Agenda

Presented by Scott Hamel, P.E., Ph.D.

Preliminary Concepts of Structural Steel Design
- Design theory and design objectives
- Loads and load combinations
- Steel construction manual
- ASD vs. LRFD
- Steel materials

Tension Members
- Tension member design
- Shear lag

Connection Design
- Load transfer and connection design
- Bolted connections
  - Bolt design, size, spacing, and failures
- Welded connections
  - Weld design and weld failures

Compression Members
- Buckling
- Compression member design

Flexural Members
- Forces on members
- Flexural member design

Combined Forces and Combined Loads
- Interaction diagrams

Steel-Concrete Composite Beam Design
- Components of composite systems
- Design of composite flexural members

Structural Steel Applications and Case Studies
- Commercial and industrial buildings
- Residential buildings
- Bridges

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Basics of Structural Steel
Live, Interactive Webinar - Friday, September 11, 2020

HalfMoon Education Inc.
PO Box 278
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Learning Objectives

You'll be able to:

Distinguish between allowable stress design (ASD) and load and resistance factor design (LRFD) for the design of steel buildings.

Identify appropriate applications for structural steel construction, including commercial and industrial buildings, and bridges.

Describe forces on structural steel members, including flexural forces, tension forces and compression forces.

Discuss strategies for designing connections between structural members, including bolted and welded connections.

Learn about steel-concrete composite beam design.

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Basics of Structural Steel

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Examine design theory and compare ASD and LRFD methods of steel design

Learn about flexural, tension, and compression member design

Explore combined forces and combined loads

Discuss the design of welded and bolted connections

Review structural steel applications and case studies

Continuing Education Credits

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7.0 PDHs

Architects
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International Code Council
.7 CEUs (Building)

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Faculty

Scott Hamel, P.E., Ph.D. *University of Alaska Anchorage*

Originally from New Hampshire, Mr. Hamel completed a B.S. degree in Civil Engineering at Worcester Polytechnic Institute in Massachusetts and a master's degree in Civil Engineering with an emphasis in structures at the University of Colorado at Boulder. Between degrees he worked as a bridge inspector, roadway designer, and bridge engineer in Boston and as a structural engineer in Denver designing hospitals, museums, and courthouses. After earning his license as a professional engineer in Colorado, he returned to school and completed his doctorate in Structural Engineering at the University of Wisconsin-Madison. Mr. Hamel's research was located at the USDA Forest Products Laboratory in Madison and included a three-year long creep test of wood-plastic composites (WPCs). His dissertation subject was finite-element modeling of the time-dependent mechanical behavior of WPCs. Mr. Hamel joined the faculty at the University of Alaska Anchorage in 2011, where his current research includes the mechanical behavior of reinforced WPC materials, and the performance of plywood/polyurethane structural insulated panels (SIPs). At UAA, he teaches undergraduate courses in structural analysis and steel design and graduate-level courses that cover loads on structures, structural reliability, advanced structural analysis, finite-element analysis, and advanced steel design.

Webinar Information

Log into Webinar
8:30 - 9:00 am CDT

Break
12:45 - 1:15 pm CDT

Morning Session
9:00 am - 12:45 pm CDT

Afternoon Session
1:15 - 4:30 pm CDT

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Additional Learning

Webinar Series

Engineering Ethics: Handling Ethical Issues in Professional Engineering Practice
- Mon., August 17, 2020, 11:00 am – 12:00 pm CDT

Maintaining Existing Buildings under the 2018 International Property Maintenance Code
- Mon., August 17, 2020, 10:00 am – 2:30 pm CDT
- Mon., August 24, 2020, 10:00 am – 2:30 pm CDT

Retaining Wall Design and Global Stability Analysis
- Wed. August 19, 2020, 10:00 am – 2:15 pm CDT
- Thurs., August 20, 2020, 10:00 am – 2:15 pm CDT

Special Inspections under the International Building Code Chapter 17 (IBC 2015)
- Wed. August 19, 2020, 9:00 am – 1:30 pm CDT
- Thurs., August 20, 2020, 9:00 am – 12:15 pm CDT

Introduction to HEC-HMS Modeling
- Thurs., August 20, 2020, 8:30 am – 5:00 pm CDT

Air-Source Heat Pumps for Energy Efficiency
- Thurs., August 20, 2020, 11:00 am – 2:15 pm CDT
- Fri., August 21, 2020, 11:00 am – 3:15 pm CDT

Introduction to HEC-RAS Modeling
- Mon., August 24, 2020, 11:00 am – 3:00 pm CDT
- Tues., August 25, 2020, 11:00 am – 3:30 pm CDT

Drones in Construction
- Thurs., August 27, 2020 , 10:00 am – 4:50 pm CDT

Energy-Efficient, Sustainable Roofs
- Thurs., August 27, 2020, 11:00 am – 2:30 pm CDT
- Fri., August 28, 2020, 11:00 am – 2:30 pm CDT

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