# NSBA Steel Bridge Forum

Smarter. Stronger. Steel.

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**Host:** Michigan Department of Transportation (MDOT) & ACEC/Michigan
**Location:** MDOT Horatio S. Earle Training Center, Lake Huron/Michigan Rooms,
7575 Crowner Drive, Dimondale, MI 48821
**Date and Time:** October 8th, 2025, 8:00 am - 4:40 pm; Registration/Check-in begins at 7:00am
**Continuing Education Hours:** 7.5 CEH Credits (In-Person Only)
**Cost:** $50 for Non-Government Attendees; $0 for Government & Student Attendees

The National Steel Bridge Alliance (NSBA) is pleased to offer the bridge design community a full-day seminar on design and fabrication of steel highway bridges. This event is a great way to immediately increase your understanding and knowledge of steel highway bridges and network with industry colleagues. 7.5 CEH credits will be provided.

## Agenda – Morning and early afternoon

| Time | Topic | Presenter |
|---|---|---|
| 7:00 - 8:00 am | Registration/Check-in **[PLEASE SIGN IN]**<br>*Light Breakfast Provided in Lake Superior Room* | Check-in Area |
| 8:00 - 8:15 am | Welcome & Introductions | Brad Wagner – MDOT |
| 8:15 - 9:00 am | NSBA Steel Bridge Resources for Design, Fabrication & Construction including Pricing & Lead Times | Tony Peterson – NSBA |
| 9:00 - 10:00 am | Steel Bridge Design Basics, including economical design, fit, and skew | Mike Grubb – M.A. Grubb and Associates |
| 10:00 - 10:15 am | AM Break<br>*Snacks and Refreshments in Lake Superior Room* | |
| 10:15 – 11:15 | AISC/NSBA Standard Plans for Steel Girder Bridges | Frank Russo – Russo Structural Services |
| 11:15 – Noon | AASHTO 10th Edition updates | Mike Grubb – M.A. Grubb and Associates |
| Noon – 1:00 pm | Lunch Provided (*Buffet Style setup in Lake Superior Room*)<br>Student Steel Bridge Competition presentation with the University of Michigan team members | Tony Peterson – NSBA and U of M Student Steel Bridge Team members |
| 1:00 - 1:45 pm | Redundancy (and related fatigue) for Steel Bridges | Matt Hebdon – Utah State |

*The agenda is continued on the next page.*

## Agenda – Afternoon

| Time | Topic | Presenter |
|---|---|---|
| 1:45 – 2:30 pm | Bolting for Bridges: standards update, review of pre-tensioning methods | Duncan Paterson – NSBA |
| 2:30 - 2:45 pm | PM Break<br>*Snacks and Refreshments in Lake Superior Room* | |
| 2:45 – 4:00 pm | Steel Bridge Fabrication Overview and Panel Discussion, including:<br>● *Bridge Steel Fabrication Overview by Justin Cowan*<br>● *Steel Mill Overview* | *Moderated*: Tony Peterson – NSBA<br>*Fabricator Participants*:<br>• Ben Bristol – Industrial Steel Const<br>• Kevin Bird – Veritas Steel<br>• Justin Cowan – Wabash Steel<br>• Brad Dillman – High Steel Structures |
| 4:00 - 4:30 pm | Steel Bridge Erection and Construction | Frank Russo – Russo Structural Services |
| 4:30 - 4:40 pm | Closing Remarks and Feedback Comments | Duncan Paterson – NSBA |

*The CEH credits are listed as a guide and MDOT is not awarding CEH credits. Please note that a final determination on what qualifies as a CEH credit ultimately lies between the license holder and the Michigan Department of Licensing and Regulatory Affairs (LARA) or, for out-of-state license holders, their applicable regulatory state agency.* ***PLEASE SIGN IN AT CHECK-IN TO OBTAIN A CERTIFICATE OF ATTENDANCE.***

## Presentation Descriptions

***Welcome and Introductions*** – This presentation is a welcome from the Michigan DOT's Bureau of Bridges and Structures including an overview of current MDOT bridge-related activities.

***NSBA Steel Bridge Resources for Design, Fabrication & Construction including Pricing and Lead Times*** This presentation will show the various NSBA tools for design, fabrication and pricing that are available to the industry, where they can be found on the AISC website, and how they can be used to streamline steel bridge construction. This will include discussion of how the tools can be used to quickly estimate TSL costs for steel girder bridges.

***Steel Bridge Design Basics, including economical design, fit, and skew*** – This presentation will discuss the basic concepts needed for designing a steel girder bridge using AAHSTO LRFD.

***AISC/NSBA Standard Plans for Steel Girder Bridges*** – The AISC/NSBA Standard Plans for Steel Bridges provide dozens of straight steel I-girder bridge plans for a suite of various span arrangements and lengths--optimized for cost-efficiency throughout design, material selection, fabrication, and construction. All of the designs satisfy the provisions of the newly released AASHTO LRFD Bridge Design Specifications, 10th edition.

The designs cover one-, two-, three-, and four-span configurations with span lengths ranging from 80 feet to 300 feet, and girder spacings of 8, 10, 12, and 14 ft.

***AASHTO 10th Edition updates*** – The AASHTO LRFD Bridge Design Specifications 10th edition has several changes and improvements related to steel bridge design that bridge designers need to be aware of. This presentation will provide an overview of these revisions. Topics will include revisions to shear stud design, new requirements for cross-frames, new lateral torsional buckling computations for non-prismatic section, determination of bolt threads in shear planes, and revisions related to the identification of Nonredundant Steel Tension Members (NSTMs).

***Redundancy (and related fatigue) for Steel Bridges*** – This presentation will introduce a brief history of AASHTO fracture control. It will present the new redundancy terms defined by AASHTO and NBIS as they apply to steel bridges, including the modern terms for internally redundant members, system redundant members, and nonredundant steel tension members. It will discuss how engineers can exploit redundancy and the implications for in-service inspections. A case study will be used to illustrate important concepts.

***Bolting for Bridges: standards update, review of pre-tensioning methods*** – This presentation discusses types of connections, types of bolts as defined by ASTM, and general design of bolted connections including: slip-critical connections, bearing type connections, bolt shear resistance, bolt slip resistance, and bolt bearing resistance. The presentation also discusses various pre-tensioning methods.

***Steel Bridge Fabrication Overview and Panel Discussion –*** Want to know how a steel bridge is fabricated? This presentation and steel bridge fabricator panel discussion will provide the audience with a look into how a steel bridge is fabricated, from contract initiation through fabrication and ending with delivery to the project site. General presentation topics will include prebid activities, contract sale, shop drawing development and review, fabrication equipment and production, and product delivery. The fabricator panel will answer questions from the audience regarding the steel bridge fabrication process.

***Steel Bridge Erection and Construction*** – This presentation will provide an overview of general steel erection activities and planning, as well as the methodologies and resources available for designers, erectors, and contractors. A specific focus is made on the importance of the design engineer's role in considering constructability during the proportioning and detailing of bridge structures.

***Closing Remarks and Feedback Comments*** – This presentation will provide an opportunity for any final audience questions and provide a link for audience member feedback about the Forum.

## Presenter Descriptions

**Brad Wagner, PE, Deputy Chief Bridge Engineer, Michigan Department of Transportation**
Brad Wagner is the Deputy Chief Bridge Engineer for MDOT's Bureau of Bridges and Structures. He oversees staff involved with structure design, construction support and geotechnical services for Michigan bridges. Brad has 25 years of experience as a bridge engineer, 19 of which are with MDOT. Brad holds a Bachelor of Science in Civil Engineering from Michigan Technological University.

**Duncan Paterson, PhD, PE, National Steel Bridge Alliance**
Duncan is the NSBA Director of Bridge Education for the American Institute of Steel Construction. He has over 20 years of bridge design experience including evaluation, repair and retrofits. He is a member of the TRB Steel

Design committee, and AREMA Committee 15 for Steel Structures. A resident of Cincinnati, his degrees are from Michigan State and Lehigh University.

**Tony Peterson, PE, National Steel Bridge Alliance**
Tony is a Senior Bridge Steel Specialist in the Central Market for the National Steel Bridge Alliance. He represents the steel bridge industry on matters of bridge type selection, fabrication and construction. Tony's role with NSBA is to provide technical assistance, tools and resources for steel bridges to bridge owners, designers, fabricators, university programs, and technical committees. Prior to joining the NSBA, Tony spent 30 years in the bridge consulting profession, with the last 13 years at Jacobs as a senior bridge engineer. His bridge experience includes design, rehabilitation, inspection and construction of a wide variety of structure types located throughout the USA and internationally. Tony is a licensed professional engineer in multiple states and is a FHWA certified Bridge Inspection Team Leader. He holds a B.S. in Civil Engineering from the University of Minnesota, and a Master of Engineering (Structural) from Cornell University.

**Mike Grubb, PE, M.A. Grubb and Associates**
Michael Grubb has approximately 38 years of experience related to steel-bridge design and steel-bridge design specifications. Mike is currently a self-employed consultant with M.A. Grubb and Associates. Mike has worked previously at the U.S. Steel Research Laboratory, for AISC Marketing, for HDR Engineering, and for BSDI. Over his career, Mike has been involved in the development of inelastic design procedures for steel bridges, computer software and design aids, straight and curved steel-bridge research, development and delivery of training courses on steel-bridge design, and updating the national design specifications for steel bridges, including LRFD.

**Frank Russo, PhD, PE, Russo Structural Services**
Frank Russo is the founder and principal at Russo Structural Services. With over 30 years of experience in bridge engineering, he has wide-ranging experience providing complex project support including major steel bridge design and rehabilitation. He is a trusted advisor to owners and clients nationwide. His experience includes developing training courses and materials in areas such as steel bridge analysis and design, bridge load rating, engineering for stability during construction, and fatigue and fracture for steel bridges. Russo received a Lifetime Achievement Award from AISC in 2023 for his work advancing the state-of-the-art in the analysis and design of complex bridge engineering and bridge education. Russo is a member of the NSBA Technical Committee, the NSBA Redundancy Task Force, Steel Bridge Task Force, and several AASHTO/NSBA Collaboration task groups. He is vice-chair of AASHTO/NSBA TG 13: Analysis of Steel Bridges.

**Matthiew Hebdon, PhD, PE, Utah State University**
Matthew Hebdon, Ph.D., P.E., is an Associate Professor in the Civil and Environmental Engineering Department at Utah State University. Before joining the faculty at USU, he served on the faculty at the University of Texas at Austin and Virginia Tech. He received his doctorate in Civil Engineering in 2015 from Purdue University. He has research experience on topics including redundant behavior of steel bridges, fatigue and fracture evaluation of steel structures, bridge monitoring and testing, historical fabrication methods and materials, corrosion mitigation and prevention, and large-scale testing of structures.

Fabrication panel members:

**Ben Bristol - Industrial Steel Construction**
**Kevin Bird - Veritas Steel**
**Justin Cowan - Wabash Steel**
**Brad Dillman – High Steel Structures**

NSBA leads the effort to increase the effectiveness of steel within the bridge industry by providing:

- Complimentary technical assistance
- Educational tools and resources to communicate the benefits of steel
- Economic and market information as it relates to the National Bridge Inventory
- Bridge-related articles and product information in Modern Steel Construction magazine
- National representation on transportation-related legislative issues
- University support programs

Website: www.aisc.org/nsba

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