

BRIDGES

Steel Bridge Analysis Guide Revised

A revision of *Guidelines for Steel Girder Bridge Analysis, G13.1 (2nd Edition)* is now available following final approval by AASHTO. The guide has been updated to reflect recent advances in the state of knowledge of steel girder bridge analysis, primarily associated with the completion of NCHRP Research Project 12-79 and the publication of NCHRP Report 725, *Guidelines for Analysis Methods and Construction Engineering of Curved and Skewed Steel Girder Bridges*.



These updates provide quantitative-based guidance on appropriate levels of analysis for steel girder bridges; discuss recommended improvements to the modeling of I-girder torsional stiffness and truss-type cross frame stiffness to increase the accuracy of 2D analysis methods; and present a new method for estimating I-girder flange lateral bending stresses in straight skewed bridges using 2D analysis. Also included are clarifica-

tions on the prediction of deflections and load rating analysis; recent recommendations addressing the impact of connection stiffness on cross-frame stiffness; and recent guidelines on global second-order amplification of structural response and narrow system stability analysis.

The work was developed by the AASHTO/NSBA Steel Bridge Collaboration Task Group 13, comprised of members of the analysis software, design consulting, DOT, fabricator, detailer, erector and academic communities. The Task Group made it their goal to identify appropriate analysis methods to provide sufficient refinement while avoiding the potential traps that can be associated with “over-analysis,” as well as guidance on how to use those methods properly. G13.1’s revisions continue the Collaboration’s mission of distributing standardized best practices of benefit to owners, designers and contractors.

This document is available for download through the NSBA website (www.aisc.org/nsba) on the AASHTO/NSBA Steel Bridge Collaboration page under Standards, as well as at AASHTO’s website (www.transportation.org).

3. Fabricators: Audit Date and Approval Notification to Management Representative for Quality (Certification Contact)

4. Erectors: Audit Date, Job Project Listings for Onsite Audit, and Approval Notification to Management Representative for Quality (Certification Contact)

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AISC Certification Begins Electronic Notifications

AISC Certification, in response to participant feedback, has started using email communications to notify participants during various stages of the certification process. Each notification is targeted to the appropriate staff contact as provided by the participant and recorded in the Certification Database. These targeted notifications will improve communication by having more than one staff member receive the audit date and invoice information.

Please note the following notifications will be sent from certification@aisc.org. Appropriate contacts will receive the following three critical notifications:

1. Audit Date and Invoice Informational Notification to Principle Contact
2. Invoice Notification to Accounts Payable

In addition, AISC will begin noting participant’s physical address on future certificates providing further clarity and transparency to the construction marketplace (including contracting authorities, specifiers and general contractors).

A Certification Bulletin for participants will be forthcoming, along with an article in *Modern Steel*. If you have additional questions, please contact AISC Certification at certification@aisc.org or 312.670.7520.

People and Firms

• **Michael A. West, P.E., F.ASCE**, has been named the 2014 recipient of ASCE’s Civil Government Award. West, the vice president and treasurer of structural engineering consulting firm **Computerized Structural Design** in Milwaukee, received the award for his service in elected and appointed office since 2000, his commitment to the civil engineering profession and his dedication to the local community.



• **ESAB Welding and Cutting** has acquired **Victor Technologies** and its leading equipment brands of Victor (torches and regulators), Victor Thermal Dynamics (plasma cutters), Tweco (MIG guns and accessories), Arcair (air carbon-arc gouging), Stoodly (hardfacing and specialty electrodes), TurboTorch (brazing and soldering) and Firepower (cutting and welding equipment for the retail channel).

• **Kurt Hoigard, P.E., SECB, F.ASTM**, recently became the president of engineering, architecture and forensics consulting firm **Raths, Raths and Johnson, Inc.** Already a



key leader of RRJ both as an engineer and principal for the past 29 years, he will be responsible for corporate

operations while continuing to serve clients as a project principal and industry expert.

NASCC

Get Ready for Nashville—Virtually, if not in Person

Need a reason to attend the 2015 NASCC: The Steel Conference? We'll give you eight:

Reason #1: Value

One low registration fee includes the keynote address, T.R. Higgins Lecture, SSRC sessions, the Bridge Track and new sessions on how to work on federal projects. Registration includes more than 100 technical sessions, two lunches and the Welcome Reception.

Reason #2: Networking, networking, networking!

You'll be hard-pressed to find a better conference where you can meet more designers and steel contractors; this is an opportunity to meet new colleagues and catch up with old friends.

Reason #3: Knowledge

Take advantage of this once-a-year chance to expand your knowledge in your profession by attending our dynamic, expert-led seminars.

Reason #4: Continuing education credits

Learn from leading structural steel experts while you earn continuing education credit. The main conference offers 16 PDHs, and you can obtain another 4 by attending pre-conference short courses. Learn about the latest trends and techniques, discover new solutions and much more.

Reason #5: Location, location, location!

Nashville is a great destination; easy to get to, inexpensive and fun. This year's conference is right in the heart of downtown, just steps from the Country Music Hall of Fame and the city's famous honky-tonks.

Reason #6: Fabulous keynote

This year's keynote is designed to explain why the generations are different and how to turn those differences into productivity. Hailed as a "leadership guru" by the *Washington Post*, Haydn Shaw will help you get the most out of the "texting" generation.

Reason #7: Chia-Ming Uang

This year's T.R. Higgins lecture fea-

tures Chia-Ming Uang from the University of California-San Diego discussing a flexibility-based design method for column stiffeners and their associated welds. This is a great opportunity to hear from one of the leading experts on seismic design.

Reason #8: The steel industry's largest exhibit hall

With more than 200 exhibitors expected, this is a great opportunity to learn more about the latest products ranging from structural engineering software to fabrication equipment. You'll see demonstrations of design software and machines cutting steel. And you'll see the latest in welding, bolting, coating and software technology.

Visit www.aisc.org/nascc to register or view an advance program. You can also download the NASCC mobile app at <https://crowd.cc/2015-nascc-conf>.

Can't make it to Nashville? Then consider the next-best thing.

AISC is offering virtual attendees the opportunity to view their choice of 12 sessions (out of 24 being streamed) and receive CEU/PDH credits.

While not quite the same as being there, it provides a good taste of the sessions at the conference. And it only costs \$225 for AISC members (\$350 for non-members), with each additional viewer from the same company paying only \$10.

This year's streaming sessions are:

Wednesday 3:15 p.m. - 4:15 p.m.

- What makes a Good Design Drawing?
- Innovative Collapse Prevention Systems for Seismic Effects

Wednesday 4:30 p.m. - 6:00 p.m.

- Learn the Tricks to Designing Joist Girder Moment Connections
- Vertical Bracing Connections—Analysis and Design

Thursday 8:00 a.m. - 9:30 a.m.

- 90 Seismic Design Ideas in 90 Minutes
- Weld Details—Good, Bad & Ugly

Thursday 10:15 a.m. - 11:45 a.m.

- Follow the Load Path to Avoid Unfortunate Consequences

- Alternate Methods to Connection Design

Thursday 1:15 p.m. - 2:15 p.m.

- Typical Practice for Atypical (Non-Uniform) Loads on Steel Joists
- Interactive Steel Quiz

Thursday 3:00 p.m. - 4:00 p.m.

- Flexible Moment Connections
- Roof and Floor Deck Diaphragms: Behavior and Design

Thursday 4:15 p.m. - 5:15 p.m.

- AISC Research: Protecting the Protected Zone
- The Art of Structural Drafting—Tips for Producing High-Quality Structural Drawings

Friday 8:00 a.m. - 9:30 a.m.

- Current Developments in the AISC Code of Standard Practice
- Design and Stability of Connection Elements

Friday 10:15 a.m. - 11:45 a.m.

- Are the Results of My First- or Second-Order Analysis Correct? (Is it me or my software?)
- Connections: Simple, Complex and Perplexing

Friday 1:00 p.m. - 2:30 p.m.

- Lean Steel—Applying Lean Thinking to the Structural Steel Project Delivery Process
- Sustainability 2015: What's New with Steel and Sustainability

Friday 2:45 p.m. - 3:45 p.m.

- Achieving Economical Long Spans with Composite Truss Construction
- Of Course It's Right, It was Done by Computer!

Friday 3:30 p.m. - 4:30 p.m.

- Working with Large Trusses
- HSS Design: New Codes and Material Specifications

To register for the streaming sessions from NASCC Live!, visit www.aisc.org/nasclive.

NSSBC

Student Steel Bridge Season Kicks Off

Fourteen university teams from Texas and Mexico gathered at the University of Texas, Austin, in January for the first ASCE/AISC Student Steel Bridge regional competition of 2015. The University of Texas, San Antonio, won first place; the Universidad Autónoma del Estado de México took second; and third place went to Texas A&M University.

Now in its 24th year, the competition brings together engineering students from across North America to assemble their own designed and fabricated steel bridges while striving for the shortest time under a specific set of building rules that change each year.

“It’s exciting to watch the next generation of structural engineers come together and work with such passion and enthusiasm,” said Nancy Gavlin, AISC’s director of education. “The competition poses real-world challenges that the students face with ingenuity and professionalism.

Even at one-tenth the size of a full-scale bridge, the experience is quite comparable to the real thing. Participating students apply engineering principles and theory, culminating in a steel structure that meets client specifications and optimizes both performance and economy. They also gain valuable practical experience in structural design, fabrication processes, construction planning, organization, project management and teamwork.

Students’ bridges are judged in the following categories:

display, construction speed, stiffness, lightness, construction economy and structural efficiency. The teams with the best combined rankings across all six categories earn overall award recognition.

Throughout the academic year, the student teams work for months perfecting the design, fabrication and construction of their bridges. To reach the national event, teams must place among the top performing schools in one of 18 regional competitions held across the country each spring. Last year, more than 200 schools competed in the regional competitions; 49 of them qualified for nationals.

The 2015 National Student Steel Bridge Competition finals will be held May 22-23 at the University of Missouri, Kansas City. For more information, visit www.aisc.org/steel-bridge or www.nssbc.info.



BOOKS

Book Highlights Best Tall Buildings

Highlighting the best tall building construction from 2014, *Best Tall Buildings: A Global Overview of 2014 Skyscrapers* chronicles the Council on Tall Buildings and Urban Habitat’s (CTBUH) annual awards process, which recognizes outstanding tall buildings and design innovations that advance the potential of integrated sustainability in cities around the world.

Every year, one winner is chosen from each of four geographical regions: Americas, Asia and Australasia, Europe and Middle East and Africa. The title of overall Best Tall Building Worldwide is then presented to one of the four regional winners.

The steel-framed Edith Green-Wendell Wyatt Federal Building in Portland, Ore., received the honor of Best Tall Building in the Americas. Sydney, Australia’s One Central Park was named the Best Tall Building Worldwide. The 75-story steel and concrete luxury apartment building’s striking helical shape turns 90° over the course of its 1,000-ft height.

The book is published by CTBUH in conjunction with IIT, Tongji University and Routledge/Taylor and Francis Group and is distributed internationally each year. For more information and purchasing details, visit the CTBUH store on its website, www.ctbuh.org.

letter to the editor

Glad for Good News

I enjoyed reading John Cross’ January economics article (“Happy New Year!”), which provided some insight on expectations for the structural steel market this year.

A few years ago when I was living in Maryland, I attended a dinner gathering at a D.C. engineers’ society meeting, where Cross talked on the same subject as the article. As you will easily recall, the mood of the economy and the steel market was very bleak at that time, and it was painful to listen to the gloomy outlook he very accurately presented; I don’t think he was able to provide even a kernel of hope for the foreseeable future. I was thoroughly disheartened at the time especially since it seemed that we had already suffered enough.

Thank you for circling back on this subject with this article. Not only is it a relief to see more positive numbers, but also a joy to have tangible signs that I can personally see “out the window.”

—R. Charles “Charley” Ireland, P.E., Ph.D.
Structural Engineer and
Senior Associate, SSOE Group