the length of the piece if they contain juvenile wood and/or reaction wood. Juvenile wood forms surrounding the pith (center) of the tree. If you see the pith in a piece, there's likely to be some juvenile wood. Reaction wood is formed in a tree that is leaning or under some other such stress. It's usually easier to spot in the logs because the logs become egg-shaped the wood has wider growth rings on one side, etc. Both juvenile wood and reaction wood can shrink up to 10 times more along the grain than 'normal' wood. Thus, at the least, one of the lattice pieces might bow.

Question: We are considering starting a business that would utilize peeler cores from plywood mills. How do we go about locating sources for peeler cores, and approximately how much should we pay for them (not treated or slabbed)?

Answer: We have an on-line directory of Oregon wood products firms that can help you locate the plywood mills in Oregon. The address for the Oregon Forest Industry Directory is www.orforestdirectory.com. To search for plywood mills, click on Advanced Search just under the Search text box in the upper left and search for Products Produced = 'plywood, hardwood' then do another search for 'plywood, softwood', and one more for 'veneer, softwood.' You can skip the search for 'veneer, hardwood' since there are no mills peeling hardwood logs in Oregon (at least, none that we know of). These searches will not be 100% accurate for mills that will have peeler cores because some plywood mills do not peel veneer - they purchase veneer to produce either plywood or laminated veneer lumber (LVL). However, this search will get you started.

As you may already know, peeler cores will be of varying sizes. Due to equipment limitations, some mills can only peel down to 4 or 5 inches. However, others can peel as small as 1-2 inches. Further, even the mills that can peel to very small cores will sometimes deliberately produce larger cores if the markets are right.

The current markets for peeler cores include chips (for paper), landscape timbers, posts (for fences or stakes, such as for grapevines and other agricultural products); there are also sawmills with small log handling equipment that can process larger peeler cores into 2x4 or 1x4 lumber. Regarding determining price, your best bet is simply to call the plywood mills.

Events of Interest

September 12, 2007
Grading and Specifying Workshop
Hardwood Plywood and Veneer Association
Salt Lake City, Utah
http://www.hpva.org/events/index.asp

September 17-18, 2007
Lumber Quality & Process Control
Richardson Hall
Oregon State University
Corvallis, OR
http://oregonstate.edu/conferences/lumberquality2007

September 19-20, 2007
Lumber Quality Leadership
Richardson Hall
Oregon State University
Corvallis, OR
http://oregonstate.edu/conferences/lumberquality2007
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

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
Port land, 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%

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

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