The Department of
Wood Science & Forest Products
at Virginia Tech

Volume 5 Issue 10 – November 2010

INSIDE VT WOOD

News from Audrey Zink-Sharp, Interim Department Head

•Our annual **Undergraduate Scholarship Reception** is scheduled for Wednesday, November 10, 2010, in Latham Ballroom C, The Inn at Virginia Tech, 6:00 p.m. – 8:00 p.m. Our guest speaker is Mr. Sandy Bennett, President, Blue Ridge Timberwrights. Everyone is invited. Please *r.s.v.p.* to Angela Riegel, ariegel@vt.edu before Friday, November 5th. An invitation is appended to this newsletter. Hope you can join us.

•Our first WS/FP **Graduate Student Symposium** will be held November 12, 2010, in Fralin Auditorium from 9:00 a.m. – 2:30 p.m. For more information, see the Abstract Booklet at the end of this newsletter.

•I am very pleased to announce that **Dr. Young Teck Kim** and **Dr. Laszlo Horvath** have joined our department as Assistant Professors of Practice with emphasis on undergraduate education and research in packaging science. **WELCOME** Drs. Kim and Horvath, we are very glad they are with us.

Dr. Young Teck Kim

Dr. Kim specializes in the areas of biodegradable and plastic polymers, sustainable (rigid and flexible) packaging, smart packaging, and food/pharmaceutical/nutraceutical packaging using various analytical instruments and novel technologies.

Dr. Horvath will focus on development of new educational opportunities and research in the areas of packaging, materials handling, and packaging design.

Dr. Laszlo Horvath

More news in the Department

Tom Hammett was recently reelected to the board of the Tropical Forest Foundation (TFF). Based in Alexandria, TFF is a consortium of representatives from wood using industries, wood industry suppliers, academic, and non-governmental groups working in tropical forest products. This year's annual board meeting was held in Washington, DC where the programs for training and development activities in Gabon, Indonesia, Brazil and Guiana were presented. Tom is looking for opportunities for our students and faculty to collaborate with TFF at their overseas operations. He has invited the Director of TFF to campus for a visit in early December to discuss with department and college avenues for future collaboration.

In late October, Tom Hammett gave a business planning workshop to 12 women entrepreneurs from Kirghistan. The group's visit was supported by the US Department of State and organized through Legacy international of Bedford, VA. Tom's former Ph.D. student, Khalid Hassouna, was the guide and directed their visit to the US. The women will be writing business plans for new natural resource-based companies in their home communities when they return home in late November. Over the next few months Tom and Khalid will mentor the entrepreneurs. It is hoped that they both will travel to Kirghistan in March 2011 to work with the start-up companies.

Tom Hammett presenting a workshop for 12 women entrepreneurs from Kirghistan.

Tom is presented a small camel in appreciation for his workshop by the participants from Kirghistan.

Upcoming Workshops

Rough Mill Yield Improvement Using ROMI 3.1
The workshop is designed to help rough mill managers, supervisors, and operators improve the performance of their rough mill, achieve reliable quality and deliveries, and decrease costs. Workshop participants will learn how to use USDA Forest Service's ROMI 3.1 rough mill simulation tool to assess improvement scenarios. Participants also will learn about the new least-cost lumber grade-mix solver function embedded in ROMI 3.1.
Date and Location: November 8, 2010. Wood Education & Resource Center, Princeton, WV.
Registration: $49 includes refreshments and lunch.
See http://www.woodscience.vt.edu/ROMI3-1/ or email Urs Buehlmann(buehlmann@gmail.com) for more information.

Innovation-Based Manufacturing
This workshop will give you an understanding of why innovation based manufacturing is critical to achieve economic development and how it can be pursued. The morning session of the workshop will expose participants to the basic concepts of innovation based manufacturing and how current developments in policy, economic development, and open innovation relate to the practice of innovation in manufacturing
Date and Location: November 11, 2010. Blacksburg, VA
Registration: $125 includes materials, practical session, coffee break, and lunch. Please go to http://www.cibm.ise.vt.edu/workshop/index.html for more information and registration

Supply Chain Management: Trends, Opportunities, and Challenges
This workshop will focus on the most relevant aspects of supply chain management. We will review SCM basic concepts, third party logistics, SCM information technologies, and supplier relationships among other topics. We will focus on new trends and challenges in SCM that today firms need to be aware of to successfully compete in the market place.
Date and Location: November 12, 2010. Danville, VA
Registration: $35 includes materials, coffee break, and lunch. Please go to http://www.ialr.org/news/event-registration to register.
For more information visit www.woodinnovation.org or contact Dr. Henry Quesada at quesada@vt.edu or (540) 231-0978.

Why Lean?
The workshop is designed for beginners or individuals who want to refresh their knowledge about Lean management and its benefits to operational success. Lean@Virginia Tech, our student-driven, faculty supported organization focusing on improving the industry's performance through the use of lean principles, is offering this two-day "*Why Lean*?" workshop at the Doubletree Hotel at Richmond Airport. The hands-on workshop will use simulation to demonstrate the power of lean principles and will teach hands-on principles to start the lean journey in your organization.
Date and Location: November 22 - 23, 2010. Doubletree Hotel at Richmond Airport.
Registration: $300 includes refreshments, lunch, and reception.
See http://vtlean.org/club/workshops/), email info@vtlean.org for more information, or have a look at the following detailed schedule.

"Why Lean?" Workshop Schedule

November 22-23, 2010

~~$600~~ $300 per person

Doubletree Hotel

Richmond Airport, 5501 Eubank Road

Sandston, VA 23150

Day 1

9:00 am	Welcome
9:30 am	Expert Speaker **Dr. René Aernoudts** (Director of the Lean Management Instituut, NL; Executive member of the Lean Global Network, for more information, please visit: http://www.lean.org/WhoWeAre/LeanPerson.cfm?LeanPersonId=97
10:30 am	Coffee Break
11:00 am	What keeps you awake at night? Discussion about your problems and concerns
12:15 pm	Lunch break
1:30 pm	Simulation 1st round – push to pull Experiencing a typical current state in a manufacturing plant
3:00 pm	Coffee Break
3:30 pm	Presentation Lean principles, value stream mapping
4:45 pm	Simulation 2nd round – push to pull Attendees make first improvements - improved setup will be experienced
5:30 pm	End
6:30 pm	Reception

Day 2

8:00 am	Presentation Lean Methods – e.g. Problem solving, 5S, Pull system (incl. kanban, supermarket), Single Minute Exchange of Dies (SMED)
9:00 am	Simulation 3rd round – push to pull Attendees make further improvements - improved setup will be experienced
10:00 am	Coffee Break
10:30 am	Lean Transformation Case Case about a solid surface manufacturer – value stream mapping, rapid improvement events, pitfalls, outcomes and benefits
11:00 am	Presentation Leadership role in lean transformations
12:15 pm	Lunch Break
1:30 pm	What keeps you awake at night? Follow up on your problems and concerns – getting you started (problem solving)
2:45 pm	Wrap-up

You are invited to our

Wood science and forest products

Undergraduate scholarship award ceremony and reception

November 10, 2010

The Inn at Virginia Tech

Latham Ballroom C

6:00 – 8:00 p.m.

Guest speaker: Mr. Sandy Bennett,

President, Blue Ridge Timberwrights

Light Hors d'Oeuvres and Cash Bar

available prior to program

Please r.s.v.p. by Friday, november 5

to angela riegel, ariegel@vt.edu

231-7107

The Department of Wood Science & Forest Products at Virginia Tech

Department of Wood Science and Forest Products
Graduate Research Symposium
Friday, November 12
Fralin Auditorium

VirginiaTech
College of Natural Resources and Environment

Symposium Sponsors

The symposium is sponsored by:

- Center for Forest Products Marketing & Management
- Center for Unit Load Design
- Hardwood Market Report

If you would like to see the name of your organization listed here, please consider sponsoring the symposium. Donations will be used to provide refreshments and lunch during the breaks. All donations are highly appreciated.

To make a donation, please contact:

Scott Lyon
swlyon@vt.edu

Symposium Schedule

9:00 am – 9:10 am	Opening Remarks
Session I	**Session Chair: Adrienn Andersch**
9:10 am – 9:40 am	Identifying Best Innovation Practices. Case Study in Wood Products, Energy Generation, and Medical Devices Firms Johanna Madrigal
9:40 am – 10:10 am	Lean Principles in the Burial/Cremation Products Industry Bryan Stinnett
10:10 am – 10:30 am	Break
Session II	**Session Chair: Scott Lyon**
10:30 am – 11:00 am	Applying Lean Thinking to the Wood Furniture Engineering Process Chao Wang
11:00 am – 11:30 am	Lean Management: Awareness, Implementation Status, and the Need for Supporting its Implementation in Virginia's Wood Products Industry Christian Fricke
11:30 am – 12:00 pm	Value-Added Hardwood Products Costing Analysis and System Adrienn Andersch
12:00 pm – 1:00 pm	Lunch
Session III	**Session Chair: Christian Fricke**
1:00 pm – 1:30 pm	Marketing Opportunities for U.S. Forest Products in Central America Scott Lyon
1:30 pm – 2:00 pm	Non-Conforming Engineered Wood Product Installations in Residential Construction John Bouldin
2:00 pm – 2:05 pm	Closing Remarks

Johanna Madrigal

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Identifying Best Innovation Practices. Case Study in Wood Products, Energy Generation, and Medical Devices Firms

Innovation is defined as *"the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations"* (OECD, 2005). This definition gives innovation a crucial importance in the economy of countries and welfare in general. The importance of innovation is the motivation for this research, which aims to improve our understanding of the innovation development process in the most innovative business sectors relative to that in the wood products industry, which has been identified as one of the less innovative business sectors. The results obtained in this research demonstrate that defining innovation as company strategy helps to align all company levels towards achieving a better financial performance through innovation. The results also show that cooperation between research centers, universities, and industry plays an important role for further innovation development within industry, giving practitioners a solid foundation in their search for profitable growth.

Bryan Stinnett

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Lean Principles in the Burial/Cremation Products Industry

Wood is a widely used material in the Funeral Industry. It is one of the primary materials caskets are made of, along with steel, copper, bronze, stainless steel, and nowadays cardboard. Caskets were predominantly made of wood until the mid 20th century. Following the end of the Korean War, steel was sold on a large scale. The availability of steel along with a large increase in cremation during the last 10-15 years slowed the use of wood in the manufacturing of caskets in the U.S.

The U.S. burial products industry now has to compete also with Chinese imports. Most of these imports are copies of patented products of larger American companies, such as Batesville, York, and Aurora, and cost considerably less than their American counterparts. American companies are employing various methods to reduce manufacturing costs. One such method is the use of veneers in place of the traditional solid construction, offering the same aesthetics as solid caskets. In addition, lean manufacturing and lean energy practices, aided by energy monitoring for a reduction in energy consumption and control of production during peak levels, help to offset cost, add value, and eliminate waste.

Chao Wang

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Applying Lean Thinking to the Wood Furniture Engineering Process

This research is focused on applying lean thinking principles to the furniture engineering process. Currently, many furniture manufacturers do not have an efficient engineering process. For example, drawings or production documents are controlled merely by the release date because companies lack a systematic method to measure each internal process and how it affects internal cost and customer satisfaction.

The research was conducted through a case study in an upholstery furniture plant. A survey was sent out to the engineering group of the plant to determine each engineer's understanding of the current engineering process's efficiency. Preliminary results show that the "product complexity" and "engineer competency" are the two most influential factors to impact the engineering lead time. Most engineers spend 10 to 20% of their work time on issuing engineering change orders. Different engineering groups showed a difference in engineering throughput, customer diversity, and document error rate. From this research, it is concluded that engineering processes account for a large portion of the overall production lead time. Also, the current processes generate and a lot of waste, interfering with the engineers' ability to prepare production documents for downstream jobs and affecting the overall manufacturing process.

Christian Fricke

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Lean Management: Awareness, Implementation Status, and the Need for Supporting its Implementation in Virginia's Wood Products Industry

During the last decade, Virginia's wood products industry has been greatly affected by globalization, the economy, rising transportation costs, and changing buyer habits. Companies are working hard to stay cost competitive and to adapt to these changing market conditions. A critical part of companies' strive to adapt and become more competitive includes the use of management systems, such as, for example, lean management. Such systems have proven effective in helping leading companies to better performance and results. Lean management practices focus on achieving short lead times, quick inventory turnovers, on-time delivery, built-in quality, high productivity, and high customer satisfaction while maintaining a safe and respectful work environment.

This presentation will give an update on the research regarding lean awareness, the status of lean implementation, and the need for supporting its implementation within Virginia's wood products industry.

Adrienn Andersch

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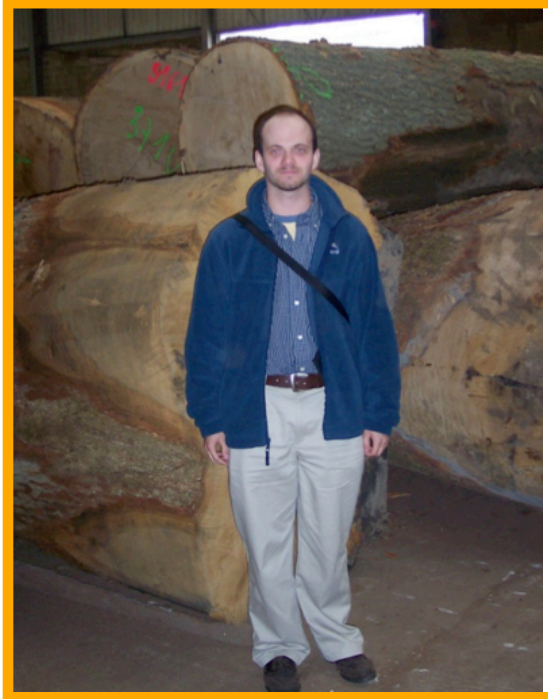
Value-Added Hardwood Products Costing Analysis and System

The U.S. hardwood industry is influenced by the cyclical nature of the U.S. economy, rising global competition, and changing customer habits. This complex environment has led to the development of new business practices and new processes for manufacturing. However, advanced manufacturing processes are poorly served by traditional cost accounting methods, which, for example, distort costs by using inappropriate volume-based allocations of overhead.

The primary purpose of this study is to provide an accurate, up-to-date product costing system for hardwood component manufacturers. One-by-one company interviews and a product costing mail survey were used as a methodology to collect cost accounting information from wood products companies relating to type, structure, and accuracy of accounting systems used. The information will be analyzed with respect to how cost accounting information is used by company managers and what the shortcomings of existing cost accounting systems are. The results of this study will provide the wood products industry with valuable information regarding current industry practices and form the basis for efforts to help improve the industry's cost accounting practices.



Scott Lyon

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Marketing Opportunities for U.S. Forest Products in Central America

In the future, there will be a greater need for international forest products in Central America due to increasing population size and deforestation. The purpose of this research was to determine strengths and weaknesses of U.S. wood product competitors in Central America. Potential market opportunities for U.S. forest product companies in Central America were evaluated and strategies were developed to increase exports of U.S. wood products to Central America. Research was also conducted on the basis of secondary sources of information, such as databases, market reports, and Central American newspapers, to determine the current situation of the forest, the demand of local production, and the potential for future production of wood products. Results show that the consumption of wood products in Central America is greater than 4 million m^3 per year. The best market strategies for U.S. wood product companies to access the Central American market are to partner with local wholesalers, offer higher value added products than local suppliers, and keep prices similar to local competition. Results from this study will develop guidelines for Appalachian forest product companies to extend their markets into Central America.

John Bouldin

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Non-Conforming Engineered Wood Product Installations in Residential Construction

The use of engineered wood products (EWP) has found wide acceptance in residential construction, resulting in a 282% increase in their use between 1995 and 2006. The manufacture of EWPs randomizes natural defects in solid sawn lumber (such as knots and sloped grain) so that the resulting product is more efficient in using forest fiber resources, is more homogeneous, and may exhibit a higher degree of dimensional stability, strength, and stiffness than similar solid sawn wood components. EWPs include a wide variety of wood composite products such as I-joists, oriented strand board (OSB) structural panels, and laminated veneer lumber (LVL), parallel strand lumber (PSL), and laminated strand lumber (LSL) beam and columns.

The International Residential Code for One- and Two Family Dwellings (IRC) is the predominant residential model building code in the United States, and was written to provide minimum standards to "safeguard the public safety, health, and general welfare…". The prescriptive standards found in the IRC cover construction methods associated with sawn lumber, but do not include specifications for the handling and installation of EWPs.

This is largely because similar-looking EWPs are proprietary in nature, and there are no uniform guidelines that govern their handling and use in residential construction. If installation methods developed for use with one manufacturer's product, or if methods designed for use with solid sawn lumber are improperly applied to other similar EWP products, it could compromise the EWPs' ability to carry designed service loads. As a result, significant errors in installation are not uncommon. Specific inspection methods are therefore needed to detect construction errors that may result from the unique installation requirements for EWPs early in the construction process.

This research is developing an expert-validated inspection methodology and companion software application to aid field inspectors in detecting and documenting EWP construction errors in new residential construction prior to their concealment. Illustrations of common defects will be presented to illustrate the need for this specialized method of inspection.

Notes

Directions

Fralin Auditorium is in the Fralin Life Science Institute (Building 111 on the map below). Parking is likely to be available on parking lot P16. Please pick up a visitor parking permit at the Visitor Information Center on your way in.

To get to the Visitor Information Center from Interstate 81 (southbound and northbound):

Take Exit 118B onto U.S. 460 West. Follow the signs for Blacksburg/Virginia Tech. Stay on U.S. 460 West, signed for "Virginia Tech, Bluefield" to continue directly to the university. Drive on U.S. 460 to the traffic light at VA 314, Southgate Drive. Turn right onto Southgate Drive. The Visitor Information Center is a half-mile from U.S. 460 on the right.