



Oregon Wood Innovation Center

Connecting people, ideas, resources

COMING OWIC EVENTS:

- April 26-27, 2007: [Selling Forest Products](#)
- May 24-25, 2007: [Architectural Design with Wood](#)
- Spring 2007: [Wood Adhesion Short Course](#)

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China: Overview of a Changing Country

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Ask a US-based wood products manufacturer their number one competitive issue and it is likely that you will hear "China." In recent decades, the Chinese forest products industry has undergone tremendous growth, translating into its status as a major importer of wood raw materials (i.e. logs and lumber) and a major exporter of finished products ranging from particle-board to high-quality furniture.

This article is the first in a series focusing on China and the implications for US companies of its growing wood products industry. The following text presents an overview of China and serves as background for future articles.

Demographics

With a population of more than 1.3 billion people, China is the most populous country in the world. China's population is concentrated on the eastern coastline, with 51% of the population living on less than 20% of the total land area. In contrast, in the western part of the country, less than 5% of the population lives on approximately 42% of the available land. China's wealth is distributed similarly with ap-

proximately 64% of GDP coming from the eastern part of the country, as opposed to only 4% from the west.

China's population growth rate has slowed dramatically in recent years, down from 16% in 1988 to about 6% in 2004. This decrease in growth rate is largely the result of

household income has also grown, but has not been equally distributed. Income increased approximately 300% in rural areas and approximately 600% in urban areas. On a national level, the per capita annual income for rural households is \$358 compared to \$1235 for urban households. It is important to note that more than 80 million rural Chinese earn less than \$1 day.



a nationally instituted one-child policy. China's current population growth rate is equivalent to that in the US, which has one of the highest growth rates of any industrialized country in the world.

Economic prosperity

China has experienced tremendous growth in GDP, with an average increase of 10% between 1980 and 2000. Consequently, average

The rise in income in China has not resulted in an equal rise in spending as the Chinese generally save a large share of their income (20+%). This limits domestic consumer spending and contributes to Chinese manufacturers focusing on export markets.

Changes in policy combined with economic growth have brought China to a time of demographic transformation. The population is

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Do you need funds for a business idea?

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Do you have a business idea but don't have the funds to get it off the ground? There is help available. The Small Business Innovation Research (SBIR) grant is a federal program designed to provide assistance to small businesses.

Before you can receive funding with this program, you must complete a successful grant application. The Corvallis-Benton County Economic Development Partnership is offering a training course, "World Class SBIR Writing Workshop", on June 24-25 at the LBCC Benton Center for \$75. This course will help you successfully navigate the proposal writing process.

More information on the course is available at: <http://corvallisdep.com/drupal/node/49>.

More information on the SBIR program is available at: <http://sbirworld.com/>

Architectural Design with Wood

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The 2nd annual Architectural Design with Wood course is being offered May 24-25, 2007 in Richardson Hall on the OSU campus. The course will feature a diverse group of speakers discussing the following topics:

- Overview of wood as a building material
- Design for durability

- Seismic design
- Improving safety of wood decks
- Creativity in wood design
- An environmental profile of wood building products
- Innovative wood products made in Oregon
- The effect of wood on human mood

Members of the American Institute of Architects participating in the course will receive 10 CEU credits. Course registration is \$150.

For more information on the course or to register, please visit: <http://oregonstate.edu/conferences/adw2007/>. Please forward this information on to any architect or builder contacts you have.

If you have any questions regarding this course, please contact me at: Chris.knowles@oregonstate.edu or (541) 737-1438.



Oregon Forest Industry Needs Assessment

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The Oregon Wood Innovation Center is currently undertaking a project to assess the educational needs of the Oregon forest products industry. This comprehensive project is a follow-up to a needs assessment completed eleven years ago. The main objective is to determine the topics that are most important to Oregon wood products companies. This will allow us to

better understand how we can meet the educational needs of the industry and will provide us guidance on re-designing our teaching, practical research and outreach activities to better serve the changing needs of the Oregon wood products industry.

We mailed a short questionnaire to all Oregon forest products manufacturers for which we have mailing addresses. Please take a few minutes of your time to complete this questionnaire and return it to us. If you have already responded, thank

you for your response.

Our goal is to receive input from all wood products manufacturers in the state, large or small. If your company is a manufacturer of wood products and you have not received a questionnaire, please let us know by sending an email to jim.Reeb@oregonstate.edu

Ask the Expert



The "Ask the Expert" column is taking a one month hiatus so we can emphasize another feature on the OWIC website that allows users to ask questions—the online discussion forums. These forums are designed to allow users to discuss problems they are facing with others who may have the same problems. Users must log in but have the option of remaining anonymous. The forums are available at <http://owic.oregonstate.edu/bboard>.

Currently, there are forums set up that focus on the following topics: Sawmilling, Statistical Process Control (SPC), and Woody Biomass Utilization.

The sawmilling forum is designed to meet the needs of the small to medium sized sawmill. Within this forum, there are two topic areas: Lumber Grading and Lumber Drying. Following is an example of a topic posted under lumber grading:

We've often discussed why many if not most building inspectors insist on the use of grade stamped lumber in structures - are the risks and liabilities for producers significant? I received a request recently from an attorney that sheds some light on this topic:

"I am interested in contacting an expert in lumber grading to consult on a case of mine involving an injury occurring as a result of structural lumber breakage. The builder purchased number 2 or better lumber as was called for by the engineered plan and building code. A worker was standing on a rafter when it broke causing the fall resulting in paraple-

gia. Inspection of the board, a 2 by 6, revealed a 5 inch knot that caused the break. The rest of the lumber had been incorporated in the pole barn and we need to inspect this lumber also to see whether this lumber meets grade."

Here is an example from the lumber drying forum:

To all: What is your best method for drying Pacific Yew to avoid checking/cracks? I've tried a couple but am looking for feedback and possible alternative methods/tips.

Statistical process control is a topic that we often answer questions on. This forum was created based on participant feedback from short courses on this topic. Here is an example discussion topic from the SPC forum:

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?

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 at <http://owic.oregonstate.edu/spc/tolerance.xls> that calculates the nonconforming 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!

By posting topics to these forums, you can draw not only on the expertise at OWIC but also on the expertise and experiences of others in the industry that have faced and perhaps solved the same problems.

OWIC's goal is to make these forums as useful as possible. Please let us know if there are additional discussion forum topics you would like us to add (chris.knowles@oregonstate.edu).

Featured Researcher: Jim Reeb

Jim Reeb is an Associate Professor and Extension Specialist in the Department of Wood Science and Engineering at Oregon State University. Jim began his professional career with Weyerhaeuser Company, working in fiber sales and procurement, and later supervised crews in a southern pine sawmill and planer mill. He returned to graduate school at Texas A&M where he completed his Ph.D. in Forestry with an emphasis in operations research. During his time at the University of Kentucky (1990-1994) as an Extension Wood Products Specialist, he and several others initiated and directed the Kentucky Master Logger Program that received the 1994 Governor's Environmental Excellence Award for Forestry.

In 1994, he joined the faculty at Oregon State University. Jim has been Director of the Plywood

Manufacturing Continuing Education (CE) Course and Co-director of the Lumber Drying CE Course at Oregon State University. He is active in the Forest Products Society having served in various officer positions in the Ohio Valley Section and the Willamette Valley Chapter. He is a member, and served on the executive board, of the Association of Natural Resource Extension Professionals.

His current activities include using models to study sawmill and secondary mill processes with an objective of better understanding manufacturing processes to make them more efficient.

Recent and current projects include:

- Fracture properties of plywood gluebonds
- Relationship between veneer

roughness and gluebond quality

- Understanding how important parameters such as lead time and inventories change when switching from traditional manufacturing to using manufacturing cells and lean manufacturing techniques
- Using part families to decide what parts to pull out of a current system and process through manufacturing cells
- Value-added uses of Alaska birch
- Understanding checking in maple plywood faces
- Modeling sawmills to understand the complex results of using more small diameter timber in their log mix

More information on Jim Reeb can be found at:

<http://woodscience.oregonstate.edu/faculty/reeb/index.htm>



Selling Forest Products Short Course

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Personal selling is the primary tool used in marketing most forest products. Yet, very few individuals in the industry have professional sales training when starting their career. Those attending this short course will learn the basics of personal selling, methods of identifying new customers, and will analyze their personal selling profile.

The course is designed to improve the efficiency and effectiveness of sales personnel. It is intended for new sales and marketing personnel or those wishing to improve their selling skills in the forest products industry.

More information on the course and course registration are available at: <http://oregonstate.edu/conferences/sellingforestproducts/index.html>

April 26 - 27, 2007

Selling Forest Products

Oregon State University - Corvallis, OR

An Innovative Learning Experience
Presented by Oregon State University College of Forestry

And the Winner is ... Timber

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“The Great Materials Debate” was recently held at the [Ecobuild](#) conference held in London, England from February 27—March 1, 2007. During an afternoon session on February 27, experts presented cases for steel, masonry, concrete, plastic and timber as sustainable building products.

An expert presented the a case for each material followed by testimony from an expert witness. The testimony was followed by a group discussion and vote.

Following the vote by session participants, timber was overwhelmingly voted the most sustainable construction material.

More information on the format of the “Great Materials Debate” is

available at <http://www.ecobuild.co.uk/page.cfm/link=357>.

The case for wood was presented by Paul Newman, a manager with the Timber Research and Development Association, and is summarized at <http://www.trada.co.uk/news/view/0EDAD9F3-F55D-410C-A21C-3E62912C2D02/>.

FPS Willamette Valley Meeting

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The Willamette Valley Chapter of the Forest Products Society will be holding a meeting at 6:30 on May 15 at the Best Western in Wilsonville. The meeting will include dinner, an introduction of the new

officers, and a presentation about the Oregon Wood Innovation Center by Scott Leavengood and Chris Knowles.

Officers for 2007 are:

Erwin Schutfort, Chair
PSI

Chris Coleman, Vice Chair
WWPA

Charles Brunner, Treasurer
OSU Wood Science and Engineering

Chris Knowles, Membership Chair
Oregon Wood Innovation Center,
OSU

China: Overview of a Changing Country (Continued from page 1)

moving towards more affluent households inhabited by fewer people as a result of lower birth rates and a move away from a tradition of multiple generations living together. Additionally, people continue to migrate from rural to urban areas in search of employment and a higher standard of living. These patterns are shaping the domestic demand for goods and services.

China plays a major role in international trade. In 2004, China was the third largest trading nation in the world, with international trade accounting for approximately 70% of its GDP. Leading exports are

electrical machinery, power generation equipment, and apparel. China's top three trade partners are the US, Japan and South Korea. Bilateral trade between the US and China increased by approximately 25% from 2004 to 2005.

Forest resources

Estimates show that China has 182 million hectares of forested land, representing approximately 18% of the land base. With 55 million hectares, China boasts the largest tree plantation area in the world and increases are expected into the foreseeable future. In 2005, more than 2.5 million hectares of land were planted. However, forecasting

future area and volume is difficult because statistics regarding survival rates of these stands are often not available. The Chinese government has set a goal to use domestic supply to meet its demand for raw material by 2015. Despite the growth in plantation area, there is doubt among experts this will happen.

The next article in this series will focus on China's role in international wood products trade.

Sources:

- (1) Butterworth, J. and Z. Lei. 2006. China, Peoples Republic of. Solid Wood Products Annual 2006. GAIN report. USDA FAS. <http://www.fas.usda.gov/gainfiles/200607/146208294.pdf>
- (2) Cao, J., R. Braden, and I. Eastin. 2006. Distribution Systems for Value-Added Wood Products in China. CINTRAFOR Working Paper 102. 68 pp.

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