

Published by:
The Furniture Research Unit
Department of Forest Products
Forest & Wildlife Research Center
Mississippi State University
Contact: Liam Leightley
662.325.4444
lleightley@cfr.msstate.edu

Furniture

HIGHLIGHTS



July 2003

Helping furniture manufacturers achieve and sustain international recognition and competitive advantage through nationally recognized research, technical assistance and educational programs.

Inside this Issue

Southern
Regional Lean
Manufacturing
Conference **1**

2 Lean
Manufacturing
Systems and
Cell Design

New
Department
Head **3**

4 Student
News

Student
Profile **4**



Mississippi State Hosts Southern Regional Lean Manufacturing Conference

The annual Southern Regional Lean Manufacturing Conference sponsored by Mississippi State University's Extension Service and Department of Forest Products was held April 22-24, 2003. This was the third lean manufacturing conference held at MSU and was attended by 89 participants. The goal for the Lean Conference is to provide a positive, highly informative experience for attendees in the most cost effective manner possible. The conference has a history of success, has been well attended and has received high marks from participants.

The two- and one-half day conference included two tours of manufacturers currently using Lean Manufacturing techniques followed by presentations and workshops.

On April 22, participants chose to visit either Johnson Controls/Mercedes-

Benz in Tuscaloosa, Alabama or Delphi Industries in Clinton, Mississippi. The plant tours provided ample opportunities for the participants to see lean in action, ask questions, and network with speakers, other attendees, and industry personnel. After returning to Mississippi State, participants were treated to a barbeque tailgate supper and a home MSU baseball game between the Bulldogs and Southern Miss. The second and third day of the conference were devoted to presentations and concurrent workshops presented by production managers and international consultants experienced in the real world implementation of lean processes. This conference provided practical state-of-the-art approaches for organizations new to lean as well as those beginning the process of implementing lean practices.



Southern Lean Manufacturing Conference speakers with MSU conference organizers

Furniture Faculty

Liam Leightley, Department Head
Forest Products
Marketing, technology transfer,
strategic planning, wood protection
662.325.4444
lleightley@cfr.msstate.edu

Steven H. Bullard, Director
Institute of Furniture Manufacturing and
Management
Forest and Wildlife Research Center
Furniture production and distribution
662.325.2781
sbullard@cfr.msstate.edu

Steve L. Hunter, Associate Professor
Forest Products
Industrial engineering; lean manufacturing
in the furniture industry, ergonomics and
physiology of workplace design;
manufacturing system design and analysis
662.325.8344
shunter@cfr.msstate.edu

R. Dan Seale, Professor
Forest Products
Computer modeling; production
economics and linear programming,
marketing research
662.325.3072
dseale@cfr.msstate.edu

Philip H. Steele, Professor
Forest Products
Development of software to analyze
manufacturing processes; analysis of
industrial investments; development of
automated wood processing
662.325.8083
pstelee@cfr.msstate.edu

Jilei Zhang, Assistant Professor
Forest Products
Furniture testing; finite element modeling;
computer aided testing; mechanical
properties
662.325.9413
jzhang@cfr.msstate.edu

Duane E. Lyon, Professor Emeritus
662.325.3094
dlyon@cfr.msstate.edu

Forest Products faculty member co-authors lean book

Dr. Steve L. Hunter, Associate Professor in the Department of Forest Products, Forest and Wildlife Research Center has collaborated with Dr. J T. Black, Professor Emeritus of industry and systems engineering at Auburn University, on a reference book entitled "Lean Manufacturing Systems and Cell Design" published by the Society of Manufacturing Engineers.

This fifteen chapter book is based on years of study and firsthand observations by Hunter and Black and provides a framework for designing and introducing lean cellular systems to commercial furniture operations. The focus of the book is a 10-step methodology which shows how lean processes can produce superior quality products at a low cost while increasing the competitiveness of manufacturers using the lean concept. Also included are guidelines for the use of advanced automation and three-dimensional software in simulating manufacturing flow as well as the impact that ergonomics plays on employee productivity.

Although lean processes were first developed by the Toyota Motor Company in Japan to reduce inventory levels thereby increasing cash flow, the concept has not been applied widely to furniture manufacturing. Hunter explains that "Lean manufacturing is the manufacturing system of the future and companies today need to be more productive than the competition at providing customers with high-quality goods and services."

This new reference publication demonstrates how to build a strong linked-cell system that integrates production, inventory and quality control with machine-tool maintenance to assist furniture manufacturers in developing competitive advantages in an increasingly competitive global environment.

Hunter holds a bachelor's degree in manufacturing engineering technology from Berry College. His master's and doctoral degrees in industrial engineering were completed at Auburn.

For more information on the book or how lean processes can be implemented in a manufacturing facility, contact Dr. Steve Hunter at (662)325-8344 or shunter@cfr.msstate.edu



2003 Southern Region Lean Manufacturing Conference Topics and Speakers

Ten Steps to Lean

Dr. J T. Black

Getting Started

Robb Kirkpatrick

Ergonomics in Lean

Dr. Lewis Peyton

Kanban Pull Systems

Greg Ruddy

Rapid Change-over

Louis Stephenson

Business Process

Re-engineering
Greg Stanley

Case Studies in Lean

Manufacturing
Dr. Steve Hunter



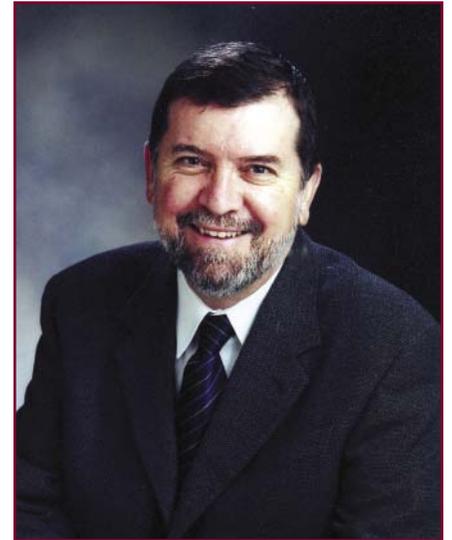
Forest Products welcomes new department head

Dr. Liam E. Leightley has joined the Department of Forest Products at Mississippi State University as Professor and Department Head. With a wealth of knowledge and experience gained from work in academic, governmental and industrial settings, Dr. Leightley is well suited to lead the largest state-funded Forest Products Laboratory in the United States.

Dr. Leightley received his bachelor's degree in biochemistry and microbiology from the University of Bradford and his doctorate from the University of Portsmouth, both in the United Kingdom. While serving as a global manager for Rohm and Haas, a major manufacturer of specialty chemicals, Dr. Leightley led the company's efforts in the globalization of wood products to key markets in building products, coatings, plastics, and woods. While serving as a research department manager with Rohm & Haas, Dr. Leightley was based in Japan for two years where he established a biocides research department and directed R & D for biocides in the Asia Pacific Region.

Research interests of Dr. Leightley have included planning and directing business development policies, developing new marketing initiatives, assessing new markets and analyzing business opportunities. His current research interests include strategic planning, technology transfer, wood protection, and marketing.

Because of Dr. Leightley's impressive and diverse record in international management, research and development, he will be a great asset to the Department of Forest Products and Mississippi State University.



Furniture research seeks to keep industry competitive

The faculty and staff of Mississippi State University's Forest and Wildlife Research Center punch, push and pull furniture to the extremes to help manufacturers produce better products.

For more than 16 years, the Furniture Research Unit in the Department of Forest Products has provided testing and research support as Mississippi's upholstered furniture industry grew to the largest in the nation. And what's the impact? It's estimated that the work of the unit saves Mississippi manufacturers \$3 million annually.

The unit provides a one-stop shop for furniture manufacturers - testing material, joints, frames, cushions and springs. If it is part of a chair, couch or table, it has been tested at Mississippi State.

Each year, the unit conducts six Government Services Administration tests and 16 to 18 Business and Institutional Furniture Manufacturer's Association tests on about 40 pieces of furniture.

Testing is not, however, the unit's only job. Its research is designed to make Mississippi's furniture industry more productive and competitive. Research areas include computerized structural design of upholstered furniture frames and the development of software to analyze furniture-manufacturing processes for increased efficiency. The work of the unit also includes research with engineered wood and non-wood components for furniture.

MSU's new Institute of Furniture Manufacturing and Management has added to the services offered to the furniture industry by providing a combination of research and service.

"The collaborative nature of the institute, which includes the College of Business and Industry, College of Forest Resources, Bagley College of Engineering, College of Architecture, Forest and Wildlife Research Center and the Extension Service is part of our university's commitment to help the furniture industry keep pace with the demands of a highly competitive high-tech world," said MSU president Charles Lee.

The institute provides workforce development, research, technical assistance, and other programs to help give the state's industry a competitive advantage.

Current work at the institute includes implementing lean processes - or the ability to produce more with less - in five furniture-manufacturing facilities in Mississippi.

Franklin Corporation, a national leader in production of reclining chairs and motion furniture and among the nation's largest independently owned furniture manufacturing companies, is one of the plants where a lean system is being implemented.

"With MSU's help, we are refining our mechanism assembly processes. We want to take out all the wasted motion and streamline processes," said Hassell Franklin, president and chief executive officer of the Chickasaw County-based Franklin Corporation. "These leaner processes and other assistance provided by MSU keep the industry's competitive edge sharp."

The institute is just the latest example of the world-class service and technical assistance provided by MSU to help keep Mississippi in the ranks of the nation's top furniture manufacturing states.

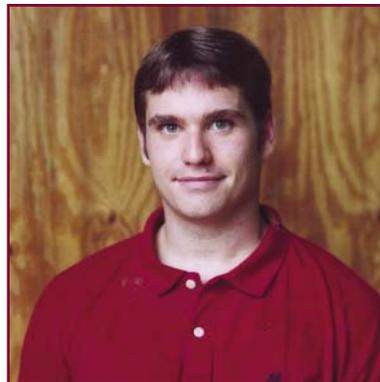
student news

- Several members of the student chapter of the Forest Products Society participated in a volunteer blood drive at Meadowview Baptist Church in February.
- Students are currently working on Railway Tie Association Wood ID kits as a fund-raising activity. Each kit contains approximately 30 species, a hand lens, knife and an identification key.
- Students and Dr. Leightley participated in the Bulldog Benefit, a service project sponsored by the MSU Student Association to benefit the needy.

A look at our students.....

Nick Hatten

Nick Hatten is a sophomore majoring in Forest Products from Laurel, Mississippi. He works as an assistant research technician for Drs. H. M. Barnes and Terry Amburgey. Nick serves as Vice President of the student chapter of the Forest Products Society at MSU and is active in many campus activities and enjoys sports of all kinds, especially football. His future plans include attending Graduate School at Mississippi State. Nick and his family are proud sponsors of the Leukemia and Lymphoma Society.



Mississippi State University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation or group affiliation, age, disability or veteran status.

Mississippi State
UNIVERSITY

Department of Forest Products
Forest and Wildlife Research Center
Box 9820
MS State, MS 39762

Nonprofit Organization
U.S. Postage
PAID
Mississippi State, Mississippi
Permit No. 81