

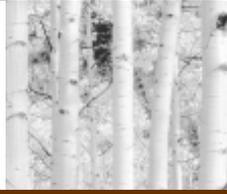
**Department of
Wood Science and Forest Products**

*Creative
Achievements 2001*

Virginia Polytechnic Institute and State University
www.woodscience.vt.edu

College of Natural Resources
www.cnr.vt.edu





Acknowledgments

Contents, information
gathering and verification
by Angela Riegel

Document design and layout
by Arlice Banks

Department Head's Message

Welcome to our annual report of creative achievements for calendar year 2001. This report contains the creative achievements of our faculty and includes information on graduate theses completed, funded proposals, publications, conference proceedings, patents, presentations at professional meetings, awards and honors, undergraduate and graduate courses taught, and short courses and continuing education programs offered.

These noted accomplishments would not have been possible without the support and cooperation of our sponsoring agencies and industry partners. We thank you for your support. We also acknowledge the very valuable cooperation and quality of work of our entire professional staff in the department, who tirelessly support the endeavors of the faculty and contribute greatly to our mission. We thank you.

Please contact me, or our faculty directly, if you have any questions about these creative achievements.



Paul M. Winistorfer, Ph.D.
Professor and
Department Head



Mission of the Department

The mission of the Department of Wood Science and Forest Products is to create and disseminate knowledge about wood, forest products and their utilization through programs of instruction, a forward-looking research agenda and an active outreach program to provide continuing education opportunities to industries and individuals.



A Glance at Creative Achievements – 2001

- 12 graduate theses and dissertations completed
- 35 research proposals funded
- \$5,782,447 in research proposal support awarded
- \$1,423,684 total research expenditures
- 50 refereed papers published in scientific journals
- 24 articles published in trade journals
- 56 research reports and other publications
- 11 papers published in conference proceedings
- 1 patent application awarded
- 1 patent application filed
- 37 short courses offered/taught
- 31 traditional on-campus courses taught to over 594 students

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Graduate Theses – Dissertations Completed – 2001

Delton Alderman. 2001. Ph.D.

An investigation into attitudes towards recycling CCA treated lumber.

Major Professor: Robert L. Smith

Curt M. Alt. 2001. Ph.D.

The impact of environmental certification on U.S. hardwood flooring manufacturers.

Major Professor: Robert J. Bush

Guy T. Anderson. 2001. M.S.

Experimental investigation of group action factor for bolted wood connections.

Major Professor: J. Daniel Dolan

Jeffery J. Bejune. 2001. M.S.

Wood use trends in the US pallet and container industry: 1992-1999.

Major Professor: Robert J. Bush

Edgar Deomano. 2001. Ph.D.

Mechanism of flake drying and its correlation to quality.

Major Professor: Audrey Zink-Sharp

Hong-mei Gu. 2001. Ph.D.

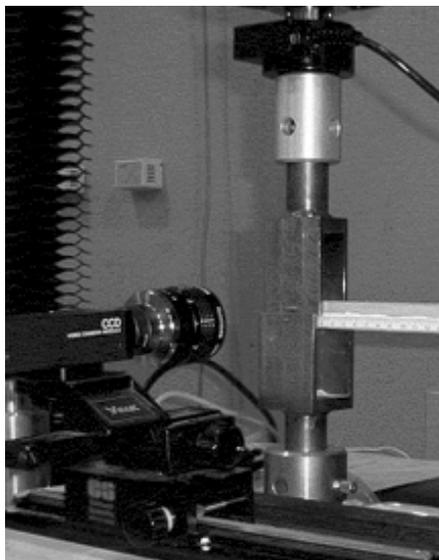
Structure based two-dimensional anisotropic, transient heat conduction model for wood.

Major Professor: Audrey Zink-Sharp

Christian P. Heine. 2001. Ph.D.

Simulated response of degrading hysteretic joints with slack behavior.

Major Professor: J. Daniel Dolan



Keith Scott. 2001. M.S.

Measurement of resin distribution in MDF fiber.

Major Professors: Frederick A. Kamke and Robert L. Smith

Christopher Scoville. 2001. M.S.

Characterizing the durability of PF and pMDI adhesive wood composites through fracture testing.

Major Professor: Joseph R. Loferski

Abdou Sene. 2001. M.F.

Strategies for Sustainable development of non-timber forest products in Senegal.

Major Professor: A. L. "Tom" Hammett

Timothy G. Weigel. 2001. Ph.D.

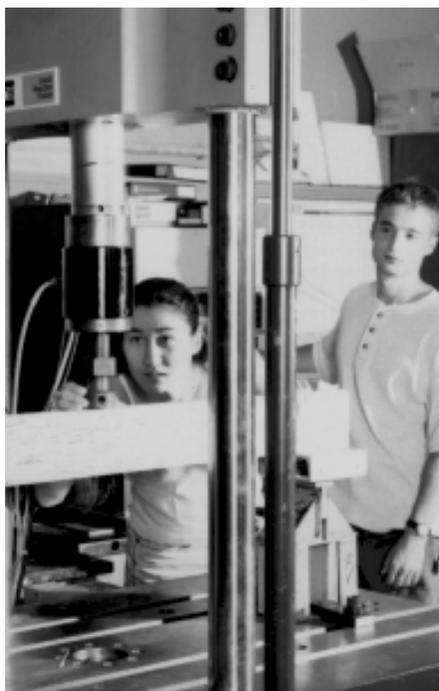
Modeling the dynamic interactions between wood pallets and corrugated containers during resonance.

Major Professor: Marshall S. White

Balazs Zombori. 2001. Ph.D.

Modeling the hot-pressing process for a particulate wood-based composite.

Major Professor: Frederick A. Kamke



Proposals Funded

Analysis of southern pine use in the U.S. furniture industry

Investigator: **Robert Bush**
Sponsor: Southern Forest Products Association
Amount: \$5,000

Quantifying the cyclic response of wood diaphragms

Investigator: **J. Daniel Dolan**
Sponsor: California Universities for Research in Earthquake Engineering (CUREe) Wood Frame Project
Amount: \$93,955
1/2/00 to 8/30/01

Advanced replacements for mechanical fasteners in housing construction for high wind zones

Investigators: J. Lesko, **J. Daniel Dolan**, D. Dillard, D. Ohanehi
Sponsor: NFS-PATH
Amount: \$149,000
Amount controlled: \$80,000
9/15/01 to 9/14/03

Gypsum, wallboard, fiberboard and hardboard dowel bearing strength and connection testing program

Investigator: **J. Daniel Dolan**
American Forest & Paper Association
Amount: \$15,000
12/1/00 to 7/31/01

Wood engineering general support

Investigator: **J. Daniel Dolan**
Sponsor: Various Funding Sources
Amount: \$40,000

Fabrication of a truss testing fixture

Investigators: W. Samuel Easterling and **J. Daniel Dolan**
Sponsor: Virginia Tech ASPIRES
Amount: \$57,000
9/1/00 to 8/31/01

Wind loading consortium

Investigators: T. Reinhold (Clemson), H. Tieleman, **J. Daniel Dolan**, M. Hajj and others at John Hopkins and Central Florida University
Sponsor: NIST (Pass through agency)
\$1,000,000 of \$2,000,000 appropriation, ~\$300,000 controlled.
7/1/02 – 6/30/03

A new equipment package to support adhesion research at Virginia Tech

Investigator: **Charles Frazier**
Sponsor: VT ASPIRES Program 2000/01
Amount: \$119,000 (\$40,000 from ASPIRES Remainder matched by CNR and WS&FP)

Understanding wood adhesive durability using HMR coupling agent

Investigator: **Charles Frazier**, Al Christiansen (FPL), Doug Gardner (U. of Maine)
Sponsor: USDA, NRI Competitive Grants Program
Amount: \$151,000 (\$85,000 to VT)

Polyurethanes from soy bean oil: Synthesis, chemical analysis & structure-property behavior urethane soy systems

Investigator: **Charles Frazier**, Garth Wilkes (VT-Chem-E), T. Long (VT-Chem)
Amount: \$244,680 (\$81,560 to WS&FP)

Engineering the wood-fiber plastic interface by steam explosion

Investigator: **Wolfgang Glasser**, **Audrey Zink-Sharp** and **Robert Wright**

Sponsor: USDA/NRI
Amount: \$150,000
2001 – 2004

Gender access: Community chain analysis on non-timber forest products in Nicaragua

Investigators: Laura Shillington and **A. L. “Tom” Hammett**
Sponsor: WIDTECH, Women in Development Technical Assistance Project
Amount: \$5,913
August 2001 – December 2001

Timber and non-timber forest products research

Investigator: **A. L. “Tom” Hammett**
Sponsor: USDA Forest Service, Southern Forest Research Station
Amount: \$55,525
9/01/01 – 9/01/04

An examination of Appalachian forest products exports

Investigator: **A. L. “Tom” Hammett**
Sponsor: USDA Forest Service, Northeastern Research Station, Princeton, WV
Amount: \$40,508
9/01/01 - 2/28/04

Development education project

Investigator: **A. L. “Tom” Hammett**
Sponsor: The Mountain Institute, Elkins, WV
Amount: \$18,000
6/17/01 – 6/18/03

Proposals Funded

Non-timber forest products advisory group. BIOFOR task order

Investigator: **A. L. "Tom" Hammett**

Sponsor: USAID through Chemonics International
Amount: \$7,177
12/06/01 – 12/31/02

Non-timber forest products in reduced impact harvesting schemes

Investigator: **A. L. "Tom" Hammett**

Sponsor: USDA Forest Service, Washington, DC (contract extension) additional funds
Amount: \$67,500
04/05/00 – 09/30/02

Dryophile genes to engineer stasis-recovery of human cells

Investigators: M. Potts and **Richard Helm**

Sponsor: Office of Naval Research
Amount: \$2.6 million for 3 years beginning 1 May 2001

Improved numerical simulation for wood processing

Investigators: **Fred Kamke** and Layne Watson

Sponsor: DOE / Lawrence Livermore Nat. Lab.
Amount: \$112,000
2000-2002

Lumber quality improvement in high-temperature drying

Investigator: **Fred Kamke**
Sponsor: USDA/FAS/RSED
Amount: \$30,000
1999-2002

Webpage development for OSB research

Investigator: **Fred Kamke**

Sponsor: Structural Board Association
Amount: \$5,268
2001-2002

Wood-Based Composites Center

Investigator: **Fred Kamke**

Sponsor: Various companies
Amount: \$264,000 for 2001

Evaluation of multi-sensor machine vision systems for automated lumber grading

Investigator: **D. Earl Kline**

Sponsor: Southern Research Station, USDA Forest Service Investigator
Amount: \$22,709
1999-2001

Support for product processing module.

Sponsor: Consortium for Research on Renewable Industrial Materials (CORRIM)

Investigators: **D. Earl Kline** and **Paul Winistorfer**

Sponsor: Department of Energy
Amount: \$30,080
2000-2002

Developing rough mill yield benchmark data

Investigators: P. H. Steele and **D. Earl Kline**

Sponsor: Wood Education and Resource Center (WERC), USDA Forest Service
Amount: \$84,020
2000-2002

Determining hardwood sawmill efficiency factors 2001-2003

Investigators: **D. Earl Kline**

Sponsor: Northeastern Research Station, USDA Forest Service
Amount: \$50,000
2001-2003

Investigation of capacity design for bolted and nailed connections

Investigators: **Joseph R. Loferski** and **J. Daniel Dolan**

Sponsor: USDA/CSREES
Amount: \$70,000
10/1/00 to 9/31/02

Simulating optimal part yield from 3A common lumber

Investigator: **Robert Smith**

Sponsor: USDA Forest Service, Northeastern Experimental Station
Amount: \$15,000

Characterization of new products from removed used CCA lumber

Investigator: **Robert Smith**

Sponsor: USDA Forest Service, Southern Experiment Station
Amount: \$31,700

Determining the influence of promotion on consumer purchasing decisions for certified forest products

Investigator: **Robert Smith**

Sponsor: Anderson-Tully Corporation
Amount: \$21,844

Value analysis of lumber produced from small diameter timber

Investigator: **Robert Smith**

Sponsor: The Virginia Department of Forestry
Amount: \$37,000

A market assessment of erosion control mats and industrial water filters

Investigator: **Robert Smith**

Sponsor: The USDA Forest Service, Forest Products Laboratory
Amount: \$3,568

International travel grant

Investigator: **Robert Smith**

Sponsor: Virginia Tech
Amount: \$1,000

Proposals Funded

Establishment of the market research analyst position

Investigators: **Robert Smith** and Stephanie Gomon

Sponsor: Various industry sponsors

Amount: \$160,000

12/00 to 12/03

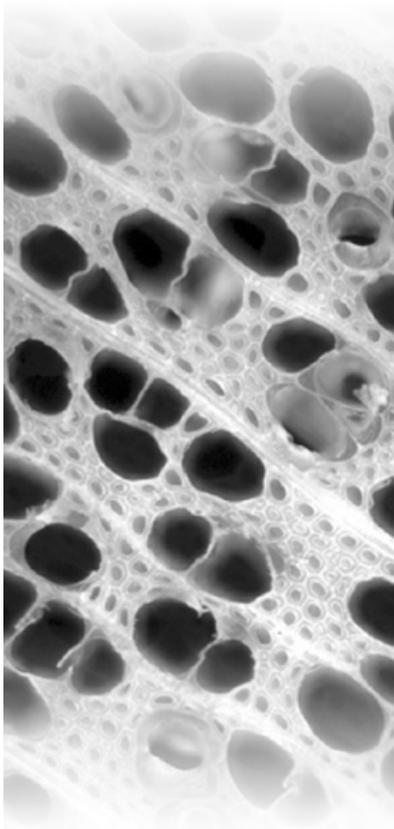
Modifying of the pallet design system to predict the performance of pallets assembled with used, reclaimed, wood pallet parts

Investigator: **Marshall White**

Sponsor: Forest Service, Southern Forest Experiment Station, Asheville, North Carolina, and The Pallet Foundation, Arlington, Virginia

Amount: \$25,000

Project Duration: 6 months



Refereed Journal Publications

Andrews, C. K., **P. M. Winistorfer**, and R. M. Bennett. 2001. The influence of furnish moisture content and press closure rate on the formation of the vertical density profile in oriented strandboard. *Forest Products Journal* 51(5):32-39.

Barany, Marc, **A. L. Hammett**, Abdou Sene, and Beyhan Amichev. 2001. Non-timber forest benefits and HIV/AIDS in sub-Saharan Africa. *Journal of Forestry* 99(12):36-41.

Barany, Marc, **A. L. Hammett**, Laura Shillington, and Brian R. Murphy. 2001. The role of private wildlife reserves in Nicaragua's emerging ecotourism industry. *Journal of Sustainable Tourism* 9(2):95-110.

Berglin, Mattias, Anne Larsson, Per Jonsson, and **Paul Gatenholm**. 2001. The adhesion of the barnacle, *Balanus improvisus*, to PDMS fouling release coatings and PMMA panels: The effect of barnacle size on strength and failure mode. *Journal of Adhesion Science and Technology* 12, 1485-1502.

Billi, D., E. I. Friedmann, **Richard F. Helm**, and M. Potts. 2001. Gene transfer to the desiccation-tolerant cyanobacterium *Chroococcidiopsis*. *Journal of Bacteriology* 183, 2298-2305.

Bloom, F., P. Price, G. Lao, J.-L. Xia, J. H. Crowe, J. R. Battista, **Richard F. Helm**, and M. Potts. 2001. Engineering mammalian cells for solid-state sensor applications. *Biosensors and Bioelectronics* 16, 603-608.

Bowe, Scott A., **Robert L. Smith**, and **Philip A. Araman**. 2001. A national profile of the United States hardwood sawmill industry. *Forest Products Journal* 51(10):25-31.

Bowyer, J., D. Briggs, L. Johnson, B. Kasal, B. Lippke, J. Meil, M. Milota, W. Trusty, C. West, J. Wilson, and **P. Winistorfer**. 2001. CORRIM—A report of progress and a glimpse of the future. *Forest Products Journal* 51(10):10-22.

Bull, G., S. Nilsson, J. Williams, E. Rametsteiner, **A. L. Hammett**, and W. Mabee. 2001. Wood procurement policy: An analysis of critical issues and stakeholders. *Forestry Chronicle* 77(2):325-340.

Bumgardner, Matthew S., **Robert J. Bush**, and Cynthia D. West. 2001. Product development in large furniture companies: A descriptive model with implications for character-marked products. *Wood and Fiber Science* 33(2):302-313.

Carridine, David N., Frank E. Woeste, and **Joseph R. Loferski**. 2001. Improving building durability. *Building Standards*. March–April. Pp. 6-8.

Chen, Z. and **Fred M. Lamb**. 2001. Investigation of boiling front during vacuum drying of wood. *Wood and Fiber Science* 33(4):639-647.

Chen, Z. and **Fred M. Lamb**. 2001. Vacuum drying of small wood components at room temperature. *Forest Products Journal* 51(10):55-57.

Refereed Journal Publications

Clarke, John W., **Marshall S. White**, and **Philip Araman**. 2001. Performance of pallet parts recovered from used wood pallets. *Forest Products Journal* 51(2):55-62.

Cumbo, Dan W., D. Earl Kline, and **Robert L. Smith**. 2001. The Optimum benefit bundle and promotion strategy for automated lumber grading systems. *Forest Products Journal* 51(9):63-68.

Cumbo, Dan W., Robert L. Smith, and **D. Earl Kline**. 2001. Characterizing adopters of automated lumber grading Systems. *Forest Products Journal* 51(7/8):37-43.

Dolan, J. Daniel. 2001. Mismatch of expectations pertaining to the statement designed to code for seismic design. *Wood Design Focus* 11(2):3-6.

Forbes, Craig, Larry Jahn, and **Philip Araman**. 2001. An investigation of hardwood plywood markets. Part 1. Architectural wood-workers. *Forest Products Journal* 51(3):17-24.

Forbes, Craig, Larry Jahn, and **Philip Araman**. 2001. An investigation of hardwood plywood markets. Part 2. Fixture manufacturers. *Forest Products Journal* 51(6):25-31.

Franko, Amara, Kevin C. Seavey, and **Wolfgang G. Glasser**. 2001. Continuous cellulose fiber-reinforced cellulose ester composites. III. Commercial matrix and fiber options. *Cellulose* 8(2):171-179.

Gagliano, Jerone M. and **Charles E. Frazier**. 2001. Improvements in the fracture cleavage testing of adhesively-bonded wood. *Wood and Fiber Science* 33(3):377-385.

Gu, Hong-mei, J. Sell, and **Audrey Zink-Sharp**. 2001. Role of cell wall structure on transverse differential shrinkage of wood. *Holz als Roh- und Werkstoff* 59(6):436-442.

Hammett, A. L., Xiufang Sun, and Marc Barany. 2001. China's forestry and forest products industry under transition. *Journal of Forestry* 99(7):4-10.

Heine, Christian P. and **J. Daniel Dolan**. 2001. A new model to predict the load-slip relationship of bolted connections in timber. *Wood and Fiber Science* 33(4):534-549.

Heine, Christian P., and **J. Daniel Dolan**. 2001. Dynamic performance of perforated light-frame shear walls with various end restraints. *Forest Products Journal* 51(7/8):65-72.

Henriksson, Åsa and **Paul Gatenholm**. 2001. Controlled assembly of glucuronoxylans onto cellulose fibers. *Holzforschung* 55, 494-502.

Hunsucker, S. W., B. M. Tissue, M. Potts, and **Richard F. Helm**. 2001. Screening protocol for the ultraviolet-photoprotective pigment scytonemin. *Analytical Biochemistry* 288:227-230.

Jackson, Gerry, **A. L. Hammett**, and James Howard. Use and production of solid sawn timbers in the United States. *Forest Products Journal* 51(7/8):23-28.

Jain, Rajesh K., Markku Sjöstedt, and **Wolfgang G. Glasser**. 2001. Thermoplastic xylan derivatives with propylene oxide. *Cellulose* 7(4):319-336.

Kabir, Firoz. 2001. Prediction of ultrasonic properties from grain angle. *Journal of the Institute of Wood Science* 15(5):235-246.

Kabir, F., W. M. Daud, K. B. Khalid, and H. A. A. Sidek. 2001. Temperature dependence of the dielectric properties of rubber wood. *Wood and Fiber Science* 33(2):233-238.

Lei, Zhentian, Jody Jervis, and **Richard F. Helm**. 2001. Use of methanolysis for the determination of total ellagic and gallic acid contents of wood and food products. *Journal of Agricultural and Food Chemistry* 49, 1165-1168.

Lenth, Chris A. and **Fred A. Kamke**. 2001. Equilibrium moisture content of wood in high-temperature pressurized environments. *Wood and Fiber Science* 33(1):104-118.

Lenth, Chris A. and **Fred A. Kamke**. 2001. Moisture dependent softening behavior of wood. *Wood and Fiber Science* 33(3):492-507.

Schuler, Al, Russ Taylor, and **Philip Araman**. 2001. Competitiveness of U.S. wood furniture manufacturers—Lessons learned from the softwood moulding industry. *Forest Products Journal* 51(7/8):14-20.

Refereed Journal Publications

Seavey, Kevin C., Indragit Ghosh, R. M. Davis, and **Wolfgang G. Glasser**. 2001. Continuous cellulose fiber-reinforced cellulose ester composites. I. Manufacturing options. *Cellulose* 8(2):149-159.

Seavey, Kevin C. and **Wolfgang G. Glasser**. 2001. Continuous cellulose fiber-reinforced cellulose ester composites. II. Surface modification and consolidation conditions. *Cellulose* 8(2):161-169.

Sharma, Mahadev and **A. L. Hammett**. 2001. Making forest projects sustainable: optimal harvesting plan for the Sagarnath Plantation in Nepal. *Journal of Sustainable Forestry* 14(2-3):129-145.

Shiau, R. J., **Robert L. Smith**, and Ed T. Cesa. 2001. Role of intermediaries in technology transfer in the logging industry: A case study with portable timber bridges. *Forest Products Journal* 51(5):17-24.

Stading, Mats, Åsa Rindlav-Westling, and **Paul Gatenholm**. 2001. Humidity-induced structural transitions in amylose and amylopectin films. *Carbohydrate Polymers* 45, 209-217.

Toffey, Ackah and **Wolfgang G. Glasser**. 2001. Chitin derivatives. III. Formation of amidized homologs of chitosan. *Cellulose* 8(1):35-47.

Underwood, Catherine R., Frank E. Woeste, **J. Daniel Dolan**, and Siegfried M. Holzer. 2001. Permanent bracing design for MPC wood roof truss webs and chords. *Forest Products Journal* 51(7/8):73-81.

Via, Brian K., **Aurdey Zink-Sharp**, Frank E. Woeste and **J. Daniel Dolan**. 2001. Influence of specific gravity on embedment gaps in metal-plate-connected truss joints. *Forest Products Journal* 51(10):88-92.

Wang, S. and **P. M. Winistorfer**. 2001. Flake compression behavior in a resinless mat as related to dimensional stability. *Wood Science and Technology* 35(5):379-393.

Wang, S., **P. M. Winistorfer**, T. M. Young, and C. Helton. 2001. Step-closign pressing of medium density fiberboard: Part 1. Influences on the vertical density profile. *Holz als Roh- und Werkstoff* 59:19-26.

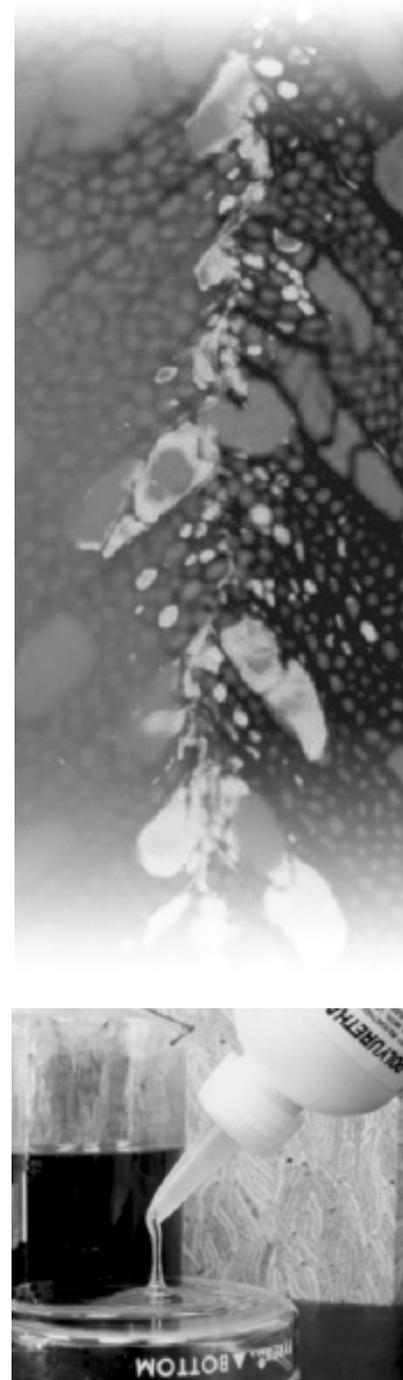
Woeste, Frank E., Catherine R. Underwood, and **J. Daniel Dolan**. 2001. Wood truss permanent web bracing design. *Frame Building News* 13(3):38-42.

Wright, D. J., T. Prickett, **Richard F. Helm**, and M. Potts. 2001. Form species *Nostoc commune* (Cyanobacteria). *International Journal of Systematic and Evolutionary Microbiology* 51, 1839-1852.

Young, T. M. and **P. M. Winistorfer**. 2001. The effects of autocorrelation on real-time statistical process control with solutions for forest products manufacturers. *Forest Products Journal* 51(11/12):70-77

Zhou, Xiaobing and **Charles E. Frazier**. 2001. Double labeled isocyanate resins for the solid-state NMR detection of urethane linkages to wood. *International Journal of Adhesion & Adhesives* 21(3):259-264.

Zombori, Balazs G., **Fred A. Kamke**, and Layne T. Watson. 2001. Simulation of the mat formation process. *Wood and Fiber Science* 33(4):564-579.



Trade Journal Publications

Bretzfield, K. and **F. E. Woeste**. 2001. Wood Bits: Bolt design at an angle simplified. *Building Standards* 70(4): 12-15.

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Kochkin, Vladimir and **J. Daniel Dolan.** 2001. Wind versus seismic design inequities of the building code provisions for residential construction. PATH Durability Conference, Madison, Wisconsin, October 29–31.

Lamb, Fred M. 2001. Changing resources, changing industrial raw materials. Conserving Future Forest Productivity Conference, The Pennsylvania State University, University Park, Pennsylvania. March 20–21.

Lamb, Fred M. 2001. Wood processing in 2020. Center for Forest Products Marketing and Management Annual Meeting, Virginia Tech, Blacksburg, Virginia, March 27.

Lamb, Fred M. 2001. Lumber drying systems. 2001 Timber Utilization Conference and Exposition, Wagoner, Oklahoma, April 30–May 2.

Lamb, Fred M. 2001. Restructuring of the hardwood processing industry. Conference, Appalachian Hardwood Manufacturers, Williamsburg, Virginia, June 8–10.

Lamb, Fred M. 2001. Changing resources, changing industrial raw materials. 2001 Issues Conference, Orlando, Florida, November 4–6.

Loferski, Joseph R. 2001. Invited lecturer at University of Pennsylvania, College of Architecture, Historic Preservation Department, January 26–27. Topics: Understanding Wood in Historic Buildings, Identifying Wood in Historic Structures, and Preventing Deterioration of Wood in Historic Buildings.

Loferski, Joseph R. 2001. Invited lecturer at University of Pennsylvania, College of Architecture, Historic Preservation Department, November 28–29. Topics: Introduction to Wood in Historic Buildings, Understanding Wood Properties Laboratory, and Wood Identification in Historic Buildings.

Loferski, Joseph R. 2001. Faulty flashings and water infiltration in buildings. 55th Annual Meeting of the Forest Products Society, Baltimore, Maryland, June 24–27.

Mallick, A., J.-H. Yu, **Charles E. Frazier,** J. Chen-Yu, David Dillard, and K. Sehgal. 2001. Using asymmetric double cantilever beam configuration to measure paint adhesion. 24th Annual Meeting of the Adhesion Society, Williamsburg, Virginia, February.

Potts, M. and **Richard F. Helm.** (Joint presentation). 2001. Invited Presentation, Metabolic engineering for cellular stasis. March 28. Presented to the DARPA (Defense Advanced Research Projects Agency, a division of the U.S. Department of Defense) Metabolic Engineering for Cellular Stasis Meeting in Bethesda, Maryland.

Presentations

Robitaille, Nicole, **Charles E. Frazier** and **Joseph R. Loferski**. 2001. Molecular aspects of performance in crosslinking poly(vinyl acetate) adhesives. 24th Annual Meeting of the Adhesion Society, Williamsburg, Virginia, February.

Roubroeks, J. P. and **P. Gatenholm**. Effect of enzymes on the aggregation of glucuronoxylans from aspen. Gordon Research Conference, Chemistry of Polysaccharides, Mount Holyoke, Massachusetts, July 22–26, 2001.

Roubroeks, J. P. and **P. Gatenholm**. Effect of enzymes on the aggregation of glucuronoxylans from aspen. Workshop on Plant Biopolymer Science, Nantes, France, June 25–27, 2001.

Schmoltdt, Daniel, Hang Song, and **Philip A. Araman**. 2001. Real-time value optimization of edging and trimming operations for rough, green hardwood lumber. ScanTech 2001, The Ninth International Conference on Scanning Technology and Process Optimization for the Wood Industry, Seattle, Washington, November 5, 2001.

Sernek, Milan, (speaker), **Fred A. Kamke**, and **Wolfgang G. Glasser**. 2001. Characterizing the bonding performance of inactivated wood surfaces. Presented at the 55th Annual Meeting of the Forest Products Society, Baltimore, Maryland, June 24–27.

Smart, Jason V., **J. Daniel Dolan**, and **Joseph R. Loferski**. 2001. Capacity-based design values for nailed connections. Presented at the 55th Annual Meeting of the Forest Products Society, Baltimore, Maryland, June 24–27.

Smith, Robert L. 2001. What makes the difference during difficult times? VFPA Summer Conference held in Hot Springs, Virginia, July 27–28.

Smith, Robert L. 2001. Ecommerce strategies presented at Ecommerce: impacting the way we do business conference, sponsored by the Southern Rural Development Center, Nashville, Tennessee, October.

Smith, Robert L. 2001. Industrial and government cooperation in forest products marketing education and research: Education and research: A case analysis with the center for Forest Products Marketing and Management. Presentation: IUFRO Forestry Extension Conference, Lorne, Australia, October 25–November 8.

Steele, Phil, H., E. Ehlers and **D. Earl Kline**. 2001. Yield benchmark study: Preliminary results. Wood Component Manufacturers 2001 Plant Tour Event, September 30–October 2.

White, Mark. 2001. E-Commerce and the impact on unit load handling practices. Annual Leadership Conference and Exposition of the National Wooden Pallet and Container Association, Orlando, Florida, February 24–27.

Woeste, Frank E., Catherine R. Underwood, and **J. Daniel Dolan**. 2001. Wood truss permanent web bracing Design. National Frame Builders Association Mid-Atlantic Chapter Meeting, Roanoke, Virginia, May 10.

Zink-Sharp, Audrey. 2001. Anisotropic shrinkage: Can it be explained by cell architecture? Seminar presented at Department of Wood and Paper Science, North Carolina State University, Raleigh, North Carolina, June 2001.

Zombori, Balazs (speaker) and **Fred A. Kamke**. 2001. Modeling the transient effects during the hot-compression of wood-based composites. Presented at the 55th Annual Meeting of the Forest Products Society, Baltimore, Maryland, June 24–27.

Awards and Honors



Robert Bush

Curt M. Alt, Ph.D. student 2001, was awarded USDA National Needs Graduate Fellowship



A. L. "Tom" Hammett

Virginia Tech Study Abroad Award, recognition by the Provost and University Office of International Programs, Blacksburg, September 2001



Paul Winistorfer

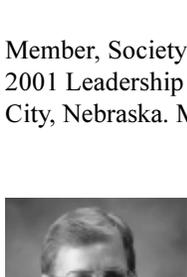
Elected Vice President of the Forest Products Society



Charles Frazier

2001, OMNOVA Solutions Signature University Award for Excellence in Adhesion and Polymer Research

Ph.D. student Jun Zheng won the Wood Award (2nd Place) given by the Forest Products Society



Fred Kamke

Elected to the International Academy of Wood Science (2001)



Audrey Zink-Sharp

Hong-mei Gu, Ph.D. student, received second place for her poster "2D Anisotropic, Transient Heat Conduction Model for Lumber Drying" at the 17th Annual Research Symposium of Virginia Tech, sponsored by the Graduate Student Assembly, March 26, 2001



Wolfgang Glasser

Appointed Jubilee (150th Anniversary) Visiting Professor, Chalmers University of Technology, Department of Polymer Technology, Gothenburg, Sweden, 2001-02 (5 months)

Presented the Anselme Payen Award by the Cellulose, Paper and Textile Division of the American Chemical Society at a Symposium held in honor of the Awardee, San Diego, CA, April 1-5, 2001

Appointed Member of the International Advisory Editorial Board of Materials Science Research International (MSRI)



Robert "Bob" Smith

Outstanding Sales Training Award presented to Bob Smith by Weyerhaeuser Corporation at the 2001 Department of

Wood Science and Forest Products Advisory Board Meeting

Undergraduate and Graduate Courses Taught by Department Faculty – 2001

*Course Number	Course Title	Credit Hours	Instructor	Number of Students
<u>Spring Semester</u>				
IST025	Industrial Image Processing (taught in Sweden)	6 ECTS	Earl Kline	3
IST701	Independent Study in Wood Processing (Sweden)	15 ECTS	Earl Kline	1
NR 1114	Introduction to Natural Resources (Lab)	2	Tom Hammett	21
NR 1114	Introduction to Renewable Natural Resources (Lab)	2	Wolfgang Glasser	18
CHEM 2514	Survey of Organic Chemistry	3	Chip Frazier	45
WOOD 3114	Wood Processing and Properties	3	Audrey Zink-Sharp	40
WOOD 3234	Wood Identification and Properties Lab	1	Audrey Zink-Sharp	18
WOOD 3434	Wood Chemistry, Products and Processes	3	Rich Helm	18
WOOD 3874	World Forestry and Forest Products	3	Tom Hammett	25
WOOD 4154	Computer Control Systems in Forest Products	3	Dan Dolan	2
WOOD 4316	Mechanical Properties of Wood II	3	Maurice White	16
WOOD 4446	Wood-Based Composite Materials	4	Fred Kamke	18
WOOD 4524	Wood Drying and Durability	3	Wolfgang Glasser/Fred Kamke	17
WOOD 4614	Distribution and Marketing of Wood Products	3	Bob Bush	16
WOOD 4714	Wood Performance in Building Construction	3	Joe Loferski	16
WOOD 5614	Forest Products Marketing and Mgmt. Strategies	3	Bob Smith	4
WOOD 5984	Global Issues in Natural Resources	3	Tom Hammett	12
<u>Fall Semester</u>				
NR 1114	Introduction to Renewable Natural Resources (Lab)	2	Bob Bush	20
NR 1114	Introduction to Renewable Natural Resources (Lab)	2	Joe Loferski	18
NR 1114	Introduction to Renewable Natural Resources (Lab)	2	Maurice White	11
WOOD 2114	Environment, Society, and the Use of Wood	3	Fred Lamb	62
CHEM 2514	Survey of Organic Chemistry	3	Rich Helm	80
BSE 3414	Design of Wood Structures	3	Dan Dolan	2
CEE 3414	Design of Wood Structures	3	Dan Dolan	17
NR 4404	Skills and Approaches in International Development	1	Tom Hammett	12
WOOD 4445	Wood Adhesion & Composites I	3	Chip Frazier	18
WOOD 4514	Forest Products Industry Studies	3	Earl Kline	20
WOOD 4534	Lumber Manufacturing and Machining	3	Mark White	16
WOOD 4624	Wood Industry Management	3	Earl Kline	19
WOOD 5314	Physical and Mechanical Behavior of Wood	4	Maurice White/Fred Kamke	7
WOOD 5414	Advanced Wood Chemistry and Structure	4	Wolfgang Glasser/Audrey Zink-Sharp	4

*These course number designations reflect the academic department where the course originates and level of the course. WOOD is the designation for courses originating from the Department of Wood Science and Forest Products.

Short Courses/Continuing Education Programs – 2001

<u>Course Title</u>	<u>Instructor</u>	<u>Location</u>	<u>Dates</u>
Selling Forest Products	Robert Smith	Hot Springs	January 25-26
Wood Technology Short Course	Fred Lamb	Osage Beach, Missouri	January 18-19
Wood Treating Recertification Workshops	Robert Smith	Lexington, Madison, and Warsaw, Virginia	February 15-16
Anti-foulant Paint Recertification Workshop	Robert Smith	Newport News, Virginia	February 1
Wood Structure and Properties	Fred Lamb	Fredericksburg, Virginia	February 17
8th Annual Workshop on Forest Products Marketing	Robert Smith, Robert Bush	Blacksburg, Virginia	March 15-16
Introduction to Pallet Design	Marshall White	Blacksburg, Virginia	March 8-10
Wood Products and Processing	Fred Lamb	Blacksburg, Virginia	March 15-16
Wood Drying and Processing	Fred Lamb	Roanoke, Virginia	March 17
Basic Hardwood Lumber Drying	Fred Lamb	Memphis, Tennessee	March 29-31
Wood Adhesion Short Course	Charles Frazier, Fred Kamke and Joe Loferski	Blacksburg, Virginia	March 29-30
Wood Treating Recertification	Robert Smith	Blacksburg, Virginia	April 18
Unit Load Design	Marshall White	Blacksburg, Virginia	April 18-20
Comparative Pallet Performance	Marshall White	Atlanta, Georgia	April 26-27
Quality Drying of Hardwood Lumber	Fred Lamb	Antigo, Wisconsin	April 23
Hardwood Lumber Drying	Fred Lamb	Wagoner, Oklahoma	May 1-2
Wood and Wood Processing	Fred Lamb	Roanoke, Virginia	May 3-4
15th Wood Technology	Fred Lamb	Blacksburg, Virginia	June 4-6
2001 Forest Products Marketing in the Lake States	Robert Smith and Scott Bowe	Stevens Point, Wisconsin	June 7-8
Advance Drying of Hardwood Lumber	Fred Lamb	Roanoke, Virginia	July 12

Short Courses/Continuing Education Programs – 2001

<u>Course Title</u>	<u>Instructor</u>	<u>Location</u>	<u>Dates</u>
3rd Troubleshooting Processing	Fred Lamb	Roanoke, Virginia	July 13
Basic Hardwood Lumber Drying	Fred Lamb	Hickory, North Carolina	July 18-20
Lumber Drying Workshop	Fred Lamb	Pittsburg, Kansas	August 6-7
Wood Adhesion Short Course	Charles Frazier, Fred Kamke, and Joe Loferski	Charlotte, North Carolina	August 15-16
Seventh Annual Selling Forest Products	Robert Smith and Robert Bush	Blacksburg, Virginia	September 19-20
Wood Structure and Properties	Audrey Zink-Sharp and Wolfgang Glasser	Blacksburg, Virginia	September 19-20
Unit Load Design	Marshall White	Blacksburg, Virginia	September 26-28
Wood Products Marketing for the Primary and Secondary Industry	Robert Smith	Gardner, Massachusetts	October 4-5
Advance Drying of Hardwood Lumber	Fred Lamb	Memphis, Tennessee	October 18-19
Basic Hardwood Drying	Fred Lamb	St. Louis, Missouri	October 25-26
Introduction to Pallet Design	Marshall White	Falls Church, Virginia	October 31- November 2
Selling and Trading Forest Products	Robert Smith and Eric Hansen	Corvallis, Oregon	November 7-8
Wood Adhesion Problem Solving	Fred Kamke and Terry Sellers	Mississippi State University, Starkville, Mississippi	November 7-8
20th Oak Drying	Fred Lamb	Blacksburg, Virginia	December 4-6
Advanced Pallet Design Short Course	Marshall White	Albany, New York	December 6-8
Advanced Sales Training	Robert Smith	Blacksburg, Virginia	December 5-6
Wild Harvest Sector	Tom Hammett	Covington and New Castle, Virginia	February, March, April, May and October

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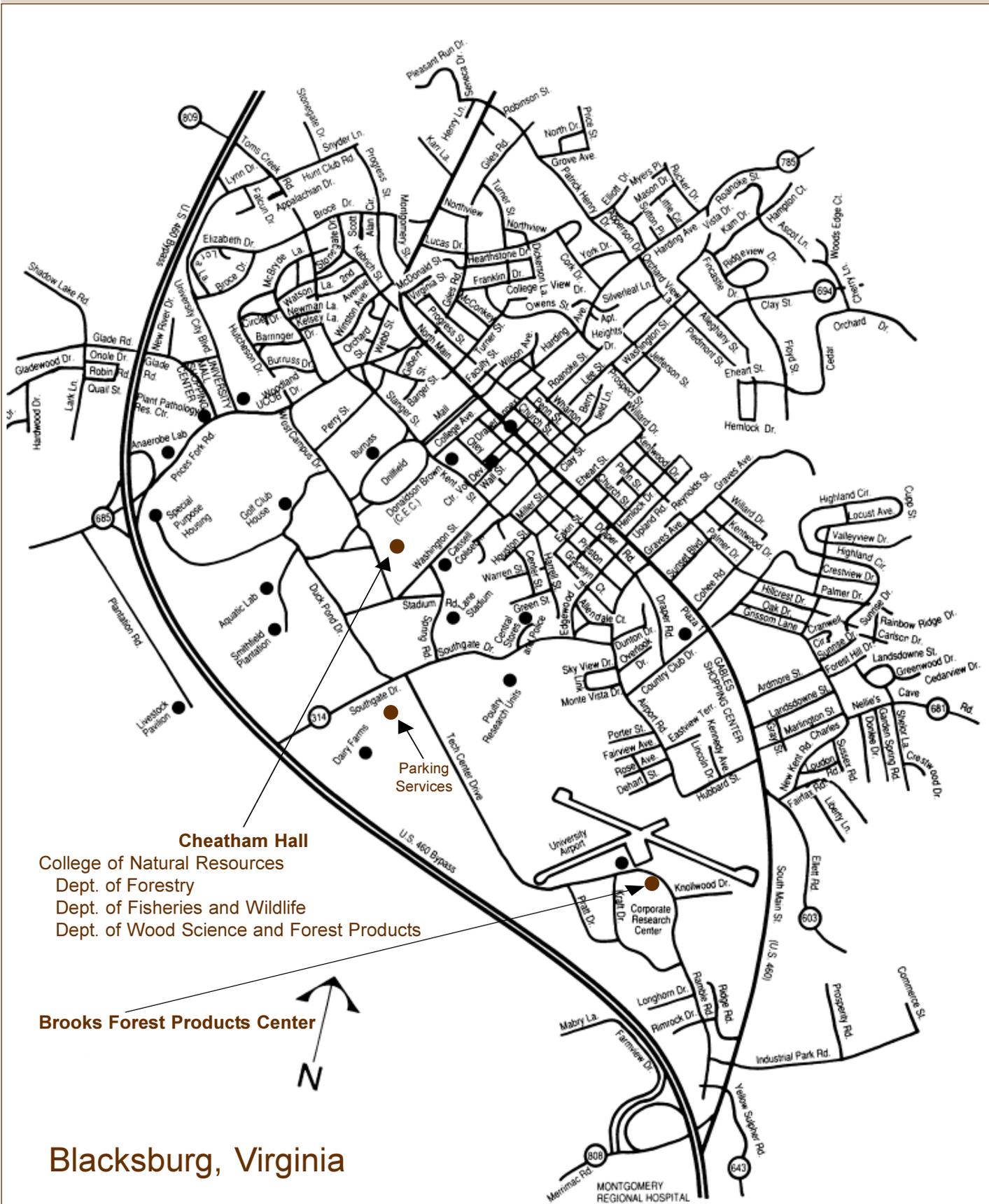
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MONTGOMERY REGIONAL HOSPITAL

**Department of
Wood Science and Forest Products**

*Creative
Achievements 2001*



April 2002

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