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*The Ninth*  
**Wood Adhesion Short Course**

**June 3-4, 2009**

**A Wood-Based Composites Center Short Course**

**Location:** 107 Richardson Hall  
Oregon State University  
Corvallis, OR

**About the Short Course:**

Why does glue stick? What makes wood unique when it comes to gluing it together? The adhesive bonding of wood is becoming increasingly important as large timber becomes more and more scarce. Industries are adopting new technologies to bond wood pieces into larger elements such as flat panels, finger-jointed lumber, furniture parts, etc. Industry professionals need to learn more about the science of wood adhesion to effectively troubleshoot wood bonding problems and adopt new technologies.

This short course will introduce the basic concepts of adhesion, and then build on these concepts with specific attention to wood. Upon completion of the course, participants will better understand the unique bonding characteristics of wood. They will be better prepared to analyze existing problems and performance, and evaluate new applications.

**Who Should Attend:**

- Persons involved with the research and development of wood adhesive and wood composite technologies.
- Individuals who manage adhesive or composite-manufacturing processes, and who wish to sharpen their knowledge of wood and wood adhesion.
- Persons seeking an introduction to wood within the context of adhesion and composite technologies.
- Adhesive suppliers who wish to improve their ability to communicate with the forest products industry.
- Persons who have had some college level chemistry, and who are comfortable with basic chemical principles.



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**Agenda:****DAY ONE:**

- 8:00 a.m. Registration
- 8:15 a.m. Welcome and Introductions (Frazier, Kamke, Nairn)
- 8:30 a.m. Overview to Adhesion Science (Frazier)
- 9:00 a.m. Participant Introductions
- 9:15 a.m. Introduction to Wood/Wood Anatomy (Kamke)
- 10:30 a.m. Break
- 10:50 a.m. Material Properties of Wood (Nairn)
- 12:00 p.m. Lunch
- 1:15 p.m. Surfaces: Solids and Liquids (Frazier)
- 2:25 p.m. Break
- 2:40 p.m. Water in Wood (Kamke)
- 3:45 p.m. Lab Exercise and Demonstration (Kamke and Nairn)
  - Rittenhouse hydrometer
- 4:15 p.m. Introduction to Polymer Science (Frazier)
- 4:45 p.m. Questions and Discussion  
Day One Wrap-up

**DAY TWO:**

- 8:00 a.m. Introduction to Wood Adhesives (Frazier)
- 8:50 a.m. Adhesive Distribution and Penetration (Kamke)
- 10:00 a.m. Break



10:15 a.m.	Theories of Adhesion: How They Apply to Wood (Frazier)
11:00 a.m.	Surface Properties and Adhesive Bonding of Wood (Frazier)
11:30 a.m.	Questions and Discussion
11:45 a.m.	Lunch
1:00 p.m.	Fracture and Testing of Bonded Wood (Nairn)
1:45 p.m.	Break and Group Photo
2:00 p.m.	Lab Exercises and Demonstrations <ul style="list-style-type: none"><li>- Physical Property Testing</li><li>- Microscopic Analysis</li></ul>
4:00 p.m.	Questions and Discussion
4:30 p.m.	Course Evaluation and Wrap-up

#### **About the Instructors:**

Dr. Chip Frazier is a Professor in the Department of Wood Science and Forest Products at Virginia Tech and is the Director of the Wood-Based Composites Center. He specializes in adhesives and adhesion.

Dr. Fred Kamke is a Professor in the Department of Wood Science and Engineering at Oregon State University. He specializes in composite manufacture, resin penetration and distribution, and wood and water relationships.

Dr. John Nairn is a Professor in the Department of Wood Science and Engineering at Oregon State University. He specializes in mechanics and fracture of wood and wood-based composites. Before coming to Oregon, he specialized in deformation and fracture of polymers and polymer-based composites.

#### **Cost:**

The cost for the two-day short course is \$735.00 per person. Contributing Members of the Wood-Based Composites Center are eligible for a reduced cost of \$660.00 per person, and Sustaining Members pay \$370.00. Registration fee includes workshop materials and transportation between the conference hotel and class, as well as lunch and refreshments during the class.



**Lodging:**

You are responsible for making your own lodging reservations. A block of rooms has been reserved at the Hilton Garden Inn, 2500 SW Western Blvd., Corvallis, for participants at a special room rate of \$109.00. Reservations can be made by calling (541) 752-5000. Be sure to ask for the special rate for participants of the Wood Adhesion Short Course. The reserved rooms will be released to the public on May 12th. Rooms are not guaranteed to be available after this date, and the reduced rate will no longer be offered, so reservations should be made early. You can download directions to the hotel from the Hilton website [here](#).

**For More Information:**

Contact Linda Caudill, Managing Director, Wood-Based Composites Center at (540) 231-7092 or by E-mail at [lcaudill@vt.edu](mailto:lcaudill@vt.edu).

**To Register:**

Contact the Virginia Tech Division of Continuing Education  
Conference Registrar  
810 University City Blvd., Suite D  
Blacksburg, VA 24061  
or call (540) 231-5182

or visit our website at <http://www.wbc.vt.edu>

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