NSBA Steel Bridge Forum - Oklahoma City

September 11, 2013
9:00 AM - 4:30 PM

Association of Oklahoma General Contractors
636 NE 41st, Oklahoma City, OK 73105

Sponsors/Presenters

W&W | AFSO STEEL
HIRSCHFELD INDUSTRIES
abs structural corporation
SHORT SPAN STEEL + BRIDGE ALLIANCE
M.A. Grubb & Associates, LLC
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## Abstracts

**Topics on Girder Design: Design Optimization, Application of LRFD Simon with Introduction to LRFD Simon - M. Grubb**

LRFD SIMON is a powerful line-girder analysis and design program offered by the National Steel Bridge Alliance (NSBA) to quickly produce complete steel superstructure designs in accordance with the AASHTO LRFD Bridge Design Specifications. The program is strongly dependent on the input data defining the starting design and control parameters selected by the user. A basic assumption is made that the user is familiar with bridge design and can select suitable starting designs, along with the necessary design parameters that are unaltered by the program. Starting from that point, LRFD SIMON quickly and accurately handles all of the structural engineering calculations required for the superstructure design. This presentation will introduce LRFD SIMON and provide guidelines for arriving at a suitable starting design that will allow the user to more effectively utilize the program to arrive at an optimum design of the steel girder elements.
Abstracts (Con't)

**Design Tools for Short Span Steel Bridges: Rapid Design using the new eSPAN140**
- M. Barker

Standardized steel bridge designs and plans significantly reduce design time, provide cost effective solutions, and increase construction efficiencies in the nation’s effort to repair and upgrade the bridge infrastructure. In addition, careful selection of cost-effective and practical bridge details increases steel producer, fabricator and contractor cost effectiveness for bridge projects. Coupling standard bridge designs with interactive web-based support allows bridge designers and owners to efficiently consider alternatives to meet bridge project needs. This presentation will include developed steel bridge design standards, sample design examples, and a preview of a web-based interactive support center of industry stakeholders for the practical implementation of standardized steel bridge designs.

**Virtual Shop Tour: A view of a Modern Steel Bridge Fabrication Shop**
- D. Noernberg

From raw material too finished girder, this session will provide attendees with a “virtual” tour and overview of a modern bridge fabrication shop.

**Bolted Splice Design Overview: Applying NSBA Splice Software**
- K. Frank

An overview of the design of bolted girder splice design will be presented followed by an introduction to NSBA Splice Design Software. The influence of bolt spacing and the moments and shear at the splice upon connection requirements will be examined.

**Effect of skewed Supports on Steel I-girder Bridge Behavior**
- M. Grubb

The presentation will a discuss the effect of skewed supports on the behavior of steel I-girder bridges.

**Advanced Engineering and Fabrication Processes**
- K. Frank / C. Garrell

This session will provide an introduction to Electroslag welding and its advantages for modern fabrication. Additionally, the application of virtual assembly for steel girder fabrication will be covered.

**Faculty**

**Michael G. Barker, Ph.D., PE**

Dr. Barker received his BS and MS in Civil Engineering from Purdue University and his PhD from the University of Minnesota. He was a Civil Engineering faculty at the University of Missouri-Columbia for 13 years before joining Civil & Architectural Engineering at the University of Wyoming in 2003. Dr. Barker has been a participating member of the AISI Bridge Task Force and Design Advisory Group and is a Bridge Technology Center representative to the Short Span Steel Bridge Alliance. His primary research pertains to steel bridges, experimental testing, bridge design specifications, bridge field testing, high performance steel and reliability analyses of structures.
Faculty (Con't)

Karl Frank, Ph.D., PE

Dr. Frank is widely regarded as one of the world’s foremost authorities on the design and behavior of structural steel bridges. As a researcher, Professor of Civil Engineering and Director of Ferguson Structural Engineering Lab at the University of Texas at Austin, he made extraordinary contributions to improving the understanding of the fatigue and fracture behavior of structural steel. In 2010, upon retirement from the University of Texas, Dr. Frank joined Hirschfeld Industries as Chief Engineer. There he is working on development of a virtual assembly of steel bridge girders, implementation of electroslag welding and fatigue evaluation of marking systems for fabricated steel. In 2011, Dr. Frank received the Lifetime Achievement Award from the American Institute of Steel Construction (AISC).

Christopher Garrell, PE, LEED AP

Garrell is currently the Southeast Regional Director for the National Steel Bridge Alliance (NSBA) where his responsibilities include supporting state transportation officials and design consultants on issues spanning the lifecycle of steel bridges. Prior to joining the NSBA, Mr. Garrell spent 12 years working for Bentley Systems where he was a Product Manager for Structural Engineering - BIM. Before joining Bentley, he was a Bridge Engineer with STV, Incorporated. He has a BS - Civil Engineering from the University at Buffalo, an ME - Software Engineering from Penn State and an MS - Systems Engineering also from Penn State.

Michael A. Grubb, PE

Mr. Grubb has approximately 33 years of experience related to steel-bridge design and steel-bridge-design specifications. Mike is currently a self-employed consultant. Mike has worked previously as a research engineer in the Structural Mechanics and Heavy Products groups at the U.S. Steel Research Laboratory, and has served as Assistant Manager of Bridge Engineering for AISC Marketing, Inc. He has also previously served as a Senior Steel Bridge Design Specialist for HDR Engineering, Inc., and as an employee of Bridge Software Development International, Ltd. (BSDi, Ltd.); a nationally known provider of advanced software for the structural analysis and design of steel bridges. Over his career, Mike has been involved in the development of Alternate Load Factor (Autostress) 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 Kingston

Founder of Melbourne, FL based abs Structural Corporation with over thirty years of experience in structural steel detailing.
Reference Links
abs Structural Corporation: http://www.abs-structural.com/
Hirschfeld Industries: http://www.hirschfeld.com/
National Steel Bridge Alliance: http://www.steelbridges.org
Short Span Steel Bridge Alliance: http://www.shortspansteelbridges.org/
W&W/ AFCO Steel: http://www.afcosteel.com/