

UNH Materials Science Seminar

11:00-12:00, Thursday, March 23, 2006

DeMeritt Hall 209B

University of New Hampshire

Materials Research in the Development of Wood-based Composites at the University of Maine

Professor Stephen M. Shaler
University of Maine, Orono

The Advanced Engineered Wood Composites (AEWC) Center (<http://www.aewc.umaine.edu/>) at the University of Maine is an interdisciplinary research group actively involved in development and evaluation of wood/non-wood hybrid composites for use in structural applications. The multi-billion dollar building products market is in the midst of a fundamental shift toward higher performance wood-based composites. Key material performance criteria for structural applications include durability, mechanical behavior, and cost. These materials can also be tailored for non-housing/construction applications with significant structural requirements (e.g. truck bodies, shipping containers, blast barriers). A brief overview of key wood material characteristics will be presented as they relate to structure/property/processing of wood-based composites. Wood is a heterogeneous cellular biopolymeric material with viscoelastic, anisotropic and hygroscopic character. Current activities, capabilities, and issues will be presented in a variety of material systems produced using compression molding, extrusion, and vacuum assisted resin transfer molding (VARTM).

Stephen Shaler is a Professor of Wood Science at the University of Maine. He also serves as Associate Director of the AEW/C Center, Project Director of the New England Wood Utilization Research Program, and is a member of the Paper Surface Science Program at the University of Maine. He received his BS and MS in Wood Science from Colorado State University and a PhD in Forest Resources from Pennsylvania State University. He has twice received the George Marra Award from the Society of Wood Science of Technology, and has also received the Markwardt Wood Engineering Award from the Forest Products Society. He has served as Panel Manager for the USDA/NRI Wood Products technology area, has published over 60 journal and proceeding articles, has 3 patents, and has been co-investigator on over \$40 million of research since joining the University of Maine in 1992. His research interests include characterization and control of the microstructure and consequent influence on the performance and durability of wood based composites, life cycle analysis (LCA) of wood based composites, and development/use of biopolymers for composites within the context of a sustainable forest biorefinery.

Host: Professor Donald Sundberg x1878