

# Structural Design with Wood:

An Introductory Course

October 8-10, 2003



at the  
Smith Center for Undergraduate Education  
Washington State University Pullman, Washington

*Sponsored by:*  
Washington State University Cooperative Extension  
WSU Wood Materials and Engineering Laboratory

COOPERATIVE EXTENSION  
WASHINGTON STATE  
UNIVERSITY

*World Class. Face to Face.*

## WHO SHOULD ATTEND

This course is designed for individuals who never had the opportunity to learn wood design basics in a university-level course, but are involved in the design, construction, or inspection of wood buildings. The primary objectives of this course are a mastery of wood design basics and understanding of the many factors routinely used and required by the 2001 National Design Specification for Wood Construction.

## WHAT WILL YOU LEARN

Participants will learn wood design basics and understanding of the many factors routinely used and required by the 2001 ANSI/AF&PA National Design Specification for Wood Construction (ANSI/AF&PA NDS-2001). All design calculations will be based on our strict interpretation of the ANSI/AF&PA NDS-2001. The course notebook contains the design examples presented in the course and wall bracing details for lateral load resistance, relieving the participants of extensive note taking. The course will include a tour and structural testing demonstration at the WSU Wood Materials & Engineering Laboratory.

Participants will receive a certificate for 1.7 Continuing Education Units (CEU's) equivalent to 17 hours of instructions. The registration fee is \$595 per person and includes: Seminar notes, ANSI/AF&PA NDS 2001 and Supplement, two lunches, and refreshments at breaks.

## Course Outline and Schedule

### Wednesday, October 8

8:00 AM - 9:00 AM	On-site check-in and registration
9:00AM-10:20AM	Lumber Basics, Mechanical Properties, and Basis of Allowable Stresses for Lumber
10:20AM-10:35AM	Break
10:35AM-12:00PM	Joist Design Demonstration—General Design Criteria for Wooden Beams and Applying the NDS Design Factors
12:00 PM - 1:00 PM	Lunch
1:00 PM – 2:15 PM	Design of Multi-Ply Headers and Girders
2:15PM-2:25PM	Break
2:25PM-3:25PM	Design of Rafters—Ridge Beams and Ridge Boards
3:25PM-3:35PM	Break
3:35PM-5:00PM	Nail Connection Design (with Rafter Thrust Design Example)

### Thursday, October 9

8:00 AM –9:15AM	Design of Multi-Ply Beams with Twisting Potential
9:15AM-9:30AM	Break
9:30AM-10:30AM	Column Design (Embedded Deck Post Example)
10:30AM-10:45AM	Break
10:45AM-12:00PM	Design of 2x4 Stud Wall (Wind plus Snow plus Dead Load Example)
12:00 PM - 1:00 PM	Lunch
1:00 PM – 2:10PM	Bolted Joint Design Basics
2:10 PM-2:30PM	Code-Conforming Wood-Plastic-Composite Deck Systems
2:30 PM-5:30PM	Tour and Structural Testing Demonstration at Wood Materials & Engineering Laboratory

### Friday, October 10

8:00AM-9:15AM	Wall Bracing to Resist Lateral Loads
9:15AM-9:30AM	Break
9:30AM-10:45AM	Wall Bracing to Resist Lateral Loads (cont.)
10:45AM-11:00AM	Break
11:00AM-11:20AM	Design of Floors to Support Ceramic Tile
11:20 AM-12:00PM	Open Discussion, Course Evaluation, and CEU Certificates

## INSTRUCTORS



Don Bender, P.E., Ph.D., is Director of the Wood Materials & Engineering Laboratory at Washington State University and Professor of Civil Engineering. He has taught courses and conducted research on wood engineering for 20 years. He has researched the performance of glulam timbers and wood trusses, developed design methods for post-frame timber structures, and developed nondestructive evaluation techniques for wood materials. Don is a technical advisor to the American Institute of Timber Construction, the APA Engineered Wood Association, and the National Frame Builders Association.

He is a registered professional engineer and holds the Weyerhaeuser Distinguished Professorship at WSU. Details on the WSU Wood Materials & Engineering Laboratory can be found at: [www.wmel.wsu.edu](http://www.wmel.wsu.edu)



David Carradine, E.I.T., Ph. D. is research engineer and Technical Director of the IAS-accredited structural testing laboratory at Washington State University. David's educational background includes degrees in Architecture, Civil Engineering and Biological Systems Engineering. David has over 10 years of hands-on construction experience, including several years as a designer and builder of heavy timber frame buildings. He has conducted research on fasteners, timber and bamboo connections, and a variety of floor and roof diaphragms. Recently, he developed a methodology for including diaphragm action in the design of timber frame and structural insulated panel buildings for lateral load resistance.



Tom Skaggs, P.E., Ph.D. is a Senior Engineer of the Technical Services Division of APA – The Engineered Wood Association. During his 8 years at APA, he has been actively involved in testing of engineered wood products, and evaluating the cyclic performance of shear walls. In addition to his testing experience, he has participated in the building code development process by serving on both ASCE 7 Committee, and the Wood Subcommittee of Building Seismic Safety Council, which writes the NEHRP Provisions. Prior to joining APA, Tom's Ph.D.

research at Virginia Tech, was in the area of metal plate connected wood trusses. Tom completed his B.S. and M.S. at Texas A&M University. Tom is a licensed Civil Engineer in Washington, and has written various journal articles and a chapter in the award winning APA Engineered Wood Handbook published by McGraw-Hill



Frank Woeste, P.E., Ph.D., is a wood construction and engineering consultant, and is Adjunct Professor at Washington State University. Frank conducted wood engineering research and taught wood design courses throughout his 26-year tenure at Virginia Tech. He is currently involved in the publication of a manual on the inspection and design of residential decks and balconies, and is conducting research on the design of joists and sheathing supporting ceramic tile and other brittle materials. Frank is responsible for *Wood Bits*, a column on practical design information for wood construction, that will appear quarterly in the new ICC magazine (*Building Safety*).

# Structural Design with Wood: An Introductory Course Registration Information

## Your Information

YOUR NAME as you would like it to appear on nametag and events pass

Last/Family Name      First/Given Name      Middle Name

Title/Position

Affiliation

Mailing Address

City      State/Province      Zip/Postal Code

Country

Daytime Phone      Fax

E-mail

Business Phone

Fax Phone

Guest/Accompanying Person name

Special Dietary Needs:



Mail Payment to:  
Structural Design with Wood - 3524  
Washington State University  
CAHE - Cashier  
PO Box 646247  
Pullman, WA 99164-6247



### CONTACT US

For Program Information please contact us at:  
Phone 1.509.335.2929, Fax 1.509.335.5077 or  
<http://emmeps.wsu.edu/woodworkshop>



For Registration Information please contact us at:  
1.509.335.2811, Fax 1.509.335.2959  
or email [ceeps@wsu.edu](mailto:ceeps@wsu.edu)



### Registration Fees

The registration fee is \$595 per person and includes:  \$595.00  
**Seminar notes, ANSI/AF&PA NDS 2001 and Supplement, two lunches, and refreshments at breaks. Registration with \$595 payment must be received by October 1, 2003. Limited space is available. Past programs have been oversubscribed, thus early registration is recommended.**

Total Registration . . . . .

### Payment Information (required to register)

Payment Enclosed     Check/Money order# .....

*(Make checks payable to WASHINGTON STATE UNIVERSITY, in U.S. funds only) Purchase orders will not be accepted. Please submit this registration form or your Web Confirmation page to your accounting department for payment processing.*

### VISA or MasterCard

Credit Card No.....

Expiration Date.....

Authorized Signature.....

Name as it appears on the card.....



For Online Registration please visit: <http://emmeps.wsu.edu/woodworkshop> or contact us at: 1.509.335.2811, FAX 1.509.335.2959, Email: [ceeps@wsu.edu](mailto:ceeps@wsu.edu).

*Cut Out and Place on Vehicle Dashboard*

## WSU Parking Permit

*Valid in any YELLOW 1,2,3,or 4 parking areas*

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**Permit Valid October 8-10, 2003**

## WSU PARKING PERMIT

**Structural Design with Wood: An Introductory Course.  
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The Reverse Side of This Section  
Is Your Parking Permit.

Parking at WSU requires a permit for every vehicle. For your convenience, this permit may be used for parking during the Symposium and Technical Workshop. It is valid only in any YELLOW 1,2,3, or 4 parking areas. It is NOT VALID at parking meters or in service areas, handicapped spaces, visitor's parking, or in covered parking structures.

Visitor parking permits may be purchased at the WSU Visitor's Center (located in downtown Pullman), or Parking Services (in the WSU Public Safety Building across from the CUB).



## Lodging in Pullman

Room Blocks are being held at the Pullman Quality Inn Paradise Creek and the Pullman Holiday Inn Express. These motels are located on the edge of campus within walking distance from the meeting site. The hotels provide shuttle vans to campus. Make your lodging reservations directly with the motel as early as possible. Mention the Structural Design with Wood: An Introductory Course.

Quality Inn Paradise Creek 509-332-0500  
Holiday Inn Express 509-334-4437

## Cancellation

Cancellation requests must be submitted in writing and received by October 1, 2003. No telephone cancellations are accepted. Cancellation requests may be subject to a service charge. Cancellations after the deadline date or no-shows are subject to the full registration fee. No partial refunds for functions not attended. Please note: Non-payment does not constitute cancellation. Partial or full fees that have been forfeited will not be applied to subsequent events.

## Disability

Reasonable accommodations for individuals who qualify under the Americans with Disabilities Act are available upon request. If accommodation is not requested by October 1, 2003, we cannot guarantee availability of accommodation on site. Please contact us at 509-335-2811, Fax 509-335-2959, or email [ceeps@wsu.edu](mailto:ceeps@wsu.edu).

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