



WoodWorks[™]
WOOD PRODUCTS COUNCIL



Midwest Wood Solutions Fair

MARCH 23, 2016
MINNEAPOLIS CONVENTION CENTER
1301 Second Avenue South
Minneapolis, MN 55403

Earn 6 AIA/CES LUs (HSW) or PDH credits free



Register at woodworks.org

Midwest Wood Solutions Fair Schedule

**Space is limited.
Register today!**

7:00 am	Registration Check-In – Exhibit Expo Opens			
	ROOM 1	ROOM 2	ROOM 3	ROOM 4
8:00 am – 9:10 am	Aspen Art Museum: Wood Roof Structure Case Study	Building Enclosure Fundamentals and Best Practices for Wood-Frame Buildings	Detailing for Wood Shrinkage	Carbon Implications of Construction Material Selection
9:10 am – 9:45 am	Break – Exhibit Expo			
9:45 am – 10:45 am	Building the Hines T3 Office: Seven Stories of Success	Code Compliance for Fire Resistance-Rated Assemblies in Light-Frame Buildings	Urban Acoustics	Preservative-Treated Wood: Use and Specification
10:45 am – 11:00 am	Break – Exhibit Expo			
11:00 am – Noon	The First Cross Laminated Timber School in the US: A Builder's Perspective	Energy Efficient Wood-Frame Assemblies: Options for Compliance with the IECC	Lateral Design of Mid-Rise Wood Structures for Wind Loads	Timber Framing: Applications in Commercial Construction
Noon – 1:20 pm	Lunch • Wood Design Awards			
1:20 pm – 2:20 pm	Aspen Art Museum: Wood Roof Structure Case Study	Assembly and Detailing Considerations for Wood-Frame Building Enclosures	Detailing for Wood Shrinkage	Carbon Implications of Construction Material Selection
2:20 pm – 2:50 pm	Break – Exhibit Expo (closes at 3:00 pm)			
2:50 pm – 3:50 pm	Building the Hines T3 Office: Seven Stories of Success	Code Compliance for Fire Resistance-Rated Assemblies in Light-Frame Buildings	Urban Acoustics	Fire Retardant-Treated Wood: The Basics
3:50 pm – 4:00 pm	Break			
4:00 pm – 5:00 pm	The First Cross Laminated Timber School in the US: A Builder's Perspective	Energy Efficient Wood-Frame Assemblies: Options for Compliance with the IECC	Lateral Design of Mid-Rise Wood Structures for Wind Loads	Timber Framing: Applications in Commercial Construction

Seminars and Speakers

ROOM 1

MORNING SESSION 8:00 AM • AFTERNOON SESSION 1:20 PM

Aspen Art Museum: Wood Roof Structure Case Study

Gregory R. Kingsley, PhD, PE, KL&A Inc.,
Structural Engineers and Builders

The Aspen Art Museum, designed by architect Shigeru Ban, includes a long-span three-dimensional wood space-frame roof. Ban's charge was to create a wood space frame with spans of more than 50 feet and cantilevers of 14 feet, in a structural depth of 3 feet. The space frame was to have two planes of intersecting diagonal webs of curved members that undulated up and down to touch the planes of the top and bottom chords with no visible connectors. This case study presentation will describe the design and construction of the wood structure, including paths explored but not chosen for the final design.

MORNING SESSION 9:45 AM • AFTERNOON SESSION 2:50 PM

Building the Hines T3 Office: Seven Stories of Success

Gerald A. Epp, MEng, PEng, StructEng, PE, M.IABSE, FIStructE,
StructureCraft Builders Inc.

One response to the growing cultural demand for local authenticity, sustainability and social connectivity in urban office environments is the Hines T3 (Timber, Transit and Technology) project—a seven-story office building with six stories of mass timber, located in the Minneapolis warehouse district. Presented by the timber specialists responsible for such iconic structures as the Richmond Olympic Oval and Arena Stage at the Mead Center for American Theater, this presentation explores the structural efficiency, cost effectiveness and aesthetic potential of mass timber systems and introduces the use of nail laminated timber. The T3 project demonstrates how quickly timber structures can be erected with component prefabrication and careful engineering of connections.

MORNING SESSION 11:00 AM • AFTERNOON SESSION 4:00 PM

The First Cross Laminated Timber School in the US: A Builder's Perspective

Charles Judd

The Pendleton County School District in West Virginia is the first in the United States to build a new school in cross laminated timber (CLT). With panels for the 40,000-square-foot facility installed in less than three months by a crew of five carpenters and a crane

operator, CLT represents a new world of opportunity for the growing district. In this presentation, the CLT erector for the project will discuss the advantages and challenges of using this new material in the context of structure, building envelope and exposed wood aesthetic. He'll also share insights into the planning process, equipment and labor, and how CLT construction differs from typical methods.

ROOM 2

MORNING SESSION 8:00 AM

Building Enclosure Fundamentals and Best Practices for Wood-Frame Buildings

Colin Shane, MEng, PEng, RDH Building Science Inc.

Through a combination of building science fundamentals and current research, this presentation will explore design considerations associated with wood-frame building enclosures. Discussion will focus on best practices for designing durable, energy-efficient enclosures for mid-rise buildings using traditional light wood-frame construction. Differences in enclosure design associated with taller wood-frame buildings using mass timber products will also be reviewed.

MORNING SESSION 9:45 AM • AFTERNOON SESSION 2:50 PM

Code Compliance for Fire Resistance-Rated Assemblies in Light-Frame Buildings

James B. Smith, PE, American Wood Council (AWC)

Determining the proper code application for wood-frame fire assemblies can be challenging and is often further complicated with increases in a project's size and scale. In a building environment where the ability to maximize height and area is key to cost effectiveness, designers must understand the gamut of fire protection considerations applicable to mid- and low-rise wood structures. This presentation will include code requirements, compliance options and nuances related to assembly selection for required fire resistance-rated floor/ceiling assemblies, exterior walls, fire barriers, fire partitions, and fire walls. Topics will include distinctions between fire-resistive elements for separation vs. class of construction.

MORNING SESSION 11:00 AM • AFTERNOON SESSION 4:00 PM

Energy-Efficient Wood-Frame Assemblies: Options for Compliance with the IECC

Matthew Brown, APA

While it's fairly well known that wood products sequester carbon and tend to require less energy to manufacture than other building materials, their performance related to operational energy efficiency is sometimes overlooked. From a thermal perspective, wood-frame building enclosures are inherently more efficient than steel-frame, concrete, or masonry construction—because of the insulating

qualities of the wood structural elements, including studs, columns, beams and floors, and because wood stud walls are easy to insulate. Using real-world project examples, this presentation will examine options for utilizing wood-frame assemblies to achieve compliance with the *International Energy Conservation Code* (IECC).

AFTERNOON SESSION 1:20 PM

Assembly and Detailing Considerations for Wood-Frame Building Enclosures

Colin Shane, MEng, PEng, RDH Building Science Inc.

This presentation will provide an in-depth look at a variety of wood-frame building enclosure assemblies and details. Building enclosure design fundamentals and considerations, followed by best practices, with references from technical guidelines and case studies, will be reviewed. The critical detail interfaces between different enclosure assemblies (i.e., walls, roofs, balconies, windows, foundations) will be discussed with a focus on continuity of critical barriers. A series of details and case studies will be presented for each.

ROOM 3

MORNING SESSION 8:00 AM • AFTERNOON SESSION 1:20 PM

Detailing for Wood Shrinkage

Douglas R. Steimle, PE, Schaefer

For condominiums, apartments, hotels and dormitories, multi-story wood construction is viewed by many as a way to achieve higher density at lower cost, while reducing the project's carbon footprint. One of the challenges, in designing these taller buildings, is how to calculate and address wood shrinkage, which occurs as the wood dries from its 'green' state to its in-service equilibrium state. This session will examine shrinkage associated with wall and floor design, and demonstrate how to minimize effects of both shrinkage and differential movement with proper detailing. The discussion will include solutions to shrinkage-induced construction issues such as drywall cracking, window frame wracking, and compromised plumbing lines.

Spartan Village,
University of North Carolina,
Lord Aeck & Sargent Architecture,
Mark Herboth Photography



MORNING SESSION 9:45 AM • AFTERNOON SESSION 2:50 PM

Urban Acoustics

Steve Thorburn, PE, LEED AP, CTS-I, CTS-D, Thorburn Associates

As with any issue of building performance, the acoustics of a mixed-use wood-frame structure can be designed to meet or far exceed minimal requirements. It is the responsibility of the design team to determine acoustical expectations for the project and meet them within the available budget. Through the use of case studies, this fast-paced, interactive session will explore how multi-story wood systems can be used to meet acoustical privacy goals. Discussion will focus on the detailing and construction of units, and how consideration of the construction process can help keep acoustical costs down. With the objective of providing implementable solutions, the session will include construction details and photos showing what has and hasn't worked in actual buildings.

MORNING SESSION 11:00 AM • AFTERNOON SESSION 4:00 PM

Lateral Design of Mid-Rise Wood Structures for Wind Loads

Ricky McLain, PE, SE, WoodWorks

As increases in urban density become necessary to address growing populations, many building designers and developers are leveraging wood's ability to achieve multiple, simultaneous objectives with mid-rise structures—one of which is effective performance when subject to wind forces. This presentation examines design processes for lateral framing components, which are critical to the design of code-compliant mid-rise wood structures subject to wind loads. Topics in this highly technical presentation will include wind loads paths, stacked multi-story shear walls, accumulated shear wall forces and deflections, discontinuous shear walls, and anchorage of shear walls to concrete podium slabs.

ROOM 4

MORNING SESSION 8:00 AM • AFTERNOON SESSION 1:20 PM

Carbon Implications of Construction Material Selection

Dr. Jim Bowyer, Dovetail Partners, Inc., Bowyer & Associates, Inc.

Carbon emissions have come to the forefront of public discourse and increasingly, of public policy. This presentation will focus on the objective of minimizing carbon emissions associated with building construction and operation. The carbon implications of building material selection will be examined, using examples of real world projects and material comparisons to illustrate the extent to which a building's carbon footprint is influenced by the construction materials used. Emissions linked to buildings will be discussed in the larger context of carbon and climate, with consideration of the current vs. historical situation, tools for assessing carbon liberation, carbon equivalency, fossil vs. atmospheric carbon, CO₂ sequestration, and implications of potential carbon regulation for materials selection and building design.

MORNING SESSION 9:45 AM

Preservative-Treated Wood: Use and Specification

Kris Owen, Independent Consultant

In applications where wood may be exposed to moisture, insects or fungal organisms, preservative-treated wood can help ensure a building's durability. In this presentation, participants will learn about the manufacturing process for pressure-treated wood, available products and their differences, and how preserved wood is used in construction. Topics will include types of preservative treatments and the required levels of retention, as dictated by the end-use application, desired service life and exposure conditions. AWWPA Use Category standards and ICC-ES Report Evaluations will be reviewed, and current issues concerning treated wood in non-residential and multi-family construction will be discussed. Participants will also receive free access to the Treated Lumber smartphone app.

MORNING SESSION 11:00 AM • AFTERNOON SESSION 4:00 PM

Timber Framing: Applications in Commercial Construction

James "Mack" Magee, MS, Fire Tower Engineered Timber

Designed to answer questions about use of heavy timber as both structural material and exposed architectural feature in commercial construction, this presentation will cover topics such as specification, structural design, joinery, code compliance paths, and fire resistance. The role of the architect and structural engineer in heavy timber design and specification will be discussed, and case studies will be presented to illustrate a range of applications. Traditional and modern joinery options will be explored with an emphasis on aesthetics, structural capacity, and design routes. Heavy timber's role as a building material in the *International Building Code* (IBC), AWC's *National Design Specification*® (NDS®) for Wood Construction, and Timber Frame Engineering Council's (TFEC) *Engineering Standards & Loading Criteria* will also be covered.

AFTERNOON SESSION 2:50 PM

Fire Retardant-Treated Wood: The Basics

Kris Owen, Independent Consultant

For some applications—such as exterior walls in Type III Construction—building codes allow the use of wood providing it is fire retardant-treated (FRT). This presentation offers an overview of FRT wood in the United States, including specific references under the IBC, available products and examples of typical use. This session will explore how treatments are impregnated into the wood, how some FR treatments offer preservative protection and the testing required to confirm fire-retardant capabilities. Topics will also include understanding the labels on FRT wood products for interior and exterior uses, and occupant safety.

Who Should Attend?

With a full day of seminars and a trade exposition, the Midwest Wood Solutions Fair will pack an informational punch for architects, engineers, developers, code officials and anyone else interested in wood's exciting design possibilities. Register today if you'd like access to wood design experts for one-on-one support, informative seminars, technical information from manufacturers, engineering consultants and industry associations, and exhibits featuring a wide range of structural and finishing products.

How to Register

To register, visit woodworks.org and look under "Education" on the home page. As part of the registration process, you will be asked to choose which seminar you plan to attend in each time slot. Once your request has been processed, you will receive an email confirmation that your registration is complete. To help make your choices, speaker bios are available on the website.

Cost

There is no cost to attend and complimentary lunch will be provided.

Education Credits

Attendees can earn up to 6 AIA/CES LUs (HSW) or PDH credits (one per attended seminar). Visit woodworks.org for details and learning objectives. AIA/CES forms and professional development certificates will be available on site.

More Information

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