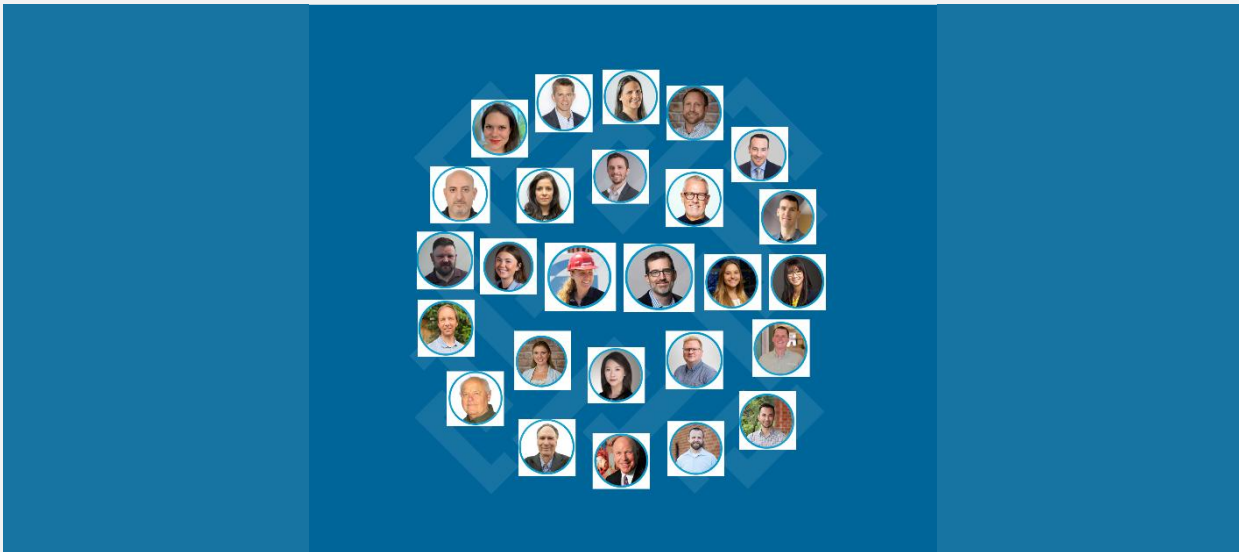




CFSEI

2026 ANNUAL EXPO

May 18-20, 2026



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LONG BEACH, CALIFORNIA**

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Welcome everyone to the 2026 CFSEI Expo in Long Beach, California! It is wonderful to gather once again with colleagues, industry partners, and friends to share experiences, exchange knowledge, and continue strengthening the cold-formed steel community.

Being surrounded by people who face the same challenges, ask the same design questions, and manage the same project pressures is energizing. The conversations that happen over coffee or during evening events create space to compare notes, share lessons learned, and explore new approaches together. That sense of community and shared problem-solving is one of my favorite parts of the Expo.



This year's technical program reflects the continued momentum of our industry. Our sessions span topics from risk management and training and development to noncombustible construction, seismic design and emerging research. These topics speak directly to the issues shaping our work right now.

We take pride in recognizing excellence through our award winners. The achievements honored here reflect decades of commitment to advancing cold-formed steel design, research, and practice. Celebrating this work sets the standard for who we are as a community and who we aspire to be.

A highlight of the past year has been the introduction and growth of our Young Members Group. Their energy, curiosity, and commitment to learning have brought new perspectives. We are excited to see their continued involvement at this year's Expo and in the work ahead of us.

We are introducing a new feature this year: dedicated sponsor engagement time built directly into the Expo schedule. Our sponsors play a vital role in supporting innovation, research, and professional development across the industry. This dedicated time ensures that attendees can connect meaningfully with the companies and individuals who help make this event possible.

I would like to extend my sincere appreciation to the CFSEI Executive Committee, our staff, and the many volunteers whose efforts throughout the year make an event of this caliber possible. Their dedication ensures that we continue to offer a program that is both technically rich and deeply valuable to our members.

Finally, a heartfelt thank-you to our returning and new sponsors. Your support is essential to the success of the Expo and to the continued growth of our industry.

I look forward to reconnecting with familiar faces and welcoming new ones. Thank you for being part of the 2026 CFSEI Expo. I hope you leave inspired, informed, and energized for the year ahead.

<p><u>Diamond</u></p> <ul style="list-style-type: none">• ClarkDietrich Building Systems• SFIA• SSMA• USG <p><u>Platinum</u></p> <ul style="list-style-type: none">• CEMCO• GRAITEC <p><u>Gold</u></p> <ul style="list-style-type: none">• Hilti• Hsbcad• MEGABOARD• Scottsdale Construction• SURE-BOARD	<p><u>Silver</u></p> <ul style="list-style-type: none">• Aerosmith• Argos Systems• ASC Steel Deck• BECK• Grabber• Integra• DragonBoard USA• MBA Metal Framing• MAX• MRI Steel Framing• New Millennium• NEXGEN Building Products• Simpson Strong-Tie• Steel Deck Institute• Stockton Products <p><u>Bronze</u></p> <ul style="list-style-type: none">• Marino/Ware
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Sincerely,

Tammy Gleed, P.E.
2025-2026 CFSEI Chair

MONDAY, MAY 18, 2026

2:00 p.m. - 4:00 p.m.

Top Floor of a Connected Garage

[CFS - Tool Time Hands-On Demo](#)

5:00 p.m. - 6:00 p.m.

Ocean Terrace

[Welcome Reception](#)

6:00 p.m. - 7:00 p.m.

Ocean Terrace West

[Young Engineer Group Mixer](#)

TUESDAY, MAY 19, 2026

6:45 a.m. – 4:00 p.m. Registration at the Lobby

7:00 a.m. – 8:00 a.m. [Breakfast in Salon A&B | Stipend/Student Competition](#)
[Winners Breakfast in Ocean Terrace West](#)

9:00 a.m. – 10:00 a.m. [Hindsight on Training Gaps and Improvements](#)
Alyssa Pease, P.E., raSmith
Salon A&B Kamryn Miller, P.E., Simpson Strong-Tie Co., Inc.
Elizabeth (Ellie) Viox, McClure
Daniel Church, Excel Engineering, Inc.
Lia Zhu, MTE Consultants Inc.

9:00 a.m. – 10:00 a.m. [Break with Sponsors](#)

Salon C/Centennial C [A Sticky Subject: Adhesives for Steel-to-Steel Connection](#)
10:00 a.m. – 11:00 a.m. Kara Peterman, Ph.D., University of Massachusetts-Amherst

Salon D/Centennial D [Gable End Framing](#)
Jacob Thompson, P.E., S.E., TrusSteel

11:00 a.m. – 1:00 p.m. [Lunch: Annual Meeting and Awards in Salon A&B](#)

Salon C/Centennial C [Design Firm Risk Management Landscape](#)
Robert Graham, Shipley & Associates Inc.

1:00 p.m. – 2:00 p.m.

Salon D/Centennial D [Design Loads on Cold-Formed Steel Structures During Construction](#)
Jesse Barnes, P.E., S.E., McClure

TUESDAY, MAY 19, 2026

2:00 p.m. - 2:15 p.m. Break

Salon D/Centennial D [Improving Thermal Transmittance Estimation Accuracy in CFS Residential Envelopes using Response Surface Methodology: A Numerical-Based Approach](#)
Nader Elhadj, P.E., FRAMECAD America

2:15 p.m. - 3:15 p.m.

Salon C/Centennial C [Playing Nice with CLT](#)
Clifton Melcher, P.E., S.E., Simpson Strong-Tie Company, Inc.
Hien Nguyen, M.S., P.E., Simpson Strong-Tie Company, Inc.

3:15 p.m. - 4:00 p.m. Break with Sponsors

4:00 p.m. - 5:00 p.m. **Keynote**
[Advancing Cold-Formed Steel in Mid-Rise Building Systems in High Seismic Zones: Accomplishments of the CFS-NHERI and CFS10 Capstone Programs](#)
Salon A&B
Tara Hutchinson, Ph.D., University of California, San Diego
Benjamin Schafer, Ph.D., P.E., F. SEI, Johns Hopkins University

5:00 p.m. - 5:30 p.m. Conference Group Photo

7:00 p.m. - 10:00 p.m. Dinner & Social Event
Aquarium of the Pacific

WEDNESDAY, MAY 20, 2026

6:45 a.m. – 3:15 p.m. Registration at the Lobby

7:00 a.m. – 8:00 a.m. Breakfast in Salon A&B

8:00 a.m. – 9:00 a.m. [Navigating Ethics, Liability, and Contracts in Cold-Formed Steel Delegated Design](#)
Salon A&B Michael Castleman, McClure

9:00 a.m. – 10:00 a.m. Break with Sponsors

Salon C/Centennial C [A Step-by-Step Methodology for Designing Mid-Rise Cold-Formed Steel Structures in North America](#)
Sarah Majlesi, Canadian Institute of Steel Construction

10:00 a.m. – 11:00 a.m. [Building for the 21st century: Noncombustible Construction with Cold-Formed Steel](#)

Salon D/Centennial D Carl Welty, The Banning Land Trust
W. Donald Wheeler, Wheeler Steel Framing Supply

11:00 a.m. – 1:00 p.m. [Lunch: Award Winner Presentations in Salon A&B](#)

Salon D/Centennial D [Designing for Cold-Formed Steel Manufacturing and Assembly](#)
1:00 p.m. – 2:00 p.m. Grant Doherty, Martin/Martin Inc.

Salon C/Centennial C [Cold-Formed Steel Framing and Building Seismic Drift - What Happens to Our Framing When Buildings Move?](#)
Kirsten Zeydel, S.E., Nevell Group, Inc.

2:00 p.m. – 2:15 p.m. Break with Sponsors

2:15 p.m. – 3:15 p.m. [What's Hot on the Hotline?](#)
Salon A&B Patrick M. Hainault, P.E., R.A. Smith, Inc.
Andrew Newland, P.E., ADTEK Engineers, Inc.

3:15 p.m. – 3:30 p.m. Break

WEDNESDAY, MAY 20, 2026

Emerging Technologies

[Enabling Seismic Performance-Based Design Pathways for Cold-Formed Steel Framed Buildings](#)

Benjamin Schafer, Ph.D., P.E., F. SEI, Johns Hopkins University
Ian McFarlane, P.E., S.E., Magnusson Klemencic Associates
Tara Hutchinson, PhD., P.E., University of California, San Diego

3:30 p.m. – 5:30 p.m.

Salon C/Centennial C

[From Artificial Hearts to Steel Skeletons: Algorithmic Assurance in Cold-Formed Steel Housing](#)

Rodger Ford, FrameUpNow

[A Web-Based App for Cold-Formed Steel Member Structural Calculations Built with Open-Source Software](#)

Cristopher Moen, RunToSolve LLC

[SIN Floor: Advancing Cold-Formed Steel in Composite Floor Systems](#)

Phil Reinders, Steelcon Inc.

5:30 p.m. Expo Closes

MONDAY, MAY 18, 2026: 2:00 PM – 4:00 PM: TOP FLOOR OF A CONNECTED GARAGE

[TOP](#)

CFS – TOOL TIME HANDS-ON DEMO

CONTINUING EDUCATION - 2 PROFESSIONAL DEVELOPMENT HOUR

This CFS interactive workshop will give sponsors exclusive design access a chance to showcase products and network with expo attendees.

Top floor of the Connected Garage

333 East Ocean Boulevard
Long Beach, California 90802

MONDAY, MAY 18, 2026: 5:00 PM – 6:00 PM: OCEAN TERRACE

WELCOME RECEPTION

Network with other expo participants at Ocean Terrace



SPONSORED BY



MONDAY, MAY 18, 2026: 6:00 PM – 7:00 PM: OCEAN TERRACE WEST

YOUNG MEMBER GROUP MIXER

HINDSIGHT ON TRAINING GAPS AND IMPROVEMENTS

CONTINUING EDUCATION - 1 PDH/ 1 LU

The Younger Member Group will deliver a presentation identifying their experience on gaps in early-career job training within the cold-formed steel (CFS) profession. The session will highlight common challenges faced by emerging engineers and how those challenges are overcome with varying perspectives. The group will also propose practical improvements. The presentation aims to spark dialogue between younger staff and firm leadership to create more effective, sustainable training pathways.



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Education**

Learning Objectives

- Identify common gaps or pitfalls in early career training
- Explain how different learning and mentorship styles influence early professional development
- Evaluate strategies used by emerging engineers to overcome training challenges and adapt to expectations
- Propose actionable improvements to training programs within a firm.



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Session Sponsor

Panel Speakers: Alyssa Pease, P.E.

- Kamryn Miller, P.E.
- Daniel Church
- Elizabeth (Ellie) Viox
- Lia Zhu

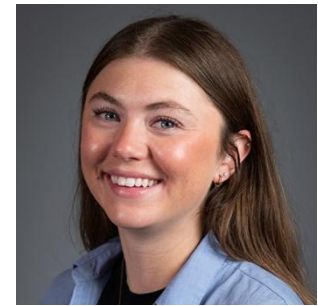
**Alyssa Pease
raSmith**

Alyssa Pease, P.E., is a structural engineer in raSmith's structural services division with nine years of specialized experience in cold-formed steel (CFS) design. She has contributed to a wide range of building types across the country, including mid-rise residential structures, retail and commercial developments, healthcare facilities, academic institutions, and adaptive reuse projects. Her expertise includes mid-rise load-bearing systems, prefabricated wall panel design, exterior curtain wall framing, raised platform framing, interior framing, remodeling and retrofitting.



**Kamryn Miller, P.E.
Simpson Strong-Tie Co., Inc.**

Kamryn Miller, PE, is a Field Engineer with Simpson Strong-Tie, based in Denver with almost 6 years of experience in the industry. She earned both her bachelor's and master's degrees in civil engineering from Washington State University and holds PE licenses in Colorado and Wyoming. In her role at Simpson, she partners with design teams and contractors to provide technical support and guidance on innovative building connection solutions. One of her key focus areas is cold-formed steel connections, where she regularly presents on Simpson's CFS connectors and testing through lunch-and-learn sessions. Kamryn is an active member of CFSEI and serves on the Board of Directors for the Structural Engineers Association of Colorado (SEAC).



**Elizabeth (Ellie) Viox
McClure**

Ellie has a bachelor's degree in architectural engineering from the Missouri University of Science and Technology and 2 years of experience as a project manager in the construction industry. She is currently a Structural Designer working primarily with Cold-Form Steel. She is an active member of CFSEI and the SAVE Coalition, including helping evaluate damage after the May 2025 Tornado in St. Louis.



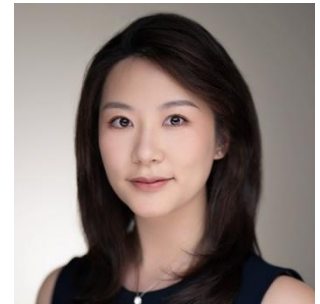
Daniel Church
Excel Engineering, Inc.

Originally from the Chicagoland area, Daniel got his bachelor's degree at University of Wisconsin-Platteville in December of 2016. He started at Excel in January of 2017 and has worked with their Cold-formed Steel Division for the last nine years.



Lia Zhu
MTE Consultants Inc.

Lia is a structural E.I.T. based in Toronto, Canada, with four years of professional experience specializing in cold-formed steel design across commercial, mid-rise residential, and infrastructure projects. She holds both bachelor's and master's degrees in civil engineering from the University of Toronto, with a focus on structural engineering. As a Young Member, she is particularly interested in integrating emerging technologies, including AI-driven tools, into cold-formed steel design to improve efficiency, accuracy, and design workflows.



A STICKY SUBJECT: ADHESIVE FOR STEEL-TO-STEEL CONNECTION

CONTINUING EDUCATION - 1 PDH / 1 LU | HSW

Structural adhesives are pervasive in 2026, used in facades, structural components, and even aircraft. But steel design specifications are silent on how to design an adhesive for steel connections. This talk shares research results from a 4-year experimental effort to determine the design space for adhered steel connections. Shear strength, behavior under prolonged loads and elevated temperatures, and performance in combination with slip-critical bolts are the focus of the work, but sensitivity to steel type and adhesive mechanical properties are also explored. Cold-formed steel deck connections to support framing in addition to shear strength in cold-formed steels form another core component of the research project. In aggregate, the work will enable defining holistic performance objectives for adhered steel-to-steel connections in national specifications.



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Learning Objectives

- Attendees will be able to distinguish between adhesive failure modes
- Attendees will be able to delineate between adhesive connection performance based on strength, behavior at elevated temperatures, and prolonged load
- Attendees will be able to design for adhesive steel to steel connections given performance objectives
- Attendees will be able to specify a general-purpose structural steel adhesive

Kara D. Peterman, Ph.D.

University of Massachusetts-Amherst

Kara is a past chair of the CFSEI Executive Committee. She is currently a member of the CFSEI Education Committee, Emerging Technologies Committee, and the Expo Planning Committee.



Dr. Kara Peterman is an Associate Professor at the University of Massachusetts Amherst, in the Department of Civil and Environmental Engineering. At UMass, Dr. Peterman investigates the sustainability and performance of our basic infrastructure focusing on resilient building design, infrastructure materials, and structural stability. Dedicated to professional service, she is a member of the AISC Committee on Sustainability, Cold Formed Steel Engineers Institute Executive Committee and Vice-Chair of the Structural Stability Research Council(SSRC). Prior to joining UMass, Dr. Peterman was a postdoctoral researcher at Northeastern University and received her PhD from the Johns Hopkins University.

GABLE END FRAMING

CONTINUING EDUCATION - 1 PDH / 1 LU | HSW

Gable end framing at the ends of buildings is an area that requires special attention. There are unique aspects of this section of the building that need to be carefully designed and detailed. The loads that need to be resisted at this location come from many directions and proper detailing is vital to transfer these loads to the building foundation. This presentation will review the diverse ways to achieve gable end framing as well as identifying the gravity and environmental loads that the system needs to resist. Proper detailing and specifications are an important part of the project documents so that the gable end framing can be designed properly and that the load path is adequate.



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Education**

Learning Objectives

- Understanding the different ways to frame gable ends
- Identifying the gravity and environmental loads that need to be resisted by the gable end framing
- Introducing various detailing techniques to preserve the load path
- How to properly specify these systems so that they can be designed appropriately

Jacob Thompson, P.E., S.E.

TrusSteel

Jacob Thompson, P.E., S.E. is an Engineering Team Lead for TrusSteel. TrusSteel is a provider of cold-formed steel (CFS) truss engineering and technology using the proprietary TrusSteel system. Jacob has been involved with wood and CFS truss components for the past 23 years. He holds a Bachelor of Science degree in Civil Engineering and a Master of Science degree in Structural Engineering. He is a licensed Professional and Structural Engineer. He is also a member of the Cold-Formed Steel Engineers Institute (CFSEI) and the American Institute of Steel Construction (AISC) and has participated in the development of CFS standards.



LUNCHEON

CFSEI ANNUAL MEETING AND AWARDS



INSTALLATION OF CFSEI EXECUTIVE COMMITTEE



DESIGN FIRM RISK MANAGEMENT LANDSCAPE

CONTINUING EDUCATION - 1 PDH / 1 LU

Design firms operate in an increasingly complex risk environment where contractual obligations, project dynamics, and client expectations can significantly impact exposure to liability. This session will examine practical strategies for identifying, assessing, and controlling risk. Focusing on contractual risk mitigation, participants will learn some proven techniques for negotiating reasonable contractual terms, aligning client agreements with professional standards, and avoiding hidden exposures that often arise from poorly defined responsibilities.



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The presentation will also highlight how strategic project selection and a well-crafted scope of services establishes reasonable project expectations. Attendees will gain insight into balancing opportunity with risk and recognizing red flags in client and project profiles.

Attendees will leave with actionable tools to strengthen their firm's risk posture – understanding not only how to mitigate contractual risks, but how to proactively support long-term resilience and client trust.



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Learning Objectives

- Identify the most common sources of design firm liabilities according to ACEC claim surveys and insurance carrier claims case studies.
- Review common contract formats to identify sources of contractual risk in construction contracts and discuss specific alternative wording to help mitigate contractual risk.
- Apply practical negotiation strategies to modify or clarify unfavorable contract terms and conditions.
- Evaluate project opportunities through a structured risk-assessment lens, recognizing how client type, delivery method, and project complexity influence overall firm risk.
- Develop clear and defensible scopes of services that align with professional responsibilities, minimize scope creep, and establish realistic expectations with clients and consultants.

Robert Graham
Shiplely & Associates Inc.

With more than 20 years of experience as a property and casualty insurance broker, Robert has built a reputation for helping professional service organizations manage risk with clarity and confidence. As a leading broker, he combines deep technical knowledge with a practical, solutions-focused approach to risk mitigation and loss control. Robert's insight and experience make him a trusted advisor and an engaging voice on how professionals can proactively safeguard their future.



TUESDAY, MAY 19, 2026: 1:00 PM – 2:00 PM: SALON D/CENTENNIAL D

DESIGN LOADS ON COLD-FORMED STEEL STRUCTURES DURING CONSTRUCTION

CONTINUING EDUCATION - 1 PDH / 1 LU | HWS

Cold-formed steel (CFS) structures are subject to a range of temporary loading conditions during construction that are often excluded from design scopes. This presentation examines the application of ASCE 37-14, Design Loads on Structures During Construction, and its relevance to CFS framing systems, with emphasis on practical considerations related to construction means and methods.



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This presentation will explore key construction-phase load cases including:

- Bracing of load-bearing wall studs prior to diaphragm installation.
- Hoisting and handling loads during panelized wall and truss erection.
- Fall arrest anchorage forces imposed on framing members.
- Staging of materials on incomplete structures.
- Application of impact factors for dynamic construction loads.
- Concrete placement loads on steel deck supported by CFS joists and beams.
- Soffit framing used for temporary support of workers and equipment, often not designed for such loads.
- AISI S240 provisions for sheathing-braced design and their role in temporary stability.



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The presentation will provide detailed guidance on applying ASCE 37 load combinations and load factors to CFS framing, with a focus on interpreting these provisions in the context of temporary conditions.

Coordination between structural engineers, specialty designers, and contractors ensures that construction-phase loads, often not considered when doing an in-service design, are properly addressed. Practical strategies for detailing, sequencing, and temporary bracing will be discussed, highlighting how these considerations can influence member sizing, connection design, and overall safety. Recognizing and designing for these additional loads is vital to protecting worker safety and minimizing risk during construction.

Learning Objectives

- Understand the scope and application of ASCE 37-14.
- Apply practical strategies for detailing and sequencing.
- Identify and evaluate temporary loading conditions.
- Evaluate how temporary construction loads can influence member sizing, and connection detailing.

Jesse Barnes, P.E., S.E.

McClure

Jesse is a seasoned structural engineer with ten years of experience, specializing in mid-rise multi-family construction. Currently serving as a Technical Manager at McClure, Jesse leads quality assurance and technical oversight for large engineer-of-record projects, with a specialized focus on load-bearing cold-formed steel (CFS) systems. He ensures structural accuracy through detailed review of drawings, calculations, and delegated design packages, supporting both internal teams and external stakeholders. With a strong background in multi-family housing, museums, civil infrastructure, and commercial structures, Jesse has managed projects across the country, including notable contributions in Florida, California, and Michigan. His expertise spans various materials, including wood, concrete, structural steel, cold-formed steel, and masonry. Jesse earned his Bachelor of Science degree in Civil Engineering from the University of Missouri in 2014. He is licensed as a Professional Engineer in nine states and as a Structural Engineer in two.



IMPROVING THERMAL TRANSMITTANCE ESTIMATION ACCURACY IN CFS RESIDENTIAL ENVELOPES USING RESPONSE SURFACE METHODOLOGY: A NUMERICAL-BASED APPROACH

CONTINUING EDUCATION - 1 PDH / 1 LU | HSW

The global shift toward sustainable, energy-efficient construction has resulted in increasingly stringent insulation requirements in building codes, including recent changes in New Zealand. These changes present challenges for cold-formed steel construction.

While CFS offers many advantages – such as high strength-to-weight ratio, non-flammability, and ease of prefabrication – it is susceptible to thermal bridging due to steel’s high conductivity. This effect significantly reduces the overall thermal resistance (R-value) of building envelopes and complicates efforts to meet modern energy performance standards.

Accurately evaluating thermal transmittance in CFS walls is therefore critical. However, code-prescribed calculation methods such as the parallel path or isothermal planes approach often diverge substantially from experimental or validated numerical results, with errors reported as high as 50%. Numerical simulations, particularly finite element analysis (FEA), provide much greater accuracy, but they are resource-intensive and impractical for widespread application in large-scale housing or commercial projects. This creates a gap between the reliability demanded by codes and the practicality required by industry.

This study addresses that gap by comparing current code-compliant methods with validated FEA models, highlighting their limitations in capturing the complex heat transfer pathways within CFS assemblies. To provide a more practical alternative, the study introduces a simplified calculation method based on Response Surface Methodology (RSM). Using a database of validated FEA simulations, RSM generates predictive equations that capture the nonlinear effects of steel profile geometry, insulation placement, and wall thickness on overall thermal resistance. Results show that RSM achieves close agreement with FEA outcomes, while remaining significantly more efficient than full thermal modelling. The proposed method offers a practical balance of accuracy and usability, equipping designers and industry with a reliable tool for predicting thermal resistance in



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CFS building envelopes and supporting the broader push toward energy-efficient, sustainable construction.

Learning Objectives

- Understand the limitations of current code-compliant methods for calculating thermal transmittance in CFS assemblies.
- Learn how thermal bridging affects R-values in steel-framed building envelopes and why accurate evaluation is critical.
- Explore the role of finite element modelling (FEA) in assessing CFS thermal performance and its practical limitations.
- Gain insight into the application of Response Surface Methodology (RSM) as a simplified, accurate predictive tool.
- Identify how the proposed RSM-based method can improve design efficiency, regulatory compliance, and sustainability in CFS construction.

Nader Elhajj, P.E.

FRAMECAD America

Nader Elhajj is a licensed structural engineer with a Master of Science degree in Structural Engineering and an MBA. He has over 35 years of experience in the design, construction and analysis of building methods and materials. Nader currently holds a Director of Engineering position with FRAMECAD America. Prior to FRAMECAD, Mr. Elhajj was the Director of the Research Centre for NAHB. He managed research and development projects for alternative building materials and emerging technologies. He also managed tasks related to design, construction, analysis, testing and field evaluation of construction materials in housing. Mr. Elhajj developed standardized design and other prescriptive specifications for cold-formed steel framing. Mr. Elhajj is active in writing engineering standards, codes, and specifications for the building industry. Mr. Elhajj authored and co-authored several publications about housing design and cold-formed steel framing. Mr. Elhajj serves on several industry and code-related cold-formed steel committees.



PLAYING NICE WITH CLT

CONTINUING EDUCATION - 1 PDH / 1 LU

This presentation explores the integration of Cross-Laminated Timber (CLT) with Cold-Formed Steel (CFS) to create a high performing hybrid structural system. By combining the strengths of both materials, designers can achieve a solution that is cost effective, offers flexible design opportunities, provides fire performance, and supports sustainable construction goals.



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While the benefits of CLT-CFS hybrid systems are increasingly recognized in the design community, engineers continue to face several technical challenges.

Key questions include:

- What is the capacity of CFS framing bearing on CLT panels?
- What are effective strategies for connecting bypass CFS curtain walls to CLT structures?



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To address these issues, we have conducted a series of targeted tests and investigations. This presentation will highlight findings and share insights from this testing program. It will also outline emerging best practices for CLT-CFS integration.

Learning Objectives

- Learn about CLT and how CFS and CLT can be integrated
- Testing of CFS bearing on CLT
- Testing of CFS curtainwall connections with CLT
- Design options of CFS integrated with CLT

Clifton Melcher, P.E., S.E.
Simpson Strong-Tie Company, Inc.

Clifton Melcher, P.E., S.E. is a Group Product Manager for Simpson Strong-Tie Company, Inc., where he is responsible for managing the development and promotion of connectors and software. Prior to joining Simpson Strong-Tie, Clifton was the engineering branch manager for a large cold-formed steel manufacturer. He is a registered civil and structural engineer with more than 25 years of experience in the cold-formed steel industry. He earned his bachelor's and master's degrees in civil engineering from Iowa State University.



Hien Nguyen, M.S., P.E.
Simpson Strong-Tie Company, Inc.

Hien Nguyen, M.S., P.E. is an Associate Technical Manager in Product Engineering at Simpson Strong-Tie Company Inc. in Pleasanton, California. She specializes in new product development and has more than 25 years of experience designing structural connectors for wood, cross-laminated timber, and cold-formed steel applications. Hien led the effort to incorporate curtain wall clip provisions into ICC-ES AC261, approved in February 2019, and has contributed to multiple AISI test standards. She has a Bachelor of Science degree in Civil Engineering from the University of California, Davis and a master's degree from San Jose State University. She is a registered civil engineer in California.



TUESDAY, MAY 19, 2026: 4:00 PM – 5:00 PM

SALON A&B



KEYNOTE SPEAKERS

ADVANCING COLD-FORMED STEEL IN MID-RISE BUILDING SYSTEMS IN HIGH SEISMIC ZONES: ACCOMPLISHMENTS OF THE CFS-NHERI AND CFS10 CAPSTONE PROGRAMS



CONTINUING EDUCATION - 1 PDH / 1 LU

The objective of the NSF-sponsored cold-formed steel – natural hazards engineering research infrastructure (CFS-NHERI) program is to advance the seismic resilience and design capabilities of cold-formed steel (CFS) lateral force-resisting systems through coordinated experimental and computational research. While CFS is commonly used in low-rise buildings, its application in mid-rise and taller structures in moderate-high seismic zones as the core load-bearing system remains limited due to a lack of full-scale validation under seismic loading, and specific height limits in U.S. building codes.



The CFS-NHERI program aimed to break this barrier through a coordinated University-industry collaboration that integrates a multi-phase experimental effort spanning from material-level testing, subsystem shake table tests and capped by a full-scale shake table test of a ten-story CFS-framed building. Coined CFS10, the later landmark building program was conducted at the Large High Performance Outdoor Shake Table at the University of California San Diego considering multi-directional, sequentially increasing earthquake and post-earthquake fire tests.

Uniquely, this landmark test specimen embraced a variety of construction modalities including 2D panelized and 3D volumetric construction methods and aimed to support community developments of functional recovery by integrating a range of nonstructural components and systems. The effort is complemented by numerical modeling and

performance-based design efforts. Results from CFS10 demonstrate that engineered CFS systems can perform robustly under significant seismic demands, with stable energy dissipation, and minimal damage propagation. Complemented by material, connection, and subsystem tests, the full-scale CFS10 seismic tests provide a landmark dataset to validate analytical tools for future design. The program sets a new benchmark for performance-based seismic design in CFS structures, and ongoing work is focused on documenting the earthquake and fire testing results and conducting complementary simulations, as well as translating findings into design guidance, industry adoption, and broader applications in high-performance CFS construction.

Learning Objectives

- Seismic detailing for tall CFS buildings
- Findings from a landmark 10-story all CFS-framed shake table test program
- Live fire test and modeling methods as relevant to CFS systems
- Contrast stick, panel, and modular CFS construction methods

Tara Hutchinson, Ph.D.

University of California, San Diego

Tara Hutchinson is a Professor in the Department of Structural Engineering at the University of California, San Diego with broad research interests in geotechnical, structural and earthquake engineering. Much of her work involves full- or large-scale shake table and fixed reaction-type experimentation. She obtained her Ph.D. at the University of California, Davis and M.S. at the University of Michigan, Ann Arbor. She has been on the faculty at UC San Diego since 2007 and presently serves as the Powell Laboratory Director. In 2024 she was appointed the Jan Talbot Endowed Chair in the Jacobs School of Engineering at UC San Diego.

Benjamin Schafer, Ph.D., P.E., F. SEI

Johns Hopkins University

Benjamin Schafer is the Hackerman Professor of Civil and Systems Engineering and the Director of the Ralph O'Connor Sustainable Energy Institute at Johns Hopkins University. He is an active volunteer and leader on multiple national committees related to the engineering and design of steel building structures. He has won multiple awards for his research, teaching, and speaking and currently resides in Washington D.C. with his wife and son.

Lynn Padgett, P.E.

ClarkDietrich Engineering Services LLC

With three decades of engineering experience, Lynn Padgett is a Senior Project Manager at ClarkDietrich Engineering Services LLC, specializing in cold-formed steel (CFS) multi-story loadbearing (MSLB) building design. Since 2006, he has been part of a design team for MSLB building systems with a focus on value engineering, efficient structural solutions, constructability, and good client service. His experience includes design, testing, and construction for many loadbearing wall and lateral force-resisting configurations including steel sheet and flat strap shear walls, CFS joist floor & roof, structural steel integration into CFS assemblies, and exterior non-loadbearing framing.

Prior to joining ClarkDietrich, Lynn was an engineer at Worthington Construction Group, where he was part of a Design - Supply - Build team advancing the application of CFS building systems in commercial and residential global markets such as China, Africa, and the Middle East.

A 1996 graduate from Fenn College of Engineering at Cleveland State University, Lynn lives in Austinburg Ohio with his wife and son. He is currently working at the ClarkDietrich Warren East Plant in Northeast Ohio.

TUESDAY, MAY 19, 2026: 5:00 PM – 5:30 PM

[TOP](#)

CONFERENCE GROUP PHOTO

TUESDAY, MAY 19, 2026: 7:00 PM – 10:00 PM

DINNER & SOCIAL EVENT

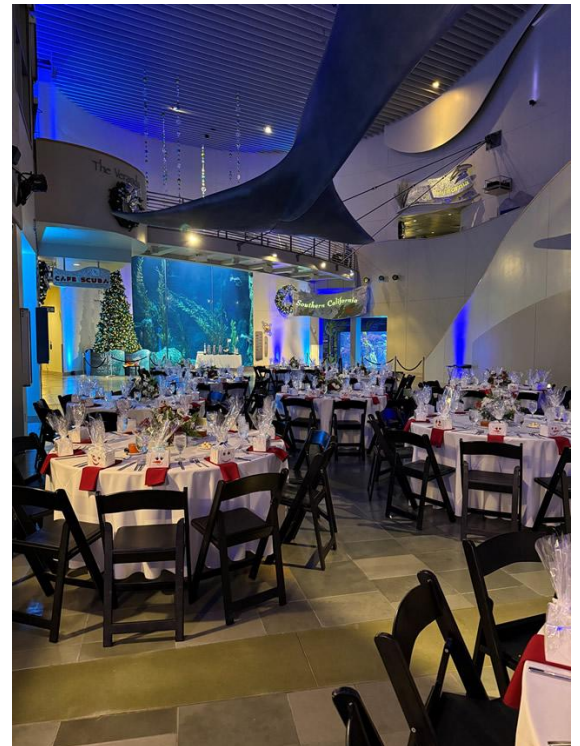
AQUARIUM OF THE PACIFIC

CFSEI Expo participants will enjoy an unforgettable evening at the Aquarium of the Pacific, one of Southern California's premier cultural attractions.

Situated on a six-acre waterfront site at Rainbow Harbor in Long Beach, the Aquarium offers an inspiring setting that depicts the beauty and diversity of the world's largest ocean.

Conveniently located within walking distance of The Westin Long Beach – the official conference venue – this special evening event combines accessibility with a truly memorable experience.

During cocktail-hour, participants will embark on a journey of discovery through immersive exhibits and marine habitat and enjoy exclusive access to the entire facility. The evening will conclude with dinner in the elegant Great Hall, providing the perfect atmosphere for networking and connection.



SPONSORED BY



NAVIGATING ETHICS, LIABILITY, AND CONTRACTS IN COLD-FORMED STEEL DELEGATED DESIGN

CONTINUING EDUCATION - 1 PDH / 1 LU

Ethical decision making is increasingly intertwined with legal responsibility and contractual obligations. This presentation explores the critical intersection of engineering ethics, liability, and contracts, offering insights tailored to professionals working with cold-formed steel and delegated design.



**Approved
Continuing
Education**

Drawing on the presenter's dual background in design and legal counsel, this presentation will examine:

1. Specifications and Their Binding Nature: Understanding how technical specifications function within contract documents and what it means to deviate from them.
2. Contractual Clarity: The implications of signed vs. unsigned contracts, verbal agreements, and the enforceability of various forms of documentation.
3. Professional Liability: How ethical lapses and technical oversights can translate into legal exposure, especially in delegated design scenarios.
4. Non-Disclosure Agreements (NDAs): Their role in protecting intellectual property and sensitive project information, and common pitfalls engineers should avoid.
5. Scope Creep and Change Orders: Managing project changes ethically and legally, and how to document and communicate them effectively.
6. Delegated Design Responsibilities: Clarifying roles and liabilities when structural engineers are tasked with design elements under the direction of other professionals.
7. Risk Management Strategies: Practical steps engineers and firms can take to mitigate liability while maintaining ethical standards.



Session Sponsor

This presentation will provide actionable guidance for engineers, project managers, and technical leaders, helping them navigate the gray areas between ethics and enforceable obligations. Participants will leave with a clearer understanding of how to protect themselves and their firms while upholding the integrity of the profession.

Learning Objectives

- Understanding the Weight of Specifications.
- Clarifying Contractual Obligations and Documentation.
- Identifying Ethical and Legal Risks in Delegated Design.
- Manage Confidentiality and Intellectual Property.
- Implement Risk Management Strategies

Michael Castleman McClure

Michael Castleman is a legal and structural design professional with McClure, where he has leveraged and applied his dual expertise in engineering practice and legal frameworks. He holds an engineering degree from the University of Missouri and is a licensed attorney in both Missouri and Iowa. He has worked at McClure for the past four years, initially serving as a structural designer in the Enclosures and Interiors group. During that time, he led cold-formed steel design efforts on a wide range of projects nationwide, including apartment complexes, commercial buildings, load-bearing systems, and architecturally complex curved structures. Michael now serves as McClure's in-house legal counsel, where he oversees risk management, compliance and claim management, contract review and negotiation, and other legal matters critical to engineering practice. By integrating legal insight with engineering expertise as with his unique dual background, Michael provides valuable insight into the intersection of technical design, ethics, and legal responsibility.



A STEP-BY-STEP METHODOLOGY FOR DESIGNING MID-RISE COLD-FORMED STEEL STRUCTURES IN NORTH AMERICA

CONTINUING EDUCATION - 1 PDH / LU | HSW

Designing multi-level structures with cold-formed steel requires careful decision-making during the earliest stages of a project.

This presentation demonstrates a structured and practical approach to selecting lateral load-resisting systems and gravity load-bearing framing during the conceptual phase to avoid rework during the later stages of the project. Together with Building code seismic and imposed load requirements, the designer will have a clear roadmap to enter the structural analysis stage.



**Approved
Continuing
Education**

The session will also highlight instances requiring communication between the specialty cold-formed steel engineer and the engineer of record, ensuring structural efficiency and code compliance.

Attendees will also gain an overview of industry-recognized tools and load tables, that facilitate rapid project delivery, as well as practical guidance on interpreting and coordinating requirements between the AISI S400, *North*

American Standard for Seismic Design of Cold-Formed Steel Structural Systems, seismic design standard and applicable Building Codes in North America (United States and Canada). By integrating these considerations, participants will leave with a clear methodology for delivering cold-formed steel structural solutions in building projects.



Session Sponsor

Learning Objectives

- How to select and quantify lateral load system during conceptual phase.
- How to choose best gravity and lateral load-bearing systems acc. to climate and imposed loads.
- Demonstrate why and how it's important for specialty cold-formed and project engineer (engineer on record) to communicate.
- How to effectively use industry-recognized load tables and calculation tools for specification of cold-formed steel sections and assemblies.
- How to read and co-ordinate between the AISI S400 standard and the Building Codes.

Sarah Majlesi
Canadian Institute of Steel Construction

Sarah Majlesi holds a Master of Applied Science in Civil Engineering, Structures from City St George's, University of London. She is a licensed Structural Engineer and a Project Management Professional dedicated to working for the Steel Industry at the Canadian Institute of Steel Construction. She has worked and been exposed to various capacities exclusively within the Cold-formed Steel Industry for the past 10 years and actively engages and sits in professional organization committees such as CSA (Canadian Standards Association) and NMCC (National Model Code Committee).



BUILDING FOR THE 21ST CENTURY: NONCOMBUSTIBLE CONSTRUCTION WITH COLD-FORMED STEEL

CONTINUING EDUCATION - 1 PDH / 1 LU | HSW

Cold-formed steel (CFS) construction offers a practical, affordable method for building noncombustible homes. Following each "urban wildfire," studies emerge to understand the devastation, accompanied by extensive discussions about reducing fire risk. However, recommendations for fire risk reduction typically focus narrowly on "home hardening" strategies designed to protect combustible wood construction from embers and other ignition sources that threaten our wooden homes.



**Approved
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Education**

The January 2025 Los Angeles fires destroyed over 11,500 homes and killed at least 31 people. While the frequency of large-scale urban conflagrations continues to increase, capturing headlines and public attention, single house fires receive far less notice despite killing 2,600 to 2,800 people annually in the United States – far more than dramatic large-scale fires. Though conflagrations destroy more properties, single structure fires claim more lives.



Session Sponsor

Modern conventional wood-framed houses present an alarming reality: they burn eight times faster and generate 200 times more smoke and toxic gases than older homes. While fire destroys structures, the toxic outgassing from these fires kills more people than the flames themselves. Beyond wood's inherent combustibility, the adhesives and chemicals in manufactured lumber and other building materials produce deadly gases responsible for more fatalities than direct fire exposure.

This presentation will demonstrate how CFS construction enables the building of noncombustible houses at costs comparable to conventional wood construction while simultaneously solving two critical problems. Steel framing prevents fire ignition and spread at the source, while eliminating dependence on manufactured lumber that outgasses toxic chemicals responsible for rapid incapacitation and death in fires. The increase in large-scale fires and the accelerated burning of modern houses compared to

older structures are symptoms of more systemic issues. It is time to fundamentally rethink the construction materials and methods to address the rapidly evolving environmental conditions the industry faces each year. The goal is to pose critical questions and provide insights into how noncombustible steel construction can solve these pressing problems.

Learning Objectives

- Demonstrate how CFS framing and wood framing perform in fire.
- Home hardening wood frame construction vs noncombustible construction with steel.
- How to build noncombustible houses with CFS affordably.
- Fires impact on structures in large urban fires and single-family homes, different problems that building with CFS provides solutions.
- Modern homes burn 8x faster than 50-year-old homes and outgas toxic chemicals; we will discuss causes and how we can build for changing lifestyles and a changing climate.

Carl Welty, Carl Welty Architects

Carl Welty is a California licensed architect and Principal of Carl Welty Architects. Carl has been at the forefront of green building and sustainable design for the past 30 years. Carl received his Master's in Architecture from Yale University and his bachelor's in architecture from Cal Poly - San Luis Obispo. He currently serves as Director of Architecture and Planning of the Banning Ranch Land Trust. Carl's work focuses on affordable energy efficient design and durable resilient building systems. Carl advocates leveraging natural systems including solar orientation and climate appropriate principles to create cost effective solutions to double the energy efficiency of structures with little or no increase in construction costs, and building durable, low maintenance, and resilient structures (increased fire, mold, and termite resistance) by incorporating well tested alternative construction materials. Two projects include a 9,000 sqft Water Conservation Education Center that was framed with light gauge steel and incorporated commonsense climate appropriate design principles that achieved a Title-24 Energy Compliance score 60% above the baseline standard (30% above is considered well above average), and a 1500 sqft green house designed with light gauge steel that could meet California's earthquake design requirements for schools and buildable for 20% of the construction cost of a similar size green house built for a Los Angeles Highschool. Carl's work with the Banning Ranch Land Trust combines his interest in affordable equitable design and advocacy for Native American's rights to their ancestral lands.



W. Donald Wheeler, Wheeler Steel Framing Supply

Don Wheeler is a seasoned, professional general contractor with over 50 years of experience in both residential and commercial projects with special emphasis in custom residential steel construction from foundation to finish. He is skilled in supervision, cost control, negotiations and finding creative solutions to construction challenges. Manufactured and installed steel trusses and pre-cut steel framing materials, including concrete form material.



Wheeler has extensive experience coordinating all phases of construction from permit to open house. At Wheeler Steel Framing Supply, Wheeler supervises the pre-cutting of steel framing material at the Fullerton warehouse location and works with onsite framers installing CFS framing material. He has also taught cold-formed steel (CFS) framing at Chaffey College for three years and has given presentations on CFS in Japan. He is active in several associations and has been featured in various professional publications.

LUNCHEON



AWARD WINNER PRESENTATIONS



DESIGNING FOR COLD-FORMED STEEL MANUFACTURING AND ASSEMBLY

CONTINUING EDUCATION - 1 PDH / LU | HSW

With the growing momentum behind pre-manufacturing, pre-fabrication, DfMA (Design for Manufacture and Assembly), industrialized construction, and off-site construction, we find ourselves at the crossroads of a true revolution in Architecture, Engineering, and Construction (AEC). Over the past eight-plus years, Martin/Martin has embraced this transformation, learning to adapt mentally, physically, and strategically. With cold-formed steel being well suited for pre-fabrication, this presentation will unravel the nuanced differences between these concepts – how they’re shaping processes, redefining productivity, and challenging traditional paradigms.

This presentation will share lessons learned from being deeply immersed in the AEC industrial revolution. From overcoming obstacles to celebrating successes, it’s a narrative shaped by innovation, collaboration, and continuous growth.



**Approved
Continuing
Education**

Learning Objectives

- Understand strategies and techniques that optimize both the design phase and the integration of manufacturing and fabrication, emphasizing efficiency, quality, and innovation
- Understand benefits and challenges with Design Assist and DfMA
- Understand lessons learned with pre-fabrication and ways to plan for them
- Understand drivers for pre-fabrication and pre-manufacturing

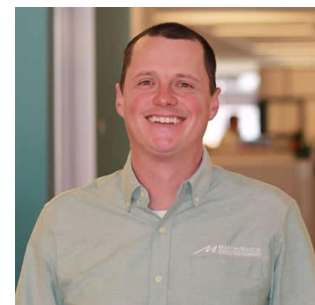


MEGABOARD

Session Sponsor

Grant Doherty Martin/Martin Inc.

Grant Doherty is a Senior Project Engineer at Martin/Martin Consulting Engineers, where he has been a key contributor since 2011. With over 15 years of experience in structural engineering, Grant specializes in fabrication detailing, including structural steel, rebar, and cold-formed steel (CFS) systems. Over the past eight years, Grant has focused extensively on cold-formed steel engineering, designing and overseeing pre-fabrication detailing for a wide range of projects – from exterior framing to complex load-bearing structures. His portfolio includes more than two dozen prefabricated projects, most notably the CFSEI 2023 Award-winning Penn State University Lasch Building. Grant is known for his precision, innovation, and collaborative approach, helping contractors and prefabricators streamline construction through integrated detailing and engineering solutions.



COLD-FORMED STEEL FRAMING AND BUILDING SEISMIC DRIFT – WHAT HAPPENS TO OUR FRAMING WHEN BUILDINGS MOVE?

CONTINUING EDUCATION - 1 PDH / 1 LU

Buildings move in a seismic event, sometimes quite significantly. So, what happens to the cold-formed steel (CFS) non-load-bearing framing during a seismic event? What techniques are used to accommodate that movement? Do they work? Do they cause other problems? Do loads on CFS framing change depending on how the CFS framing accommodates the base building movement? Do discontinuities occur when movement-enabling connections and strategies are employed?



Approved
Continuing
Education

Come learn how a building's seismic drift affects CFS framing and what strategies make sense, and what strategies may just cause more problems than they are worth.



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BUILDING SYSTEMS

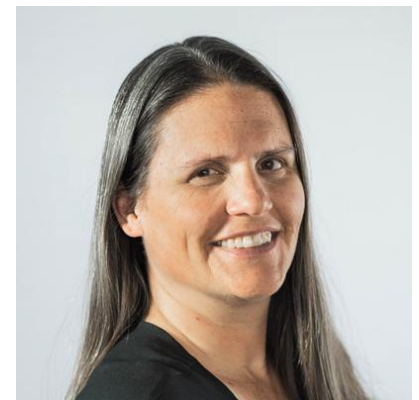
Session Sponsor

Learning Objectives

- Understand how buildings move under different loading conditions.
- Understand the various ways that a building's seismic drift affects CFS framing.
- Understand the loading on CFS framing depending on the support mechanism.
- Understand the discontinuities that occur when movement-enabling connections and strategies are employed.

Kirsten Zeydel, S.E.
Nevell Group, Inc.

Kirsten Zeydel, S.E. is the director of design at Nevell Group Inc. She is a registered structural engineer in California with over 25 years of structural engineering design and management experience. She specializes in cold-formed steel (CFS) design, detailing, and panelization. In addition to the engineering side of CFS design, Kirsten has experience with quality programs, product certification, welding procedures, architectural building code requirements, and prefinished exterior panels. She is also a proud mother of two children who firmly believe that being a mom has made her a better engineer.



WHAT'S HOT ON THE HOTLINE?

CONTINUING EDUCATION - 1 PDH / LU

Cold-formed steel (CFS) design typically is not a course topic offered at universities. Therefore, engineers are on their own to self-educate. How? By attending a seminar or webinar on a specific topic. And by getting answers to a specific project questions.



**Approved
Continuing
Education**

Many engineers take advantage of the highly successful CFSEI “Ask an Expert” page on the CFSEI website or the CFSEI Hotline, 1-800-79STEEL. Inquiries cover the gamut of CFS applications, and we respond to them promptly.

This interactive Q&A session will focus on FAQs and your cold-formed steel design questions.

Hotline topics that may be discussed are:

- Rules of thumb when designing cold-formed steel
- When should an eccentricity be considered when designing stud packs



SSMA®

Session Sponsor

Plan to attend and participate.

Patrick M. Hainault, P.E.

R.A. Smith, Inc.

Patrick Hainault is the Co-Director of Structural Services at raSmith in Brookfield, Wisconsin. His experience includes engineering design and staff management with raSmith and Matsen Ford Design Associates, Inc., where he was a principal and senior engineer for 21 years. His expertise includes application of the latest technologies and design concepts to a wide variety of primary and secondary structures, including prefabricated systems. His engineering systems design experience includes structural steel, reinforced concrete, engineered



masonry and wood. He was a structural designer for a concrete reinforcement supplier and a technician for a national material-testing firm. Hainault is past-chair of the CFSEI Executive Committee, a member of the SFIA Technical Committee and the AWCI Construction Technology Committee. He is a registered Professional Engineer in Wisconsin and several other states. He earned his Bachelor of Science degree in Civil Engineering from Marquette University.

Andrew Newland, P.E.
ADTEK Engineers, Inc.

Andrew has more than 15 years of experience in both cold-formed steel manufacturing and design. He is a Principal at ADTEK Engineers, Inc. and the specialty structural team leader for the Charlottesville, VA, Fairfax, VA, Frederick, MD and Bay City, MI offices, which specialize in the design of load bearing and non-load bearing cold-formed steel framing in low & mid-rise construction as well as cold-formed steel framing and structural ceiling support for Data Centers.



Andrew is a member of the ASCE-SEI Committee on Cold-Formed Steel. He is a former member of the American Iron and Steel Institute (AISI) Committee on Specifications. He is a past chairman and current member of the CFSEI Executive Committee and serves as chair of the Technology, Education, and Expo Planning Committees. He is a graduate of Virginia Tech, where he earned a Bachelor of Science degree in Civil and Environmental Engineering and an M.S. degree in Civil Engineering.

EMERGING TECHNOLOGIES

ENABLING SEISMIC PERFORMANCE-BASED DESIGN PATHWAYS FOR COLD-FORMED STEEL FRAMED BUILDINGS



STEEL FRAMING INDUSTRY ASSOCIATION

Emerging Technologies Session Sponsor

The objective of this talk is to initiate a broader technical discussion on the use of seismic performance-based design for cold-formed steel (CFS) framed buildings and to outline emerging pathways for its practical implementation.

Seismic performance-based design has fundamentally reshaped reinforced concrete structural practice in high seismic regions, particularly in California, enabling architectural and structural solutions outside of prescriptive code limits. In contrast, seismic design of CFS framing remains largely constrained by prescriptive provisions in ASCE 7, including limits on height, details, and system applicability, despite growing experimental and analytical evidence of robust seismic performance.

Building on the CFS10 research program and the development of a comprehensive cold-formed steel shear wall database, ongoing work with an ASCE 41 committee working group is focused on improving nonlinear response history analysis (NLRHA) modeling guidelines for CFS-framed buildings. These efforts aim to establish technically sound modeling approaches, acceptance criteria, and uncertainty considerations necessary to support seismic performance-based assessment and design of CFS framing. While formal guidelines are still under development, existing research suggests that CFS seismic systems can be characterized using nonlinear analysis methods analogous to those that enabled the widespread adoption of performance-based seismic design for reinforced concrete structures.

This presentation is intended to open a dialogue within the CFS engineering community, particularly among practitioners who may be unfamiliar with performance-based seismic design, and to encourage discussion of its role as a pathway to extend the application of CFS framing beyond current prescriptive limits. The talk will also call for the development of a community of practice for seismic performance-based design of CFS structures to support peer review, shared experience, and consensus-building, and to help define realistic timelines and pathways for the implementation of taller, lighter, and more resilient CFS buildings, while informing longer-term improvements to prescriptive seismic design standards.

Benjamin Schafer, Ph.D., P.E., F. SEI
Johns Hopkins University

Benjamin Schafer is the Hackerman Professor of Civil and Systems Engineering and the Director of the Ralph O'Connor Sustainable Energy Institute at Johns Hopkins University. He is an active volunteer and leader on multiple national committees related to the engineering and design of steel building structures. He has won multiple awards for his research, teaching, and speaking and currently resides in Washington D.C. with his wife and son.



Ian McFarlane, P.E., S.E.
Magnusson Klemencic Associates

Ian is a Senior Principal who has led the design of mid- and high-rise buildings ranging from residential to office to innovative mixed-use developments such as Rainier Square Redevelopment in Seattle. His design experience focuses on projects in high seismic zones, including Performance Based Seismic Design (PBSD) developments throughout the Western US. Ian has developed codes and standards for PBSD for the American Concrete Institute, Building Seismic Safety Council, National Institute of Standards and Technology, and American Society of Civil Engineers.



Tara Hutchinson, Ph.D., P.E.
University of California, San Diego

Tara Hutchinson is a Professor in the Department of Structural Engineering at the University of California, San Diego with broad research interests in geotechnical, structural and earthquake engineering. Much of her work involves full- or large-scale shake table and fixed reaction-type experimentation. She obtained her Ph.D. at the University of California, Davis and M.S. at the University of Michigan, Ann Arbor. She has been on the faculty at UC San Diego since 2007 and presently serves as the Powell Laboratory Director. In 2024 she was appointed the Jan Talbot Endowed Chair in the Jacobs School of Engineering at UC San Diego.



EMERGING TECHNOLOGIES

A WEB-BASED APP FOR COLD-FORMED STEEL MEMBER STRUCTURAL CALCULATIONS BUILT WITH OPEN-SOURCE SOFTWARE

Imagine your company has developed a new family of cold-formed steel cross-sections. You are pretty sure they work better than the industry baseline, however you don't quite have the right workflow tool to calculate and tabulate section and buckling properties that confirm improved structural performance. In this presentation, we will introduce a web-based app that can quickly generate these results for you, graphically and in tabular formats, for multiple cross-sections at once. We will introduce the app, show how anyone can access it, and provide a demo for how it works. This web app is a prototype, a glimpse into the future, of what can be done by our industry to advance engineering workflows with freely available, open-source software.

Learning Objectives

- Highlight how software can accelerate engineering workflows in cold-formed steel
- Demonstrate the use of open-source software packages available for cold-formed steel design
- Explore user interface needs for modern CFS engineering workflows
- Show how advanced analysis can make things cleaner and simpler to design cold-formed steel members

Chu Ding, Ph.D., P.E.
RunToSolve LLC

Chu is a consultant at RunToSolve, LLC. He has years of design experience in light-frame construction and specializes in engineering software development. He has developed his expertise in advanced high strength steel from his PhD research at Johns Hopkins University. As a licensed Professional Engineer, he has been involved with several high-profile mix-use/multi-family projects in DC metro region including The Wharf DC and The Parks at Walter Reed. He enjoys exploring and implementing new technologies in AEC space and is a member of the winning team at 2024 AEC Tech Hackathon at NYC.



EMERGING TECHNOLOGIES

FROM ARTIFICIAL HEARTS TO STEEL SKELETONS: ALGORITHMIC ASSURANCE IN COLD-FORMED HOUSING

FrameUpNow's innovation Algorithmic Automation System (FUN) – a deterministic, rule-driven design engine inspired directly by medical device rigor. Built on “350 pages of specifications and more than 6,000 lines of code”, FUN converts traditional wood-frame ADU plans into perfectly engineered cold-formed steel (CFS) skeletons. Unlike probabilistic AI, the FUN system does not guess; it executes pre-defined structural engineering rules, International Building Code (IBC) and California Residential Code (CRC) requirements, and manufacturing constraints with mathematical certainty.

The system outputs a complete document set: engineered drawings, a code compliance table, a bill of materials, and calculation booklets for vertical, lateral, and truss analysis.

Every skeleton undergoes four layers of assurance: algorithmic production, three independent audits, and a final full-scale first build to validate accuracy. Once confirmed, all subsequent frames ship with zero modifications required.

The advantages are profound. For jurisdictions, FrameUpNow's PRADU (Permit-Ready ADU) library accelerates approvals. For contractors and developers, labeled and numbered skeletons reduce erection time, warranty claims, and material waste. ****For communities****, steel frames provide resilience against fire, termites, mold, seismic events, and climate stressors.

This is not theoretical. The FUN system is already delivering permit-ready skeletons for disaster rebuilds in California, lifestyle farm blocks in Arizona, and build-to-rent communities across the Southwest. Just as SynCardia transformed medical device reliability, FrameUpNow is transforming housing skeleton reliability – one algorithm, one specification, and one audited frame at a time.

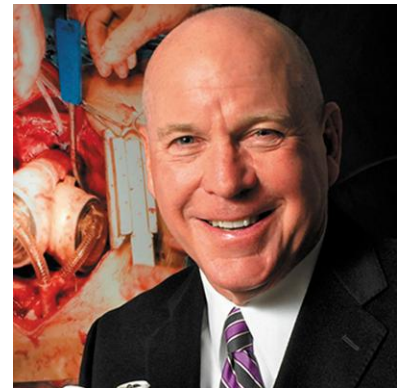
The heart of the matter is simple: whether sustaining a life or sustaining a community, perfection must be engineered, not improvised. By applying medical-grade discipline to residential CFS, FrameUpNow proves that the future of housing is not just stronger and faster – it is assured.

Learning Objectives

- Apply principles of algorithmic assurance – originally proven in medical device manufacturing – to the design and delivery of cold-formed steel (CFS) residential skeletons
- Understand how deterministic, rule-based automation (350 pages of specifications + 6,000 lines of code) ensures repeatability, compliance, and precision in ADU and PRADU design
- Evaluate the four-layer assurance workflow (algorithmic output, triple audits, first-build validation) and its role in guaranteeing quality at scale
- Identify real-world applications of FrameUpNow’s system in disaster rebuild zones, build-to-rent communities, and jurisdictional permit-ready housing programs.

Rodger Ford **FrameUpNow**

Rodger Ford, CEO, FrameUpNow. Rodger Ford is a serial entrepreneur with a track record of leading high-stakes innovation where precision is non-negotiable. From 2004 to 2010, he served as CEO of SynCardia, “The Artificial Heart Company,” where he oversaw the development and manufacturing of the Total Artificial Heart. Under his leadership, SynCardia implemented rigorous specifications, algorithms, and audit systems to assure flawless performance in devices where human lives depended on perfection the first time, every time. Today, as CEO of FrameUpNow, Rodger applies those same principles to housing. FrameUpNow’s algorithmic automation system – built on 350 pages of specifications and 6,000 lines of code – converts traditional wood-frame plans into permit-ready cold-formed steel skeletons. His vision is to accelerate adoption of steel framing in residential construction by combining medical-grade quality assurance with scalable, rule-driven design. Rodger’s work advances resilience, affordability, and speed in the delivery of tomorrow’s housing.



EMERGING TECHNOLOGIES

SIN FLOOR: ADVANCING COLD-FORMED STEEL IN COMPOSITE FLOOR CALCULATIONS BUILT WITH OPEN-SOURCE SOFTWARE

The design and construction community continues to seek structural systems that balance strength, efficiency, speed, and sustainability. Traditional composite floor systems often rely on heavy secondary framing and extensive shoring, adding both cost and complexity.

SIN Floor introduces a new approach. This cold-formed steel and concrete floor system combines two c-channels, a sinusoidally corrugated deck, and a cast-in-place concrete topping to create a single, efficient structural panel. By embedding the steel sections within the slab and leveraging composite action, SIN Floor delivers long spans with reduced floor depth while eliminating the need for secondary framing or shoring. The result is lighter structures, faster construction, and improved sustainability.

For engineers, architects, and builders, the significance is clear. This system challenges conventional methods and offers practical solutions to pressing industry demands, from accelerating project delivery to reducing embodied carbon.

This session will:

- Demonstrate the structural principles behind SIN Floor's performance.
- Share testing data on load capacity and fire resistance.
- Explore fabrication methods that make large-scale application feasible.

Participants will gain both technical insight and real-world context, leaving with a clear understanding of how cold-formed steel can redefine composite floor construction.

Learning Objectives

- Recognize the limitations of conventional composite floor systems and how SIN Floor addresses them.
- Understand the structural design and fabrication methods behind SIN Floor.
- Review testing results that validate strength and fire performance.
- Identify project types where SIN Floor delivers measurable value.

Phil Reinders
Steelcon Inc.

Phil Reinders is a Professional Engineer with more than five years of industry experience. As a Design and Development Engineer at Steelcon, he plays a key role in the delivery of innovative structural steel solutions that prioritize quality, sustainability, and performance. Phil's technical expertise and dedication to research excellence ensures that Steelcon continues to push the boundaries of design while delivering exceptional value to clients. Throughout his career, Phil has worked on numerous high-profile projects, refining his skills in structural analysis, design optimization, and project management. He has been recognized for his ability to solve complex engineering challenges and deliver projects that meet the highest industry standards. Phil holds a Master of Applied Science in structural engineering from McMaster University and is a licensed Professional Engineer.



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