

NSBA Steel Bridge Forum



**Smarter.
Stronger.
Steel.**

Santa Fe, New Mexico | October 6, 2021 | 8AM – 4:15PM
Runnels Auditorium: 1190 S. St Francis, Santa Fe, NM 87505

Register online at <https://www.aisc.org/nsba/steel-bridge-forum/>

Cost: Free for DOT employees, \$60 for consultants, \$20 for educators/students (lunch & coffee are not included due to facility restrictions)

Agenda (7.5 PDHs) – Times are shown in MST

Start Time	Topic	Presenter
8:00 AM	Welcome	
8:05 AM	State Bridge Engineer Address	Shane Kuhlman, PE
8:15 AM	Accelerated Bridge Construction Using Steel	Mike Culmo, PE
9:00 AM	Steel Bridge Design Resources Every Engineer Should Know About	Jason Lloyd, PhD, PE
9:45 AM	Break	
9:55 AM	Modern Steel Bridge Corrosion Protection Strategies	Jeff Carlson, PE
10:35 AM	Cost Effective and Efficient Detailing for Fabrication of Steel Bridges	Randy Harrison
11:15 AM	Bridges to Prosperity & NSBA: Elimination of Rural Isolation, A Culture of Kindness	Jeff Carlson, PE
11:30 AM	Lunch Break (lunch not provided)	
1:00 PM	Integration of the Fracture Control Plan for Steel Bridges	Robert Connor, PhD, PE
1:50 PM	Improved Efficiency of Steel Girder Systems for Skew and Horizontal Curved Geometries	Todd Helwig, PhD, PE
2:40 PM	Break	
2:50 PM	NSBA Guide to Navigating Routine Steel Bridge Design	Jason Lloyd, PhD, PE
3:30 PM	When in Doubt, Don't Just Make Cross-frames Stout	Devin Altman, PE
4:15 PM	Steel Bridge Forum Conclusion	



Abstracts

State Bridge Engineer Address – Shane Kuhlman, PE, NMDOT

This presentation will provide an update on current research efforts being reviewed or recently approved through the AASHTO T-14 Structural Steel Design Committee and other comments by the State Bridge Engineer.

Accelerated Bridge Construction Using Steel – Mike Culmo, PE; CME Associates, Inc.

The presentation will focus on the options and benefits of using steel for Accelerated Bridge Construction. The basis of the presentation will be the 2018 AASHTO LRFD Guide Specifications for Accelerated bridge Construction. The provisions in the specification that are applicable to Steel will be discussed including Modular Deck Beams, Span-by-span construction using link slabs, and designs using Self-Propelled Modular Transporters.

Design Resources Every Engineer Should Know About – Jason B. Lloyd, PhD, PE; NSBA

The National Steel Bridge Alliance provides a number of free design resources that every bridge designer should be aware of. These tools are specifically developed to ease the preliminary design burden making the steel alternate design and estimate as simple and quick as possible. These tools include the Steel Span Weight Curves, the Continuous Span Standards, the Splice bolted field splice design spreadsheet, LRFD Simon line girder analysis software, and more recently, the IRM (Internally Redundancy Member) Evaluator spreadsheet. This presentation will introduce the audience to these free resources.

Modern Steel Bridge Corrosion Protection Strategies – Jeff Carlson, PE; NSBA

Corrosion protection is one of the more important decisions an owner makes related to their bridge. This session will highlight the current understanding of the pros and cons of the steel corrosion protection systems currently in use, including painting, metalizing, galvanizing, and incorporating corrosion-resistant steel grades such as 50W and 50CR. Jeff will also discuss relative cost implications of the various systems and provide an update on AISC-sponsored research aimed at optimizing the cost-benefit ratio for selecting between these corrosion protection systems in different environments.

Cost Effective and Efficient Detailing for Fabrication of Steel Bridges – Randy Harrison; W&W|AFCO Steel

This presentation will provide the audience with a number of recommended detailing practices to improve upon designs optimizing for efficiency during the fabrication process, which translates to savings for the contractor and owner. From material choice to corrosion protection systems, and from flange sizing to cross frame design recommendations, this presentation will equip listeners to design cost effective steel bridges.

Bridges to Prosperity – NSBA: Past, Present, and Future – Jeff Carlson, PE; NSBA

Mr. Carlson will provide an update on the NSBA-Bridges to Prosperity (B2P) partnership. Disruptions to the 2020 scheduled build in Rwanda put this program on temporary hold, but plans are spinning up again to revitalize and engage in this ever-important effort to improve the quality of life for people around the world, one bridge at a time.

Integration of the Fracture Control Plan for Steel Bridges – Robert J. Connor, PhD, PE; Purdue University

There has been considerable research and interest in the topic of fracture-critical members during the past decade. Through these advances, it is now possible to create an integrated FCP, combining the original intent of the 1978 FCP, with modern materials, design, fabrication, and inspection methodologies.

Improved Efficiency of Steel Girder Systems for Skew and Horizontal Curved Geometries – Todd Helwig, PhD, PE; University of Texas at Austin

The economy and efficiency of steel girder systems are significantly impacted by the ease of fabrication, erection, construction, and as well as in-service behavior. This presentation focuses on design and

detailing decisions that can improve the economy and efficiency of steel I-girder and tub girder bridges. For girders with skewed supports detailing decisions such as the use of lean-on bracing techniques, the use of split-pipe stiffeners, and girder proportioning will be highlighted. Improved details for the girder cross sections and bracing systems for steel tub girders will also be discussed.

NSBA Guide to Navigating Routine Steel Bridge Design – Jason B. Lloyd, PhD, PE; NSBA

The National Steel Bridge Alliance recently published a new guide to aide in the design of routine steel bridges. The free guide is intended to compliment the 9th Edition AASHTO LRFD Bridge Design Specifications. It illustrates which provisions of the AASHTO Specifications are applicable and not applicable to the design of these structure types. This presentation will introduce the audience to the new guide and how designers can take advantage of it.

When in Doubt, Don't Just Make Cross-Frames Stout – Devin Altman, PE; NSBA

Over the last few years, the steel bridge industry has seen a general increase in the size of cross-frames used in steel I-girder bridges across the country – in terms of both the individual members sizes and the connections themselves. Devin will address this design consideration discussing why cross-frames are trending larger, and why this creates inefficiency in design. Additionally, he will present on what designers can do to address the issue and ensure that cross-frames are sized efficiently.