



NASCC: THE STEEL CONFERENCE 2019 AIA Approved Sessions

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Registration and Attendance: For registration and attendance policies, please go to www.aisc.org/nascc

Architecturally Exposed Structural Steel (AESS): Communicating for Success (A5)

Presented by: Terri Meyer Boake

AIA Information:

NASCC2019-A5

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/19/2021

Session Description:

This session will look at the new AISC method for specifying architecturally exposed structural steel (AESS), specifically the new method of tiered categories that reflect distance to view, use of space, desired finish and budget. Numerous case studies will illustrate how this new approach has been successfully applied to projects.

Learning Objectives:

1. Provide attendees a good working understanding of the new AESS Category system in the AISC Code of Standard Practice.
2. List the benefits of this system in establishing a dependable basis for detailing.
3. List the different AESS levels and the characteristics for each and the appropriate application of these to particular project types.
4. Describe how building use, form, distance to view and finish impact the design of AESS.

Casting Away and Forging Ahead (C5)

Presented By: Jennifer Pazdon and David Poweleit

AIA Information:

NASCC2019-C5

1.5 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/5/2021



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Session Description:

Steel casting and forging technologies present an opportunity to create structures, particularly connections that meet aesthetic and performance standards previously inconceivable with traditional fabrication methods. Castings offer geometric freedom while forgings offer high quality in heavy sections. These technologies are readily available in North America and are currently in use on small to super-tall projects. Learn more about practical casting and forging applications as well as current research and an upcoming design guide.

Learning Objectives:

1. Identify and recognize opportunities for steel casting use at architecturally exposed structural steel connections to improve structural performance, enhance aesthetics, and/or to improve the constructability of the structural frame or system.
2. Recognize when cast or forged steel products provide an improved technical solution over conventionally fabricated connections
3. Describe how to specify a casting
4. Define the role of casting Non-Destructive Testing (NDT)

Designing for Membrane Architecture (A1)

Presented by: Marco Cano

AIA Information:

NASCC2019-A1

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 11/29/2021

Session Description:

This presentation will provide an overview of the analysis, design and fabrication of membrane structures—with the hope of increasing collaboration between architects and engineers to design successful membrane structures. It will also discuss form-finding to generate the geometry of a membrane structure, as well as design assumptions and fabrication of a membrane's structure, patterning, welding and some typical connections.

Learning Objectives:

1. Understand the steps required for the design of a membrane structure.
2. Understand the definition and process of Form-finding for membrane structure design.
3. Understand the difference between conventional membrane structures and pneumatics.
4. Understand and review the design approach for the two basic shapes of membrane structures.

Designing with Complex Geometries (H2)

Presented by: Robert Baxter

AIA Information:

NASCC2019 H2

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 2/12/2021



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Session Description:

Complex geometries require complex structural solutions. However, finding a solution that is affordable and constructible is the difference between making the architect's vision a reality or not. This session will identify tools that can be used to work with complex geometries, as well as show examples of how complex geometry problems were solved/simplified and brought to life.

Learning Objectives:

1. Describe methods for extracting structurally relevant geometry from an architect's 3d model.
2. Describe methods for transferring geometry to analysis software and performing structural analysis.
3. Describe methods for extracting relevant analytical results and displaying these on the geometry model.
4. Describe methods for automated structural optimization of architectural geometry.

Healthcare Design in High Seismic Areas: Old and New (M4)

Presented by: Jay Love and Daniel Zepeda

AIA Information:

NASCC2019-M4

1.5 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/5/2021

Session Description:

Seismic design of healthcare facilities has evolved tremendously over the past 50 years. This session will have a two-part focus. The first part will discuss seismic retrofit and rehabilitation design of existing healthcare facilities, taking you through post-Northridge regulations, performance-based analysis and design for retrofit, and agency review processes. The second part explores the design and construction of new hospital facilities using new technologies, drawing from a case study of a recently completed \$1.2B medical center featuring an SMF augmented by viscous wall dampers, which dramatically reduced story drifts and overall steel costs.

Learning Objectives:

1. Highlight approaches to ground motion selection and use of selected ground motions to analyze the structure
2. Explain full-scale testing requirements and procedures when using products not explicitly included in the Code
3. Identify agency requirements for a negotiated Design Criteria when using an Alternate Means of Compliance to analyze and design the structure
4. Discuss constructability issues when installing supplemental dampers

Insidious Thermal Forces in Steel Structures: What You Need to Know (L4)

Presented by: Barry Arnold

AIA Information:

NASCC2019-L4

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/4/2021



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Session Description:

This session will boost your knowledge of how changes in temperature and structural detailing of members and systems adversely affect individual members and entire buildings. Attendees will leave with a better understanding of how damage and failures from thermal forces can be minimized and how damage can be economically repaired.

Learning Objectives:

1. Identify code requirement for thermal (self-straining) forces and applicable equations.
2. Identify common errors in the application of the thermal forces.
3. Identify common consequences of ignoring thermal forces in steel structures. Demonstrate mathematically the theoretical forces that can develop and the areas where the consequences of thermal forces may manifest themselves.
4. Provide multiple examples of actual damage to buildings that occurred because thermal forces were ignored during design and discuss best practices during design and construction.

Introduction to AISC Design Guide 34: Steel Framed Stairway Design (D2)

Presented by: Adam Friedman

AIA Information:

NASCC2019-D2

1.5 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/5/2021

Session Description:

Typically, there is not much information given in the contract documents for stairs defined as delegated design components, and much is left to the delegated designer and detailer. This session will present best practices and help define an approach for the set-up, design and detailing of steel framed stairways, as well as help ensure that your designs meet the contract document, applicable building code and OSHA and ADA requirements.

Learning Objectives:

1. Identify the difference between codes and standards for stairs and handrail projects.
2. Understand the use of the AISC Code of Standard Practice (COSP) for stairs and handrail stairs and handrail as what type of item?
3. Understand the difference between contract documents and AISC reference standards for stair and rail design.
4. Describe the responsibility and liability for deferred engineering on stair and handrail projects.

Legal Implications of Electronic Data Transfer (LL7)

Presented by: Steven Henderson

AIA Information:

NASCC2019-LL7

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/5/2021

Session Description:

Architects, engineers, and contractors increasingly rely on the collaborative exchange of electronic data. This session will explore the legal implications of electronic data transfer (EDT) related to contract documents, electronic data protocols, exchange of data in



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conjunction with BIM, as well as practical advice on mitigating risks associated with electronic data.

Learning Objectives:

1. Identify key legal risks associated with the use and exchange of electronic data during design and construction.
2. Describe key contract provisions used to define the parties rights and obligations with respect to electronic data transfer.
3. Identify components of BIM execution plans that can be used to mitigate risk associated with electronic data transfer.
4. List steps that can be taken to minimize risks associated with electronic data transfer.

Lessons From the First SpeedCore Project (H4)

Presented by: Ron Klemencic, Amit Varma, Michel Bruneau

AIA Information:

NASCC2019-H4

1.5 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/19/2021

Session Description:

Rainier Square in Seattle is the first project to use the new SpeedCore system (also called a concrete-filled Composite plate shear wall). This session will look at how the project is proceeding and the lessons learned from its design, fabrication and erection. Ongoing research will also be examined.

Learning Objectives:

1. List the advantages of CF-CPSW vs a traditional concrete core wall system.
2. Identify lessons-learned from the designer's point of view on the Rainier Square project.
3. Describe how erection logistics were considered in the design of the steel face plates along with cross-tie size, spacing and attachment.
4. Describe ongoing research including a FEMA P695 study, aiming to justify a higher R value.

Let's Talk Seismic - In Language We Can All Understand (M2)

Presented by: Brent Maxfield

AIA Information:

NASCC2019 M2

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 2/12/2022

Session Description:

The intent of this session is to help bridge the current seismic communication gap. Intended for both non-technical and technical audiences, this session will help engineers explain seismic concepts to a non-technical audience, and will help the non-technical audience better grasp the intent of modern seismic design. An understanding of these concepts will help facilitate informed decisions regarding earthquake risk.

Learning Objectives:

1. Explain why it is more important to know the shaking intensity than the earthquake magnitude to understand building damage.
2. Explain how ShakeMap can help you understand the levels of damage in an area following an earthquake.



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3. Explain MCER shaking level and the risk of collapse for new buildings.
4. List the damage that could occur to a new building if it experiences the “design” shaking intensity.

Overview of the Steel Forming Process (G2)

Presented by: Casimaro Liborio

AIA Information:

NASCC2019-G2

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/19/2021

Session Description:

This session will provide an in-depth look at how steel scrap is sourced, processed at the mill and recycled again for continual use.

Learning Objectives:

1. List the steps in which steel is manufactured.
2. Describe how sustainability is integral in the cradle-to-cradle life cycle of steel.
3. Describe how testing of steel, including the charpy v-notch test, ensure quality and toughness of the steel, and ultimately safety in a building.
4. Define slag and its role in the making of structural steel.

Promoting Health and Wellness Through Design (A3)

Presented by: Amaya Labrador

AIA Information:

NASCC2019-A3

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/12/2021

Session Description:

Experience an architect's perspective on what it means to design healthy spaces and how design can be used to help achieve healthy environments. This session includes an overview of how steel can be used as an advantageous building block in achieving this design approach.

Learning Objectives:

1. Understand the difference between evidence-based design strategies and best practice for promoting wellness in building design.
2. Identify how buildings designed that achieve LEED certification promotes occupant wellness.
3. Describe design strategies that control the building's environment (natural light, access to outdoors, access to stairs) and promote occupant health and wellness.
4. Identify wellness-promoting design strategies that were used in real-world example, in the case study of the Women's Hospital project.



NASCC: THE STEEL CONFERENCE 2019 AIA Approved Sessions

Retractable Stadium Roofs – Challenges in Design and Construction of Large Mechanized Structures (H1)

Presented by: Andrew Agosto

AIA Information:

NASCC2019-H1

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/3/2021

Session Description:

Through case studies of retractable roofs such as AT&T Stadium, Marlins Park and Mercedes-Benz Stadium, the speaker will share the unique challenges of designing and constructing large mechanized structures. The presentation will include an overview of retractable roof drive systems, a detailed look at mechanized structure versus static structure stiffness considerations and imposed loads including braking, skewing and impact.

Learning Objectives:

1. Identify the ideal stiffness relationship between a mechanized element and its supporting structure
2. List the 3 different types of retractable roof drive systems
3. Describe what a 4-bar release system is
4. Name the component used to achieve a mechanical pin connection

Salesforce Transit Center (A4)

Presented by: Bruce Gibbons

AIA Information:

NASCC2019-A4

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/19/2021

Session Description:

The new Salesforce Transit Center in San Francisco connects 11 transit systems, is pursuing LEED Gold Certification and has a 5.4-acre rooftop park. And thanks to a performance-based approach, the structure is designed to survive a maximum earthquake event without significant loss of function.

Learning Objectives:

1. Identify the seismic performance criteria used in the design of the structure.
2. Describe how the seismic force resisting systems were chosen (EBF and SMF).
3. Describe how a Fragility Curve is used to predict the probability of structural damage due to various ground shakings.
4. Describe how steel castings were utilized on this project for unique connections.

Solutions for Equity in the Design Industry (Z4)

Presented by: Natalie Tse, Elizabeth Mattfield, Jennifer Traut-Todaro

AIA Information:

NASCC2019-Z4

1.5 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App



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Expiration Date – 12/5/2021

Session Description:

The building and construction industry is at the forefront of progressing towards a more diverse and collaborative workplace as individuals advance change in their own environments. This year's unique panel will share their efforts to promote change outside of their offices with active participation in technical and professional organizations. Committee participation and leadership career benefits, committee diversity and barriers to entry are just a few topics that will be covered.

Learning Objectives:

1. Attendees will learn how to lower the barrier to entry for technical and professional committees
2. Attendees will be able to identify common committee member selection processes.
3. Attendees will learn the benefits associated with professional and technical committee involvement.
4. Attendees will learn how to become more active in professional and technical areas of interest.

The Crystal Ball: Construction Market Conditions and Forecasting for Both Buildings and Bridges (Z6)

Presented by: Tabitha Stine

AIA Information:

NASCC2019-Z6

1 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 2/12/2022

Session Description:

The current economic climate has a great impact on the construction market. By focusing efforts on developing markets, businesses can be better prepared for possible slowdowns in certain geographic areas or by types of projects. You will gain knowledge of the current construction conditions and a sense of design and construction trends that can help your businesses. You will also learn about historical market conditions for both the building and bridge markets and how we are working to increase those markets.

Learning Objectives:

1. Identify key trends and economic conditions that impact design and construction activity
2. Evaluate how certain trends and conditions are impacting the current construction economy and the building industry.
3. Develop tools for best managing a company's risks by understanding the market headwinds and tailwinds at play.
4. Learn the resources for best management of the ever-changing industry by learning where to go throughout the year for real-time resources and knowledge to best manage the business climate for steel ahead.

The Gateway Arch – Unique Perspectives (CS2)

Presented by: Christine Freisinger, Joshua Freedland

AIA Information:

NASCC2019-CS2

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 11/30/2021



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Session Description:

The National Park Service and WJE investigated the Gateway Arch, including the visible stains on the stainless steel skin from 2005 to 2014. The team used a combination of traditional techniques such as field microscopy and high-powered spotter scopes and innovative technologies such as casting molds of the surface, helmet-mounted video cameras and cloud-based real-time communication to facilitate the challenging investigation. This presentation will discuss development of the access program, the staining assessment, cleaning trials and the overall conclusions of the investigation.

Learning Objectives:

1. Understand how different cleaning methods could change the visual appearance of stainless steel.
2. Recognize the research, design, and planning required to implement a safe approach to conducting a close-up evaluation on a facade with difficult access.
3. Describe the basic corrosion mechanisms of stainless steel.
4. Learn the history of the design and construction of the Gateway Arch.

Thermal Steel Bridging Quantification and Solutions in Steel-Framed Structures (C6)

Presented by: Jerome Hajjar, Kara Peterman, Mark Webster, James D'Aloisio

AIA Information:

NASCC2019-C6

1.5 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/19/2021

Session Description

This presentation summarizes research efforts at Northeastern University focusing on experimental tests and thermal analyses of composite fiber-reinforced polymer thermal shim plies within steel connections such as shelf angles, roof posts and canopy beams. Topics covered include quantifying the structural performance of thermal break solutions using these polymer shims, quantifying the typical magnitude of thermal loss reduction, identifying which conditions of thermal bridging represent significant energy loss that should be mitigated or avoided and addressing creep in thermoplastic shim elements.

Learning Objectives:

1. Compare options for effective mitigation strategies of structural steel thermal bridging.
2. Understand the design methodology for thermally broken steel shelf angles.
3. Describe how composite fiber-reinforced polymer thermal (FRP) shim plies within steel connections can reduce the thermal conductivity.
4. Describe how manufactured structural thermal break assemblies (MSTBA) perform in mitigating thermal bridging.

Trends in Construction for Architects (A2)

Presented by: Tabitha Stine

AIA Information:

NASCC2019-A2

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/12/2021

Session Description:

As technology marches forward, many trends in construction continue to impact the way we design and construct our built environment. From augmented reality to understanding



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resilient design, this session will cover trends impacting architects as we take on projects in the near future.

Learning Objectives:

1. Attendees will learn how emerging trends in augmented reality allows project teams to be at the project site when conditions prohibit team members from physically being job-site present.
2. Understand the marketplace conditions for all construction materials that drive current construction trends and innovations that result in efficient structures with reduced environmental impact.
3. Resiliency and steel are shaping the built environment. Attendees will be able to describe the link between building performance and the post-event functionality and recovery of a community.
4. Attendees will learn about the code provisions and drivers for sustainability that result in a healthier physical environment.

What Not To Draw (L14)

Presented by: Amanda Dean, Michael Mass, Amaya Labrador

AIA Information:

NASCC2019-L14

1.5 LU

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/12/2021

Session Description:

For AEC professionals, drawings are everything and communication is key. This interactive panel discussion shares anecdotal experiences from the perspective of an architect, engineer, and general contractor on factors that can either make or break drawings that are instrumental to a successful project. The discussion is meant to be casual and informational, with questions from the audience taken at the end.

Learning Objectives:

1. Attendees will be able to describe methods in which the architect, engineer, and contractor can work together to achieve more streamlined and successful projects.
2. Attendees will be able to identify how BIM technologies may be used to eliminate construction errors in the field.
3. Attendees will be able to explain the relationship between accurate drawing details and constructability out in the field.
4. Attendees will be able to explain how to develop project-specific drawings and specifications as a tool to minimize field related change orders.

Whole-Building Life-Cycle Assessment (G1)

Presented by: Mark Thimons

AIA Information:

NASCC2019-G1

1 LU/HSW

Prerequisites – None

Instructional Method – Live

Session Date & Time – Refer to Final Program or Conference App

Expiration Date – 12/4/2021

Session Description:

Several codes, standards and building rating systems now require or encourage the development of a whole-building life-cycle assessment (LCA) for new building designs.



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This session will investigate how these assessments are achieved, including identification of some of the potential pitfalls in the process.

Learning Objectives:

1. Define life cycle assessment (LCA) and identify the differences between LCA and Whole Building LCA (WBLCA).
2. Explain the differences between LCAs and EPDs.
3. Identify the advantages of steel-frame construction from a life cycle assessment perspective.
4. Identify the important issues to consider when comparing whole building life cycle assessment results using different software programs.